A glass globe sits on a patch of green grass. The globe is filled with water and contains a small green plant. The background is a soft, out-of-focus green.

**PROSPECTS OF  
SUSTAINABILITY:  
YESTERDAY, TODAY AND  
TOMORROW**

# PROSPECTS OF SUSTAINABILITY: YESTERDAY, TODAY AND TOMORROW

Ida D'Ambrosio

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名誉

*Meiyo*  
*Honor*

良心

*Ryoushin*  
*Conscience*

高貴

*Kouki*  
*Nobility*



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## PREFACE

*Giuseppe Acocella* \*

I am truly pleased — in my capacity as the Rector of the “G. Fortunato” Telematic University of Benevento, but also, considering the addressed topic, as a scholar of legal philosophy — to greet with satisfaction the completion of an important, in-depth, challenging, and substantial work such as the research that led to the publication of the volume *“Prospects of Sustainability: Yesterday, Today and Tomorrow”*. This achievement is thanks to the dedication of Professor Ida D’Ambrosio, who had the great merit of identifying expertise and willingness within the faculty of our university on the issues of sustainability, the environment, the right to the future, also involving scholars from other Universities.

Those who have the opportunity to analyze all the contributions, dense and numerous, that characterize the quality and essential nature of this collection of research and essays, will appreciate how the complex theme has been addressed, avoiding fashionable simplifications and trivializations that risk compromising the gravity of the problems investigated, and especially the paths skillfully traced and indicated. The studies, which I would like to highlight one by one, although I am compelled here to limit myself to a brief preface, range from the most directly scientific areas to those involving the definability of rights, from geopolitical aspects to economic-financial ones, from economic and ecological sectors (both traditional and innovative) to religious and moral influences, from the responsibilities of public administrations to persistence originating from Roman law, reaching up to the criminal protection of the right to the environment as a human right.

This concise overview alone is sufficient to clarify the completeness and disciplinary diversity that the volume attests to, further enhancing the richness of the expertise that the “G. Fortunato” University can boast of. This expertise extends not only to the fields that constitute and enrich the tradition of academic research and teaching but also to studies of more recent scientific and educational consolidation.

Therefore, the attestation of the high quality of scientific research provided by the volume makes the effort undertaken by a small telematic university to reaffirm its contribution to the excellence of university culture in our country even more significant. This volume is a testament to an achieved cultural and scientific level of high profile.

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\* Magnificent Rector of the Giustino Fortunato Telematic University, Benevento, Italy

# SUSTAINABILITY AS A PUBLIC INTEREST PURSUED BY THE P.A. THROUGH THE SO-CALLED “SOCIAL CLAUSES” OF PUBLIC CONTRACTS

Andrea Orefice \*

The first legislative texts dedicated to public procurement, such as the Royal Decree on public accounting of 1923, were inspired by the principle of greater savings for the public administration and therefore: a plurality of offers and choices that fell on the least expensive one, perhaps in relation to the quality.

These rules were part of a state context that would have radically changed over the decades, favoring greater attention to delicate issues such as labor protection, social solidarity, the environment, competition, the removal of obstacles, social development, health, culture, etc. This is thanks to our Constitutional Charter first, and then to the norms of supranational-community, euro unitary, and international rank, which have introduced provisions aimed at protecting these interests.

The combination of procurement contracts and cost-effectiveness of spending has therefore, over time, lost its uniqueness, becoming more and more relevant to the need to protect other equally relevant public interests, without neglecting the correct use of public resources (Avino, 2019).

Both at the community and national levels, it has been established in advance the need to stimulate competition between companies in the procurement field in order to guarantee the efficient allocation of resources and a better quality of public services as well as to stimulate economic growth and the creation of new jobs.

Subsequently, with the affirmation of the concept of sustainable development, or even sustainability, the will to use public contracts as tools of public governance for the pursuit of the broader objectives of environmental, social, and economic sustainability was affirmed. They took shape starting from the publication of the so-called “Brundtland Report” (also known as “Our Common Future”)<sup>1</sup> by the World Commission on Environment and Development of the United Nations Environment Program (UNEP).

According to a consolidated doctrine, free competition is guaranteed by legislative measures of protection in the proper sense, which have as their object the regulation of the acts and conduct of companies that negatively affect the competitive structure of the markets: competition, therefore, is defined in terms of competition “within the market”; it follows that the value underlying the constitutional discipline of economic activities is the freedom of competition understood as the result of the convergent presence, in a given sector, of a plurality of operators and of a legal discipline that predetermines the rules of game, valid for all to the same extent (Pace, 1997).

In defining the notion of competition, the Constitutional Court went further: on several occasions, in fact, it stated that the principle of freedom of competition also concerns:

*“misura legislativa di promozione, “che mirano ad aprire un mercato o a consolidarne l’apertura, eliminando barriere all’entrata, riducendo o eliminando vincoli al libero esplicarsi della capacità imprenditoriale e della competizione tra imprese” (per lo più dirette a tutelare la concorrenza “nel” mercato)”, e, inoltre, “misure legislative che perseguono il fine di assicurare procedure concorsuali di garanzia mediante la strutturazione di tali procedure in modo da realizzare “la più ampia apertura del mercato a tutti gli operatori economici” (dirette a tutelare la concorrenza “per” il mercato)”<sup>2</sup>.*

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<sup>1</sup> “The concept of sustainable development does imply limits — not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth. The Commission believes that widespread poverty is no longer inevitable. Poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfil their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes” (World Commission on Environment and Development, 1987, Part I).

<sup>2</sup> Corte Cost. 23 November 2007, n. 401.

In these rulings of the Constitutional Court, therefore, a notion of competition “*nell’accesso al mercato*” emerges, protected by the legal system: competition must be protected, in fact, even at the moment preceding that of the unfolding of the competitive game between companies, namely that of the opening of the markets.

These two visions of competition are not antithetical to each other, but complementary or, better, co-essential: competition, in fact, cannot ignore the opening of markets, which implies the elimination of barriers to entry and the reduction of constraints to the free unfolding of competition.

Considering both perspectives, the notion of “*concorrenza*” proper to our domestic law reflects that developed in the European context, which includes both the freedom of competition within the market (the core of which is represented by the provisions of Articles 119, c. 1, the Treaty on the Functioning of the European Union (TFEU), to which are added the prohibitions of anti-competitive behavior and state aid, pursuant to Articles 101, 102, 106, and 107, TFEU) and competition in accessing the market (Articles 26 and 56, TFEU) (Grottanelli de’ Santi, 1996).

More precisely, the notion of free competition “in access to the market” is expressed in the guarantee of the principles of the free movement of goods, the freedom of establishment, and the freedom to provide services (as well as the resulting principles, such as the principles of equality treatment, non-discrimination, mutual recognition, proportionality, and transparency).

The applicability of these principles to the public procurement market is undoubted, as it is explicitly provided for by recital No. 2, Directive 2004/18/EC (but also from recital No. 9, Directive 2004/17/EC), so that, for a correct approach to the issue of public procurement, it seems appropriate to study the internal regulations in the light of European principles competition, drawing indications not only from national jurisprudence but also from that of the Court of Justice (Costantini, 2014).

As for the objectives of social and environmental sustainability, however, the national law anticipated the European one. It is well known, in fact, that in our legal system the freedom of enterprise and, therefore, free competition, is not an absolute value, since it cannot be carried out “in contrast with social utility or in a way that could damage safety, freedom, to human dignity”. Freedom of competition which, therefore, according to the Judge of the laws, must be balanced with the needs of social utility, so as to legitimize interventions by the legislator aimed at conditioning the organizational choices of economic operators. Article 41 is proof of the modernity of our Constitutional Court. Article 41 is the result of a new type of state, the “*Stato sociale*” that is:

*“uno Stato che, pur conservando i tradizionali istituti giuridici della proprietà privata e della libertà di iniziativa economica privata, non li considera più come un “mito” dal valore intangibile e ritiene necessario intervenire nel settore dei rapporti economici per coordinare l’attività economica ed indirizzarla al raggiungimento di un maggiore benessere comune”* (Martines, 2011, p. 136).

The same reconciliation is not expressly provided for in the fundamental European texts dealing with the freedom of competition, but without this implying the intangibility of the fundamental principle. For example, Article 9 of the TFEU states that:

“In defining and implementing its policies and activities, the Union shall take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health”.

And having placed Article 9 at the beginning of the TFEU, in the part intended for the enunciation of the “Principles”, denotes the attention shown and the importance of the ruling. The reconciliation between the different principles expressed at the European level is guaranteed by the European judges by resorting to the criterion of proportionality, which legitimizes those interventions which, while having a restrictive impact on the freedom of competition, are aimed at the simultaneous realization of other important principles and objectives, including the protection of work and employment, the environment, etc.

The Procurement Directives of 2004 contemplated both in the motivating part — the “*Considerando*” — and in the actual legislative article the possibility of introducing direct clauses to the so-called environmental and social finalization of contracts.

Possibility implemented at national level with Legislative Decree No. 163/2006, called “*Codice dei contratti pubblici*” or “*Codice degli appalti*”, which in Article 69, entitled “*Condizioni particolari di esecuzione del contratto prescritte nel bando o nell’invito*”, provided that:

*“Le stazioni appaltanti possono esigere condizioni particolari per l’esecuzione del contratto, purché ... compatibili con il diritto comunitario e, tra l’altro, con i principi di parità di trattamento, non discriminazione, trasparenza, proporzionalità, e purché ... precisate nel bando di gara, o nell’invito in caso di procedure senza bando, o nel capitolato d’oneri. Dette condizioni possono attenersi, in particolare, a esigenze sociali o ambientali”.*

Norm to be read in close connection with Article 2 of the same Code, titled as “*Principi*”, which, after having indicated in paragraph 1 cost-effectiveness as one of the guiding criteria of the contracting authority, with the second paragraph compressed its scope by providing for the possibility of its subordination “*entro i limiti in cui sia espressamente consentito dalle norme vigenti e dal presente codice, ai criteri, previsti dal bando, ispirati a esigenze sociali, nonché alla tutela della salute e dell’ambiente e alla promozione dello sviluppo sostenibile*”.

The two Directives have been replaced with No. 23, 24, and 25 of 2014, dictated, respectively, for procurements in the special sectors, in the ordinary sectors, and for concessions. The European legislator, with Directive No. 24, reiterates that the fundamental principles relating to procurement are those contained in the “the Treaty on the Functioning of the European Union (TFEU), and in particular the free movement of goods, freedom of establishment and the freedom to provide services, as well as the principles deriving therefrom, such as equal treatment, non-discrimination, mutual recognition, proportionality and transparency”.

Recital No. 2, after reiterating the importance of public procurement for smart, sustainable, and inclusive growth, adds the need to revise the previous Directives “in order to increase the efficiency of public spending, ... and to enable procurers to make better use of public procurement in support of common societal goals”.

Therefore, with Recital No. 36, it is made clear that “Employment and occupation contribute to integration in society and are key elements in guaranteeing equal opportunities for all” (reiterating the favor for protected workers). Recital No. 37 states that:

“With a view to an appropriate integration of environmental, social and labour requirements into public procurement procedures it is of particular importance that Member States and contracting authorities take relevant measures to ensure compliance with obligations in the fields of environmental, social and labour law that apply at the place where the works are executed or the services provided”.

With Recital No. 104, finally, the possibility of imposing particular conditions for the execution of the contract is reaffirmed, provided that they are relevant and non-discriminatory.

The aforementioned principles were promptly implemented in the Delegated Law No. 11/2016 which gave rise to the current Public Contracts Code and in the same Code, approved with Legislative Decree No. 50/2016.

From the examination of the set of regulatory provisions of the New Code of public contracts, corrected and supplemented by Legislative Decree No. 56 of 19 April 2017 (which entered into force on 5 May 2017), it is evident the intention of the Legislator to fully implement fulfillment of the objective of creating “*gli appalti sostenibili*” in the context of the so-called “*finalizzazione ambientale e sociale degli appalti pubblici*” through the inclusion in public procurement of all three key aspects of sustainable development: environmental, social and economic (Bandini, 2017).

The boundaries of this policy are drawn:

- On the one hand, by the possibility of asserting social and environmental aspects in the context of public tenders, legitimately introducing compliance with environmental and social parameters in several phases of the tender procedure: now through an adequate configuration of the object of the contract, technical specifications and methods of execution; now among the elements of selection and/or exclusion of candidates; now finally among the offer evaluation criteria.

- On the other hand, it observes by the provision of Article 20 of Directive 2014/24/EU and by the text of the corresponding Article 112 of the New Code of public contracts, which refers to the so-called “*appalto riservato*” for protected workshops, social cooperatives, and their consortia, or to economic operators whose main purpose is the social and professional integration of people with



disabilities or disadvantaged people, or may reserve their execution in the context of protected employment programs, when at least 30% of the workers of the aforementioned laboratories, economic operators or programs is composed of disabled or disadvantaged workers.

In this regulatory context, particular attention should be paid to Article 70 of Directive 2014/24/EU and Article 100 of the New Code. Article 70 of Directive 2014/24/EU expresses its opinion on the legitimacy of the requirements of the tender notice or of the specifications that establish conditions for the execution of the contract dictated by social and environmental considerations and, in parallel, Article 100 of the New Code establishes the legitimacy of the conduct of the contracting authority in demanding particular conditions for the execution of the contract, relating, in particular, to social and environmental needs.

Despite its breadth, the aforementioned provision nevertheless requires that the environmental and social needs:

- are compatible with Community law and in particular with the principles of equal treatment, non-discrimination, transparency, proportionality, and innovation;
- are related to the subject of the contract;
- are specified in the tender notice, or the invitation in the case of procedures without notice, or any case in the specifications.

In the offer, the economic operators must also expressly declare that they accept the particular conditions, if they are awarded the contract.

The provision referred to in Article 100 of Legislative Decree No. 50/2016 incorporates what has already been clarified by the Supervisory Authority on public contracts (*Autorità Nazionale Anticorruzione*, ANAC) with the Opinion pursuant to Article 69, paragraph 3, of Legislative Decree No. 163/2006 of 19 January 2011, with which it was highlighted that the particular conditions for the execution of the contract do not only concern other needs pursued by the administration but above all environmental and social needs.

These, as highlighted by Recital No. 33 of Directive 2004/18/EC, “They may, in particular, be intended to favour on-site vocational training, the employment of people experiencing particular difficulty in achieving integration, the fight against unemployment or the protection of the environment. For instance, mention may be made, amongst other things, of the requirements — applicable during performance of the contract — to recruit long-term job-seekers or to implement training measures for the unemployed or young persons, to comply in substance with the provisions of the basic International Labour Organisation (ILO) Conventions, assuming that such provisions have not been implemented in national law, and to recruit more handicapped persons than are required under national legislation”.

The aforementioned directives have been specifically implemented with Article 3, paragraph 1, lett. qq) of the Legislative Decree No. 50/2016, which defined the social clauses as: “*disposizioni che impongono a un datore di lavoro il rispetto di determinati standard di protezione sociale e del lavoro come condizione per svolgere attività economiche in appalto o in concessione o per accedere a benefici di legge e agevolazioni finanziarie*” and Article 100 that:

*“le stazioni appaltanti possono richiedere requisiti particolari per l’esecuzione del contratto, purché siano compatibili con il diritto europeo e con i principi di parità di trattamento, non discriminazione, trasparenza, proporzionalità, innovazione e siano precisate nel bando di gara, o nell’invito in caso di procedure senza bando o nel capitolato d’oneri. Dette condizioni possono attenersi, in particolare, a esigenze sociali e ambientali”.*

Article 50 of the Code then provides that:

*“Per gli affidamenti dei contratti di concessione e di appalto di lavori e servizi diversi da quelli aventi natura intellettuale, con particolare riguardo a quelli relativi a contratti ad alta intensità di manodopera, i bandi di gara, gli avvisi e gli inviti inseriscono, nel rispetto dei principi dell’Unione europea, specifiche clausole sociali volte a promuovere la stabilità occupazionale del personale impiegato, prevedendo l’applicazione da parte dell’aggiudicatario, dei contratti collettivi di settore di cui all’articolo 51 del decreto legislativo 15 giugno 2015, n. 81. I servizi ad alta intensità di manodopera sono quelli nei quali il costo della manodopera è pari almeno al 50 per cento dell’importo totale del contrattot”.*

Before the entry into force of Legislative Decree No. 56/2017, Article 50 provided for the faculty and not the legal obligation to include specific social clauses in public tenders, including that of the taxable labor force which determines the reabsorption of the staff of the previous contractor of the service to the new contractor, in the application of the sector collective agreements referred to Article 51 of Legislative Decree No. 81 of 15 June 2015.

Article 50 stated in fact that:

*“i bandi di gara, gli avvisi e gli inviti possono inserire nel rispetto dei principi dell’Unione Europea, specifiche clausole sociali volte a promuovere la stabilità occupazione del personale impiegato prevedendo l’applicazione, da parte dell’aggiudicatario, dei contratti collettivi di settore di cui all’art 51 del d.lgs. 15 giugno 2015 n 81”.*

This approach was also shared by administrative jurisprudence. In fact, with sentence No. 231 of 13 February 2017, the Third section of the Tuscany TAR deemed *“corretta la specifica previsione del possibile inserimento nei bandi di gara della suddetta clausola con la specificazione che l’inserimento deve avvenire nel rispetto dei principi dell’Unione Europea”*, noting that:

*“la disciplina — art 50 del Nuovo Codice- non innova anzi inserisce nel testo di legge i risultati cui era giunta la giurisprudenza, giacchè la stabilità occupazionale, che è sicuramente un obiettivo normativo importante e un valore ordinamentale, deve essere promossa e non rigidamente imposta e comunque deve essere armonizzata con i principi europei della libera concorrenza e della libertà di impresa, così da escludere un rigido obbligo di garanzia necessaria della stabilità , pur in presenza di variato ambito del servizio a gara”.*

Of the same opinion was also the Tar Lazio, Rome, sect. 2 bis, 26 September 2016 No. 9927, according to which:

*“la corretta osservanza della c.d clausola sociale inserita nella lex specialis non impone alcun obbligo di assumere tutti i precedenti lavoratori con connessa attribuzione agli stessi di identiche mansioni, né comporta automatismo tale da inficiare la libertà dell’imprenditore nell’organizzare la propria attività di impresa, bensì impone semplicemente di assumere un numero di lavoratori tali da assicurare il servizio. La clausola sociale quale strumento per favorire la continuità e la stabilità occupazionale dei lavoratori, non può comprimere le esigenze organizzative dell’impresa subentrante che ritenga di poter ragionevolmente svolgere il servizio utilizzando una minore componente di lavoro rispetto al precedente gestore e dunque ottenendo in questo modo economie di costi da valorizzare ai fini competitivi nelle procedura di affidamento”.*

Article 50 in its new formulation has dissolved any doubts regarding the right to insert or not the aforementioned social clauses, replacing the *“può inserire”* (can insert) with *“inserisce”* (insert) and therefore providing for the obligation to insert the social clause for the reabsorption of labor.

Both Article 30, paragraph 3, which provides that: *“nell’esecuzione degli appalti pubblici e di concessione gli operatori economici rispettano gli obblighi in materia ambientale , sociale e del lavoro stabiliti dalla normativa europea e nazionale e dai contratti collettivi di lavoro, o, dalle disposizioni internazionali elencate dall’allegato X”* and Article 94, paragraph 2, according to which: *“la stazione appaltante può decidere di non aggiudicare l’appalto all’offerente che ha presentato l’offerta economicamente più vantaggiosa se ha accertato che l’offerta non soddisfa gli obblighi di cui all’art 30, comma 3”.*

Article 36, paragraph 1, on the other hand, configures an exemption for contracts with an amount lower than the Community threshold that:

*“l’affidamento dei lavori servizi e forniture di importo inferiore alla soglia di cui all’art 35 avvengono nel rispetto di cui agli artt. 30, comma 1, 34 e 42 nonché nel rispetto del principio di rotazione degli inviti e degli affidamenti in modo da assicurare l’effettiva possibilità di partecipazione delle microimprese, piccole e medie imprese. Le stazioni appaltanti possono, altresì, applicare le disposizioni di cui all’art 50”.*

In any case, as regards the obligatory nature of inserting the social clause for contracts above the community threshold, it should be noted that if the law is to be interpreted based on the fundamental literal canon combined with that of the ratio that inspires it, there is no doubt that the rationale of Article 50 is social inclusion and compliance with labor obligations established by European and national legislation, by collective bargaining agreements or by international provisions.

In the current legislation, it is possible to identify two types of social clauses concerning in general the labor employed in public procurement:

- those so-called “*imponibile di manodopera*” (taxable labor), (also called social absorption clauses, social protection clauses, or social safeguard clauses) which determine the reabsorption of the staff from the previous contractor of the service;

- those of the so-called “*inserimento lavorativo di soggetti svantaggiati*” (job placement of disadvantaged people) — referred to in Article 4, paragraph 1, of Law No. 381/1991; the Decree of the Ministry of Labor and Social Policies, 20 March 2013; and Article 2 of EU Regulation No. 651/2014 — which determine, pursuant to Article 5, paragraph 4, of Law No. 381/1991, for the successful tenderer to make use of the services provided for in the contract of disadvantaged people, to an extent not less than a minimum variable percentage (indicated by the contracting authority in the tender notice) of the total workforce of the awarded company, and with the adoption of specific recovery programs and job placement. In fact, this clause is accompanied by the specification of some procedural methods to which the contractor must comply in order to perfect the fulfillment of the obligation to employ disadvantaged people: that is, it must adopt specific programs of recovery and work placement which must be delivered to the administration within a period of 90 days from the date of conclusion of the contract and subject to its approval.

Furthermore, the social clause, as indicated by the constant interpretative direction of the ANAC, must be included, in compliance with the principle of publicity, also in the contract scheme, and not only in the special specifications, in the tender notice, and the tender regulations.

The partial derogation from competition that the social clause entails requires autonomous and adequate evidence of this by means of an express formulation that can be highlighted in all the tender documents.

According to the doctrine, the social clauses, which find legal justification in the so-called “*principio dell'utilità sociale*”, impose specific obligations on the contractors or concessionaires of public services in the phase of execution of the contract, which condition or limit the freedom of economic initiative and the principles of market economy, subordinating them to socially relevant collective interests.

It therefore follows the need for a careful balance between the principle of social responsibility and the opposing need to set a limit to its operation, by harmonizing the absorption of workers employed by the outgoing contractor with the organization of the company, chosen by the incoming entrepreneur. For this reason, the social clauses represent a fundamental lever in support of the economic crisis, as they pursue the objective of implementing employment policies for people in disadvantaged conditions.

Precisely to harmonize the institution with the principle of free competition, with Guidelines No. 114 adopted by ANAC with Resolution No. 114 of 2/3/2019 the non-absolute scope of the absorption obligation was reiterated, to be applied compatibly with the business organization of the incoming entrepreneur.

As part of the rules established by the *lex specialis* of the tender, both the taxable labor clause and the work placement of disadvantaged individuals may require an obligation to apply, by the winner of the tender, as they are limited within the limits of a particular condition of execution of the service; or an assignment of a score, subject to evaluation for the technical part, as part of the award criterion of the most economically advantageous offer, identified based on the best price-quality ratio.

In the latter case, it is not a question of satisfying a social need to be compulsorily fulfilled in the execution of the contract, but of carrying out a faculty, granted by the contracting authority to the tenderers, to formulate a qualitatively better offer.

The problem that arises is to establish whether the aforementioned social clauses can be provided for in the same tender notice at the same time, in a mandatory manner, for the execution of the contract, without affecting the principles of free competition and prohibition of discrimination, compatibly both with national and community law.

On this point, ANAC and administrative jurisprudence have expressed a very similar orientation. According to ANAC:

*“la previsione di un siffatto obbligo da parte della lex specialis di gara, appare giustificabile solo nei limiti in cui lo stesso sia imposto da specifiche disposizioni di legge o della contrattazione collettiva nazionale di riferimento [...] risultando, altrimenti, la clausola in questione senz'altro*

lesiva della concorrenza, scoraggiando la partecipazione alla gara e limitando ultroneamente la platea dei partecipanti, nonché atta a ledere la libertà d'impresa, riconosciuta e garantita dall'art. 41 della Costituzione” (ANAC, 2010).

Since the entrepreneur should be left free to choose to organize the workers to use in carrying out the organization of services without being bound by the re-absorption of the staff already in service:

*“l’obbligo di reperimento dei lavoratori dal precedente affidatario può essere consentito soltanto previa valutazione di compatibilità con l’organizzazione di impresa, nel duplice senso che sia il numero dei lavoratori sia la loro qualifica devono essere armonizzabili con l’organizzazione d’impresa della ditta aggiudicataria e con le esigenze tecnico-organizzative previste”* (ANAC, 2014b).

Such a reading of the clause in question still observes the ANAC:

*“sembra, peraltro, avvalorata da un recente orientamento giurisprudenziale che, anche in presenza di una clausola sociale introdotta nella lex specialis sulla base di specifiche disposizioni della contrattazione collettiva nazionale ha individuato un limite alla sua operatività nella possibilità di armonizzare l’assorbimento dei lavoratori che operavano alle dipendenze dell’appaltatore uscente con l’organizzazione di impresa prescelta dall’imprenditore subentrante (in tal senso v. Consiglio di Stato, Sez. V, 16 giugno 2009, n. 3900)”* (ANAC, 2010).

To what has just been considered, it should also be added that if in the same call for tenders, it is envisaged at the same time — and therefore cumulatively — in addition to the social clause for the reabsorption of labor, also that of job placement of disadvantaged people, both operating in the execution phase of the contract, according to ANAC this *modus operandi*:

*“si sostanzia in realtà in due distinte condizioni di esecuzione. La somma delle due condizioni appare particolarmente gravosa per l’impresa e restrittiva della libertà di iniziativa economica dell’impresa new comer. Pertanto, sarà onere della stazione appaltante riprodurre per ciascuna clausola la formula del rispetto della facoltà dell’aggiudicatario di valutare la compatibilità con la propria struttura operativa e organizzazione di impresa e, comunque, dovrebbe essere indicata una preferenza esclusiva dell’amministrazione per l’una o per l’altra clausola”* (ANAC, 2014a).

In conclusion, when the labor reabsorption clause is envisaged in the form of a reference to the current collective bargaining acts that protect the absorption of workers from the previous contract, ANAC recommends the contextual and, therefore, cumulative non-adoption of the social clause for the inclusion of disadvantaged individuals, inviting the administration to *“optare per l’una o per l’altra clausola senza prevederne una duplicità di condizioni”* (ANAC, 2014a).

If both clauses (for the reabsorption of labor and the job placement of disadvantaged people) cannot be cumulatively envisaged in the *lex specialis* of the tender during the execution of the contract for the reasons set out above, it is possible to legitimately insert, as an obligation, the purposes of the execution of the contract, only the clause of reabsorption of the workforce in application of the provisions of the relevant National Collective Labor Agreement (CCNL) or regardless of this. Nevertheless, in the same call for tenders, the social clause for the work placement of people in disadvantaged conditions can be cumulatively envisaged — in the form of a project for the work placement of disadvantaged people — not as a condition for the execution of the contract, but between the criteria subject to evaluation of the offer, thus making it an integral part of the technical offer and assigning it the relative score when evaluating the most economically advantageous offer, identified based on the best price-quality ratio. In fact, with the assignment of a score to the project for the job placement of disadvantaged people, an obligation to absorb disadvantaged labor is not imposed on the person awarded the tender in terms of execution of the contract, because it falls outside the scope of application of Article 100 of Legislative Decree No. 50/2016, but only a faculty is envisaged, for the parties in the tender, to formulate a qualitatively better offer than the entrepreneur has autonomously and according to a harmonization with the organization of his own company and with the technical-operational requirements specified therein.

As regards the clauses containing *“particolari condizioni di esecuzione di contratto”* aimed at pursuing environmental needs, in the Code it is possible to identify two types, both united by the fact that they leave a margin of discretion to the Public Administration.

The first type includes the so-called *“causole ecologiche o fisse”* (ecological or fixed causes), while the second ones are the so-called *“flessibili”* (flexible causes).

The fixed clauses include, for example, the technical specifications pursuant to Article 68, which establish the characteristics of a job, service, supply, and, among these, the environmental specifications, and the environmental certifications pursuant to Article 87, aimed at certifying that the economic operator meets certain quality standards.

The flexible clauses, on the other hand, leave a certain margin of discretion to the P.A. both in anticipating them and subsequently in applying them. A typical example in this sense is represented by the criteria, or rather, sub-ecological criteria, intimately linked to the general category constituted by the most economically advantageous offer, referred to in the new Article 95. In this case, the best offer presented, precisely because it is identified based on the best quality-price ratio, can make full use of the ecological clause starting from the “life cycle cost”, which is the most relevant in the light of the space to it. dedicated by the Code.

With this latter clause, based on the following Article 96, it is intended to evaluate for the purposes of the tender the costs related to the life cycle of a product, service, or work, including the costs of collection, disposal, recycling; those attributed to environmental externalities; those related to emissions of greenhouse gases and other pollutants; as well as other costs associated with mitigating climate change.

This gives the notion of price, in connection with the general criterion of the most economically advantageous offer, a new perspective linked to a temporal dimension that allows you to also give importance to the costs subsequent to the acquisition of a product, service, or work. A typical example is that of the so-called “*fine vita*” (landfill and recycling) or that of environmental externalities (emission and mitigation).

Particularly delicate will therefore be the specification in the tender documents of all the data that economic operators must enter when submitting the offer to specify the related costs, as well as the choice of the method that the contracting authority will use in order to determine them.

And it is here that one could run the risk of violating the principle of appropriateness (proportionality), due to the excessive organizational weight incumbent on both bidders and the public administration. The most important to consider is that the best offer is now identified, in most cases, based on the best quality-price ratio assessed concerning qualitative aspects of an environmental nature, albeit always connected to the subject of the contract.

It is important to point out, again in the context of the renewed criterion of the most economically advantageous offer, the inclusion of paragraph 10 bis of the same Article 95, by the very recent corrective: the contracting authority “*stabilisce un tetto massimo per il punteggio economico entro il limite del 30 per cento*”.

It is a clear (and further) enhancement of the qualitative elements of the offer. Furthermore, the criterion of the so-called fixed price, is referred to in paragraph 7 of the same Article 95, according to which “*L'elemento relativo al costo può assumere la forma di un prezzo o costo fisso sulla base del quale gli operatori economici competeranno solo in base a criteri qualitative*”.

It is worth noting that in order to use this award criterion in the context of green procurement, even more attention and competence on the part of the contracting authority will be required in determining the relative prices or rather costs of the contract.

Finally, we cannot fail to consider that in cases where the best value for money is adopted, the contracting authorities will be able to “*autorizzare o esigere*” (as the law states) the submission by bidders of variants to the final project based on the tender (Villamena, 2017).

In this sense, for the direct benefit of the participants and indirect or reflection of the contracting stations, the possibility of presenting different solutions from a qualitative, technical, and functional point of view is envisaged: the meaning and scope of application of the flexible ecological clauses is even more understood. As many clauses that lend themselves to being used as a prerequisite for enabling participants to develop eco-friendly solutions to mitigate environmental impacts.

In this context, aimed at specifying the scope of ecological clauses in public procurement, we cannot neglect to consider the contribution that the so-called “*criteri ambientali minimi*” (CAM), now recalled by Article 34 Procurement Code 2016.

The CAM (there are many Ministerial Decrees that have identified them) could represent as many points of reference for the purpose of their use in the tender documentation both as fixed clauses and as flexible clauses.

For example, consider the Ministerial Decree of 25 July 2011, on the subject of CAM for “*l’acquisto di prodotti e servizi nei settori della ristorazione collettiva e fornitura di derrate alimentari e serramenti esterni*”, as well as the Ministerial Decree of 22 February 2011 (textiles, office furniture, public lighting); of 7 March 2012 (energy services); of 24 May 2012 (cleaning services); of 13 February 2014 (toner, urban waste management); of 5 February 2015 (street furniture).

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# THE NEUTRALIZATION OF CO<sub>2</sub> AS A NEW EMERGING MARKET: THE ORCA CASE

*Caterina Aura* \*

**Keywords:** Sustainability, Energy Efficiency, Climatic Environmental

## 1. Introduction

Reykjavik, Iceland: here, between ice and volcanoes, a few kilometers from the center of the small capital, stands a plant that looks like something out of a science fiction film — two metal structures slightly larger than a common container cement, resting on four reinforced pillars. It is Orca and could represent an important step forward in carbon dioxide (CO<sub>2</sub>) capture technologies directly from the air: CO<sub>2</sub> is retained and subjected to some simple chemical processes, then it is injected into the subsoil where it solidifies into rock, thus avoiding that it can first or then get back into circulation again (Mantovani, 2021).

The Orca model today represents a valid, although still young, solution to the problems linked to environmental pollution that are afflicting the entire planet. This new model is a real challenge launched by its creators to the entire world scenario which today is increasingly problematic and affected by increasingly extreme, frequent, and devastating climatic phenomena. Many species are reacting to the change: some migratory birds change their arrival and departure dates year after year, the blooms anticipate, and the mountain species go, as long as they can, to high altitudes. Now no one has any doubts that major changes are taking place in the planet's climate and our responsibility. Trying to find possible solutions to the problem is complicated.

In the literature, there are numerous attempts and analyses to represent and devise new models that prevent the proliferation of phenomena harmful to the air and therefore to the environment. “Carbon dioxide (CO<sub>2</sub>) sequestration has been proposed as a viable technique to lessen the rate of climate change. ... Several modelling approaches have been proposed to properly model the fate of CO<sub>2</sub> after sequestration” (Mehana & Hosseini, 2018). CO<sub>2</sub> capture is an integral part of many industrial processes and, as a result, technologies have been used to separate or capture CO<sub>2</sub> from commercially available flue gas streams for many decades. The most advanced and widely adopted capture technologies are chemical absorption and physical separation (International Energy Agency [IEA], 2020).

Among those proposed the Orca model seems to be one of the most valid today but little known and realized because it is still too expensive. Creating such a model would bring various benefits to the entire planet which will be discussed in the chapter. Specifically, the Orca model is analyzed and described as an innovative method to reduce and contrast climate-changing CO<sub>2</sub> emissions. The Orca plant is today the largest carbon suction machine in the world.

The reasons justifying this analysis are different. Among the most important and urgent is that of being able to identify a way to offset and drastically reduce greenhouse gas emissions as envisaged by the European Union (EU) objectives which require us to achieve a reduction of at least 55% by 2030 with respect to 1990 levels, and achieve a climate-neutral EU by 2050, as envisaged by the Green Deal.

To achieve these goals, the EU will drastically reduce its greenhouse gas emissions and find ways to offset the remaining unavoidable emissions. Achieving a net zero carbon balance will benefit people and the environment and limit global warming. Unfortunately, the current data shows a daunting scenario, as CO<sub>2</sub> emissions levels are constantly and progressively increasing, and often finding a method to reduce the negative effects is really difficult.

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## 2. The Orca model: The implant

Orca is the name of the largest carbon capture machine ever built (Figure 1). Its purpose is to convert CO<sub>2</sub> into rock. It was launched in Iceland, where it has generated a lot of euphoria, but it is still not very clear if it really works as intended. Its construction cost reached \$15 million, as reported by National Geographic. It is designed to remove around 4,000 tons of CO<sub>2</sub> per year from the atmosphere, which corresponds to approximately 1.75 million liters of gasoline. Orca obtains CO<sub>2</sub> from the environment and injects it into the earth's crust.

The machine can be a pillar to create a greener environment with no harmful emissions for the atmosphere in the near future. Climeworks proposes itself as a project company engaged in the search for adaptable strategies to the needs of the global climate crisis. The system collects carbon dioxide by introducing the air into a collector that contains a filter substance. The process or operation (see Figure 2 and Figure 3) of carbon dioxide capture occurs in two stages and results from eight collection containers, which are metal boxes with the appearance of marine containers. Direct air capture technology works with giant fans that put ambient air in contact with an aqueous solution that captures carbon dioxide and pushes it into a trap. First, the air is drawn into the collector by a fan. The carbon dioxide trapped inside the collector is subsequently captured by the extremely selective filter material. Secondly, once the filter material is loaded, the manifold is closed and the temperature is raised to 80–100 °C to release the gas and collect the highly purified and concentrated CO<sub>2</sub>. The carbon then combines with water before being injected into the adjacent basaltic rock, where it petrifies, at a depth of 1,000 meters. At the other extreme, the machine releases clean air without CO<sub>2</sub>.

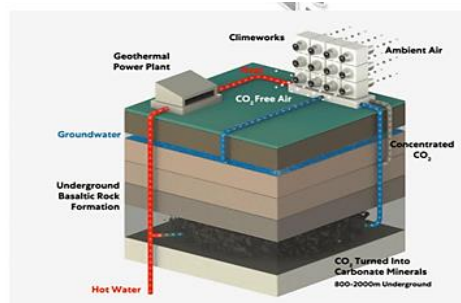
At present the company has set itself two objectives: 1) to build a plant 10 times larger than the Orca and 2) to make it work with other types of rock and with seawater so that it can be replicated in other places of interest far from water reserves.

**Figure 1.** Orca plant



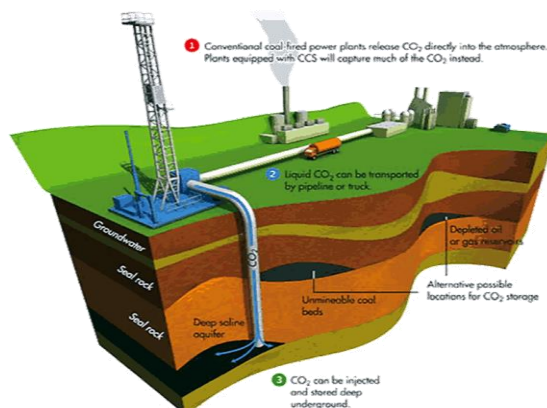
Source: [energycue.it](http://energycue.it)

**Figure 2.** The operation of the system



Source: [energycue.it](http://energycue.it)

**Figure 3.** CO<sub>2</sub> capture and storage



Source: [powerengineeringint.com](http://powerengineeringint.com)



### 3. The advantages

The study highlights the benefits and advantages that this new market could bring to the environment. First of all, the Orca method is advantageous because it is safe and fast, it tends to take advantage of the mineralization process, which occurs in nature over a few years, and among the positive aspects in its favor, is that there are no risks in case of fire or particular atmospheric conditions, as is the case with other alternative systems that attempt to clean the air such as reforestation or the development of biological processes.

Indeed, even if trees are natural carbon sinks that capture CO<sub>2</sub> through photosynthesis and store it in the trunk, branches, roots, and soil, unfortunately, the land available on the planet is not enough to plant the equivalent of trees needed to capture between 100 and 1,000 billion tons of CO<sub>2</sub>. Unfortunately, it is not even possible to guarantee that the amount of CO<sub>2</sub> removed is definitively and verifiable, since fires or deforestation can destroy trees by releasing CO<sub>2</sub> into the atmosphere. A second possibility is to resort to the so-called bioenergy, which consists in sowing fast-growing plants. But even in this case, more than 700 million hectares should be allocated to this type of plantation by 2050: an unrealistic scenario.

Since the construction and development of the same plant on other territories would require significant and huge capital investments, however efficient and useful, CO<sub>2</sub> capture is not yet a widespread technology on a large scale. The fight against global warming therefore in many cases still needs incentives and cost reductions before it can fully become a reality. We wonder if it makes sense to capture the CO<sub>2</sub> and pump it underground to avoid the greenhouse effect. According to a geo-economic study conducted by a team of researchers from Princeton University, it would seem so. Apparently, this procedure is not subject to significant losses, i.e., the release of CO<sub>2</sub> into the atmosphere, nor to the high costs associated with the prevention and repair of leaks. Different types of impacts were quantified: groundwater contamination, escaping into the atmosphere, and the possibility that the CO<sub>2</sub> leak could interfere with other underground operations, such as natural gas storage.

The results of the study show that the procedure is not subject to significant losses (release of CO<sub>2</sub> into the atmosphere), nor high costs related to the prevention and repair of leaks, levels of losses based on simulations on hypothetical carbon dioxide storage areas superimposed, which even in the worst case would not make the cost of technology prohibitive; Finally, the losses related to the CO<sub>2</sub> pumped underground are negligible because the losses are statistically insignificant and the costs of dealing with them are covered by the benefits.

### 4. Conclusion

At this point of the analysis, we can say that Orca is an innovative and useful method even if very expensive, and a candidate to become a very promising business model in terms of combating climate change, for the capture and storage of CO<sub>2</sub>; moreover, it makes sense to capture CO<sub>2</sub> and pump it underground to avoid the greenhouse effect, as from the first studies carried out it would seem a useful and often exploited technology that is gaining credibility.

According to various experts, the mechanical sequestration of CO<sub>2</sub> from the atmosphere is the only way to try to slow down the warming of the planet with a view to zero net emissions. If it is true that the transition towards a green industrial economy must be accelerated, it is equally necessary to provide for the removal of the CO<sub>2</sub> already emitted from the atmosphere.

The studies conducted include both the amount of the eventual loss and its economic implications. Among the studies conducted at the state of the art that of Princeton is quite satisfactory because it crosses a geophysical and an economic model. In fact, this makes us understand that if you only studied one or the other, you would not be able to learn what you have learned. This type of multi-disciplinary study is becoming increasingly important when it comes to solving thorny questions like climate change.

Even if today this attempt seems like a drop in the ocean, it remains the only one capable of removing the CO<sub>2</sub> produced by the planet in three seconds in a year, which corresponds to about 40 billion tons.

The data from this plant shows that if Orca grows at the same rate, by 2060 it could remove 5 billion tons of CO<sub>2</sub> from the atmosphere a year. The resulting benefits would be significant and higher than the models based on wind and photovoltaics because the latter are driven by the profit that derives from producing energy at lower costs. On the contrary, in a model like the one we are discussing, the objective of mitigating climate change is very uncertain and above all intangible. Consequently, it is necessary to have the support of policymakers, and politics.

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# THE PROJECTION OF SUSTAINABILITY IN THE FOUNDATION OF NON-HUMAN RIGHTS

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**Keywords:** Sustainability, Non-Human Rights

## 1. Introduction

Reflecting on any aspect related to or derived from sustainability is already a challenge in itself. And, although at first glance it might seem easy to discuss the issue, with a term almost turned into a common slogan, due to its application to all areas (economic, legal, political, social, environmental), a unitary meaning cannot be found and accurate. For economists it means “sustained acceleration”; jurists embrace the Brudlandt Report definition, and others send a negative message with the slogan “SOS development fearsome”. Possibly, the risk of such dispersion when offering a concept is of a practical nature, that everything pretends to be sustainable, causing a certain discredit of the term. It is necessary, therefore, to delineate some dogmatic constructions that seek other ends, and that do not have to be understood as the *longa manus* of sustainability, such as the expansion of rights holders to non-human subjects.

On the occasion of the irradiation of the paradigm of sustainability in all areas, but mainly in the environment, the provision of legal personality to nature and natural resources has been gaining adherents, beyond the Andean area. Such recognition of ownership of rights has given strength to propose other proposals to also provide animals, and even artificial entities such as robots, legal personality. A rich debate has been opened, of an interdisciplinary nature — civilists, legal philosophers, administrative staff, constitutionalists — on the issue of legal personification as a dilemma between people and things, both with regard to animals and artificial intelligence. It is a topic that, both currently and in the future, will acquire a greater presence in the debates in the legal, dogmatic, and philosophical field — the latter approach which will be the predominant one in this study — and of undeniable practical implications.

Here we propose to investigate whether the “paradigm” of sustainability and sustainable development influence that, in this alleged line of growth and improvement of the quality of life, the extension of the recognition of the ownership of rights to other subjects, to the non-humans (Flórez Ruíz, 2018; Ceballos Rosero, 2020), can be understood as a sample of that sustainability. The emergence of new forms of consciousness, one of an antispecistic nature and the other of a robotic nature, has given rise to the human being living with non-human objects/subjects to whom certain levels of emotional consciousness are recognized, which affects the socio-legal and ethical interaction, concomitant in every community (Belzunegui-Eraso, 2020). Several “isms” converge here (environmentalism, animalism, antispecism) that contribute to shaping new narratives — some will consider them utopian and others dystopian.

The legal status of non-human is the subject of increasingly visible debates and tensions. What was previously formulated as a hypothesis with very little legal viability, however, is currently gaining ground through positions that are in favor of this extension of rights. Without wanting to circumscribe it to the debate between anthropocentric and biocentric proposals, the starting point must be that the person is called to live in harmony and respect with other people, and also with nature, both for their own interest and good (Caldera Ynfante, 2020, p. 38) as for an ethic of responsibility. The proposals for this expansion of rights holders will inevitably affect the rights of human beings, in the theory of human rights, with the consequent danger of causing inflation in terms of rights holders — which would have a pernicious effect on what is really a right — and with proposals that there are rights without a subject (Vaz De Sequeira, 2017).

Some authors raise the debate about the cataloging of animals as a kind of *tertium genus*, between people and things (de Torres Perea, 2020). Others, perhaps from a conservative position, defend keeping them in their consideration as things, although special since they are sentient beings

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(living beings endowed with sensitivity) (Cerdeira Bravo De Mansilla, 2021). With regard to robots, in general, they are considered things, although unique, because in the future, perhaps not too distant, it will be possible to recognize them as legal personalities (Lacruz Mantecón, 2020; Cerdeira Bravo De Mansilla, 2021; Rogel Vide, 2018).

The recent recognition of the right to a safe, clean, healthy, and sustainable environment as an important human right for the enjoyment of human rights (Resolution A/HRC/48/L.23/Rev.1, of the Assembly General of the United Nations, published on October 5, 2021) has the potential to emphasize that the environment has not been configured as a subject of rights, but as a human right, insofar as it makes possible and facilitates the enjoyment of other human rights. Therefore, legally, it has not been considered essential to protect the environment to have to give it legal personality.

The present study, placing itself in the context of the sustainability/environment relationship, intends to examine whether it is possible to speak, from the theory of human rights, of non-human rights. With these assumptions, it will be examined whether nature and natural resources can be legally entitled to rights. It is not a question here of reviewing the various reasons put forward by those who defend the legal virtuality of the rights of nature or their respective replies. In this way, we will reach the core of the work, which is trying to establish the rights of non-humans, for which three arguments will be examined: the presence of emotivism in legal constructions, the prejudice of speciesism versus personism and, finally, the binomial of moral rights versus legal rights.

## 2. The debate on the attribution of ownership of rights to nature

The search for a formula capable of reconciling the human, environmental, and economic dimensions persists. In this context, nature and natural elements such as rivers, mountains, or glaciers have been recognized as rights holders — either constitutionally in Ecuador and Bolivia, legislatively in the State of Guerrero (Mexico), or jurisprudentially in Colombia. Also, this recognition of nature as a subject of rights has taken place in Common Law systems such as New Zealand and Australia. Even working groups have been formed to give certain rivers legal status (Berros and Colombo, 2017).

Starting in the nineties of the last century, concepts that go back, some to antiquity (Gaia), others, to the original indigenous populations (Pachamama) have been recovered. New principles have been designed — and, at the same time, political projects — such as “Buen Vivir”, in Ecuador and “Vivir Bien”, in Bolivia, which come to replace the notion of “common good” and the “state of well-being” (Montaño Galarza & Storini, 2018, p. 13). New approaches have emerged that rethink the relationships between human actions and ecosystems on Earth, in light of the role that the law must play as a regulator and limiter of activity and actions: the birth in 2001 of the Earth jurisprudence (jurisprudence of the Earth) (Bell, 2003, p. 73), the program of the United Nations General Assembly on Harmony with Nature and the establishment of permanent dialogues, both to know the progress of the experts in this regard as the legislative and jurisprudential about the rights of nature and the jurisprudence of the Earth.

Although all these novelties come together in the same line tending to recognize rights to nature, however, there is no single term to encompass all these novelties, which contributes to generating confusion and, sometimes, even misunderstanding and stupor and not only in the European context (Sánchez Parga, 2011, p. 43). As Berros warns, the discourse of “*Life in Harmony with Nature*” is a field of tension, of dispute (Haidar & Berros, 2015, p. 145). The Andean and Western worldviews coexist there, in a conflictive way, sometimes underhanded; good living and the model of sustainable development. The “harmony with nature” is associated with “sustainable development” in a subordinate way. Thus, the first appears as a “subtopic”, “context”, and “integrated approach” of the second. Resolution 64/196 decides to include in the program of its sixty-fifth session a “sub-theme” entitled “*Harmony with Nature*”, in relation to the “theme” entitled “*Sustainable Development*”, a subordination that is repeated in Resolution 67/214. The latter establishes that: “some countries recognize the rights of Nature in the context of promoting sustainable development”, and request that “holistic and integrated approaches to sustainable development be adopted”. He even subordinates himself to scientific advances: “... The time has come to adopt a new way of thinking, to develop an economic system centered on the Earth that integrates the scientific advances of the last 100 years” (Resolution A/67/317 of 2012).

This perplexity is typical of a paradigm shift, such as the one we are experiencing. And to dispel doubts, criticisms, and questions (Can nature be the subject of rights? And if so, should nature be the subject of rights?), several studies by conspicuous specialists have been directed (Stutzin, 1978; Acosta & Martínez, 2009). The fact of configuring nature as the holder of rights may be due to different justifications. Some will be utilitarian (to avoid or, at least, mitigate the unpredictable consequences that will occur if we maintain the anthropocentric predation system); others will be axiological (when the rights of nature are recognized, their own or intrinsic values are being admitted in nature itself) (Gudynas, 2011, p. 245) or of another tenor (some authors come to regret the denaturalization of the nature).

Be that as it may, it is a reality even in Spain. An example of this is the recent proposal for a Popular Legislative Initiative (ILP), promoted by Vicente Giménez (2020), to approve that the recognition of legal personality to the Mar Menor — the largest permanent lagoon in Europe (Murcia) — in the that nitrate discharges from agribusiness have led to the progressive eutrophication of the lagoon, and the loss of its rich terrestrial, aquatic and aerial biodiversity. The novelty of the ILP on the Mar Menor consists in treating a natural ecosystem not as an appropriable, consumable, and disposable “thing” by humans, but as a legal “person”, as a “subject of rights” that must be recognized and respected as such. If the Spanish Parliament approves the ILP, the rights of the Mar Menor could be defended before the courts of justice against the abuses of uncivil people, predatory companies, and corrupt public administrations since neither the existing regulations nor the mechanisms of guardianship have made it possible to offer the protection that was needed (Campillo, 2020).

These acknowledgments place us before a new reality that forces us to reflect on whether nature can be the subject of rights, and the first answer that arises is that we do not have such an answer but questions, doubts, and, at most, some intuitions. As Ávila Santamaría (2020) warns, we are facing an “epistemology of blindness” (p. 111) or before a hegemonic vision of human rights which Zizek (2005) calls “ideological padding” (p. 143). Now, between a rigid and controlling conception of human rights, and a theory of rights that subverts the categories apprehended throughout the legal tradition, it would be necessary to try to find an intermediate way, to which the following item is dedicated.

### **3. Arguments to support the rights of non-humans**

The relationships of human beings with respect to other living beings and natural resources are projected in diverse currents such as anthropocentrism, biocentrism, ecocentrism, speciesism, and others. All these positions are, in turn, influenced by the sustainability paradigm. Anthropocentrism is understood as the position by which the interests of human beings should be favored over the interests of non-human entities. Speciesism is understood as that position that defends the consideration and preferential treatment of certain individuals based on belonging to a species. The relationship between anthropocentrism and speciesism has been interpreted, in some cases, as equivalent concepts — which is not correct since there are cases of counterexamples of non-anthropocentric speciesism — and, in others, as the inevitability of anthropocentrism, which would supposedly justify the speciesism, but that is based on an ambiguity between epistemic anthropocentrism is wrong (Faria & Páez, 2014, pp. 96–97). In our opinion, it sheds more light on this approach starting from the relationship not between anthropocentrism and speciesism but between personism and speciesism, because it allows us to put the accent not only on the consideration of being human but on that of person.

Reference will be made to three arguments: the presence of emotivism in legal constructions, the prejudice of speciesism versus personism, and, finally, the binomial of moral rights versus legal rights.

### *3.1. Emotionalism as a pretext*

Cultural and philosophical paradigms — such as emotivism- and all-encompassing — such as sustainable development — end up converging and projecting themselves in the debate on the attribution of the ownership of rights to non-human elements.

Emotivism — as one of the stages in the moral history of the West — has been defined as the doctrine according to which value judgments and, more specifically, moral judgments, are nothing more than expressions of merely subjective feelings or preferences. For emotivism there is not, nor can there be, a rational justification for the norms. It is not possible to influence the behavior of others by appealing to objective criteria of truth, because such criteria do not exist. In the line of intuitionist philosophers — such as G. E. Moore or his disciple C. L. Stevenson — personal affections and aesthetic pleasures become the greatest assets we can imagine. This allows us to understand why animals or nature end up being exalted — by some sectors — to holders of rights. The expression of their preferences is disguised by an objectivity that is not possessed.

### *3.2. The bias of speciesism versus personism*

Following a work by Hierro (2016) on human rights, personality is broken down into three attributes: autonomy, responsibility, and self-awareness. It could be considered that only those who possess such attributes could be holders of rights, which leads to the assumption that these three attributes are only predicable of human beings. However, these three conditions cannot be applied to all human beings, and they produce what Wellman (1984) has called, the “monstrous conclusion” that children, still lacking autonomy, responsibility, and self-awareness, would not have human rights. For this reason, the theory of the will is not adequate to identify who are people.

If the so-called “theory of interest or beneficiary” is chosen, Hierro (2016) warns that an inverse problem of over-inclusion is generated, that is, that the door of recognition as right holders should be opened to entities that should not be. If moral rights are allowed to be attributed to individuals who lack moral agency because it is about guaranteeing the satisfaction of their basic needs to subsist and fulfill themselves then why not recognize those rights in favor of entities or individuals who are simply not human (animals, plants, nature)? Why do we give so much moral importance to “human” rights and not to the moral rights of anything? Without a doubt, this is what “species prejudice” consists of (Hierro, 2016).

The “prejudice of species” is presented in relation to all those entities that can be predicated that have interests, but do not belong to the human species and, only for this last reason, are excluded from the circle of human rights subjects (when it turns out that having interests is the morally relevant factor for the attribution of those). Even among the animals themselves, differences are established since, for some sectors, the great apes approach a level of cognitive sophistication close to what is characterized as moral agents, since they are considered to be capable of having preferences over their own preferences. Plants lack interest because, as far as we know, they lack mental states (Kagan, 2016, p. 7). Neither plants, artifacts, nor nature as a whole can be considered as having an interest in themselves.

Personism causes the person (and not the subject) to be placed as the holder of rights. Rodotà (2019) has manifested himself in this line, who is committed to abandoning the notion of the “subject” of law to embrace that of “person”. Precisely, the commitment to the notion of person is the trend at a European and international level. For example, it is used in legal texts such as the European Bill of Rights to emphasize respect for human dignity and the fundamental freedom of self-determination. While the subject is defined by his abstraction without considering the material conditions that surround him, the person immediately expresses the materiality of the relationships. In this way, dignity is reinforced, and with it the indivisible set of rights that make it concrete (Rodotà, 2019, p. 53).

The theory of responsibility — together with the theory of interest — makes it possible to complete this difference between speciesism and personism. Only people are capable of responsibility and only people can be held accountable. The key to sustainable development is the recovery of the imperative of the ethics of responsibility: “Work in such a way that the effects of your action are

compatible with the permanence of an autonomous human life on earth” (Jonas, 1979, p. 39). The human being is the only one who has responsibility. Precisely, that freedom and that responsibility for the decisions that are adopted could be the justifying elements of why human beings are the only holders of human rights.

In these discussions — more common in Latin America than in Europe — arguments intend to “extend the list of subjects of the rights, but which only show the expansion of their object” (Pérez Luño, 2006, p. 39). In this way, the cause, increased needs, and new forms of human sensitivity (which also affect human values and rights) are confused with their effect on the animate and inanimate natural environment. It is paradoxical to preach an animal “moral”, an animal “justice” or even animal “human rights” (Clark, 1977). Some proposals, such as those of Sue Donaldson and Will Kymlicka, have conceived a “humanimal” political theory. They try to establish principles and categories that cover all animals, from the domestic ones, considered “citizens”, to the wild ones, considered “inhabitants of sovereign foreign territories”. Kymlicka argues that “we can defend human rights without human supremacism and that the species hierarchy should be overruled” (Kymlicka, 2018, p. 765). It is intended to break down the legal division between people and things. We do not know simply about an expansion of rights but about the recognition of the existence of new consciences — as it is to consider animals living sentient beings and not things — which leads to wonder if they will also come to be recognized as non-human persons, as beings emotionally, robots such as companion humanoids and that act as caregivers.

We adhere to the thesis of Professor Pérez Luño, who has declared himself against a “hasty and uncritical admission as human rights” of various demands (referring to third-generation rights but which can also be applied to the subject under study) that they are claimed under such label, since “it would be equivalent to condemning the theory of human rights to areas of such darkness and equivocation that it would compromise their legal and scientific status” (Pérez Luño, 2006, p. 34).

### *3.3. Moral rights versus legal rights*

Given the difficulties for animals and other living beings in nature to be entitled to rights, it is worth considering whether, at least, they could be attributed to “moral rights” — an expression that is still paradoxical because it unites the field of moral with the legal, clearly different orders. We are not going to enter into the debate on the rights of animals, a topic that has been the object of analysis by prestigious specialists (Bellver Capella & Català I Bas, 1993). The very statement of “moral rights” gives rise to controversy because if they belong to the sphere of morals (“morals”), they do not necessarily have to be part of the legal sphere (“rights”).

In this sense, MacCormick (1998) argues that it is possible to recognize the existence of duties without corresponding rights, such as the duties of benevolence, since it is not the same to affirm that something should be done in favor of someone than to affirm that someone has a right. In MacCormick’s view, this is a moral difference (MacCormick, 1998).

We adhere to the theory supported by Hierro (2016), who states that: “It is neither necessary nor convenient to extend the ownership of moral rights of this type, the foundation of a just order, to any type of individual or collective entity that is not a moral agent or belongs to the same species as moral agents. The reason for this conclusion is based simply on the function that the invention of human rights tried, and continues to try, to fulfill” (p. 155). As iron maintains — human rights do not constitute and do not have to constitute a complete moral theory. Animals, the planet, nature, and the historical-artistic heritage must be protected and cared for, but for this “we do not need to devalue the language of rights until it loses its meaning and, what would be worse, its role in the design of a just political order”(Hierro, 2016, p. 156).

In addition to not extending the ownership of moral rights to nature, it also does not seem necessary to extend the ownership of legal rights. The right to live in a healthy and ecologically balanced environment is not a right that corresponds to the river or the mountain but to the human being, for which it is the human being himself who must provide the appropriate measures to legally protect such assets, both for the own care that these natural resources deserve as well as the direct impact they have on the well-being of the human being.

## 4. Conclusion

In all this debate beats that kind of fictitious and artificial opposition in which we want to place the rational human being (person) in front of other living beings (animals and nature). What is at stake is the very concept of human rights, as it may end up “dying of success” if such a category is to be extended randomly and with little rigor. The superiority of the rational human being over other living beings is not the reason that justifies that the human being is the only one to hold human rights (Ballesteros, 1989). It is not only a question of rationality but also of autonomy, of moral capacity, of the exercise of freedom, discerning why one decision is made and not another. It is not a question of being sentient (as in the case of apes or other animals). Living beings (vegetation, nature, animals) contribute to the human being’s own development and, at the same time, human beings have a moral (and legal) duty to protect them and not harm them. But this does not mean that these entities, necessarily, must be right holders. What has been stated so far allows us to conclude with four conclusions.

First, sustainable development cannot be understood in its full meaning and purpose if it moves away from the moral and ethical reasons that should support the respect, care, and protection of all other living beings (animals and nature). They are all part of a single entity of “the living” together with human beings. The end of sustainable development is essentially a moral end. And this, both because sustainability is a necessary condition for present and intergenerational justice and because such determination entails a set of moral commitments in the present, such as moderation of consumption and responsibility and solidarity with respect to those who have less (the Global North and the Global South).

Second, human beings are the only ones who are concerned about why they think what they think. They are the only ones (with respect to the other species) that — except for some exceptions — enjoy autonomy, responsibility, and self-awareness. And they are capable of having interests and purposes — beyond those of survival. These attributes of human beings do not mean that, due to their rational superiority, they use other living beings (animals, plants, nature) as mere objects of their property. Responsibility, duties, and obligations, together with principles, values, and rights make it possible not to fall into unsustainability. To this should be added that to act well and correctly — a sustainable ethics — we should adapt ourselves to the idea of what is correct and good to start with — utilitarian, communitarian, deontological ethics, naturalist (Velayos Castelo, 2008).

Third, leaving aside the fiction related to legal persons, the fact of having the capacity to feel or have subjective experiences, that is, to suffer and enjoy — the sentience — that is indicated by the defenders of extending rights to animals, cannot apply to non-sentient entities such as rivers or mountains, since they do not have the capacity to feel. There could even be a conflict between the rights of animals and the rights of nature in the case, for example, that there was a public action that caused suffering and/or threatened the life of certain animals that belonged to species considered invasive in order to restore a certain previous ecological balance. A strictly legal analysis will not allow to resolve this debate and it will be necessary to refer to a meta-legal analysis that resolves questions such as whether speciesism is morally justified, or what is the morally relevant characteristic that an entity must possess in order for it to receive the benefit of the legal protection of their fundamental interests.

Fourth, it is the theory of human rights itself that is affected by the expansion and extension of the ownership of rights to non-human subjects. The danger of the trivialization of rights, of discredit, of skepticism regarding their true value, endangers the achievements obtained after so much effort. Moral claims influence the law, but they are neither law nor are they identified with law. The attribution of rights to non-human entities must be put in the appropriate context (cultural and philosophical) to understand in due measure the reason for certain laws, constitutional designs, decisions in court, and doctrinal constructions. What mutations will the dogmatic notion of ownership of rights undergo in a reality in which subjective claims compete with non-human actions? What type of legal responsibility can be applied to non-human acts? The liberal theory of rights itself will have to review its own assumptions in order to face these new challenges.



Be that as it may, the image of the world can no longer be studied in isolation. We live in the age of systems, networks, and connections, and this is reflected in the very concept of law, which has surpassed the Kelsenian pyramid story. On the other hand, as Tegmark (2018) warns, one must be vigilant regarding the intended transition from homo sapiens to homo sentiens. All this configures a future of changes in which sustainable development is called upon to configure the development framework but without humanism and the value of the human being called into question.

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# NEURODEGENERATIVE DISEASES AND COGNITIVE INTERVENTIONS: WHAT IS THE FUTURE?

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**Keywords:** Cognitive Impairment, Dementia, Cognitive Rehabilitation, Telerehabilitation

## 1. Introduction

First of all, it should be clarified that when it comes to therapy for dementia, whether pharmacological or not, we are referring essentially to Alzheimer's disease (AD). Currently, a pharmacological treatment able to influence the pathological processes of AD does not exist (Kurz et al., 2012). Indeed, the cholinesterase and memantine inhibitors, which are the only medicaments available to the public, can improve some cognitive aspects and to a lesser extent some behavioural ones, but their clinical efficacy remains modest and however, limited to a reduced portion of patients (Kurz et al., 2012). Scientific research is increasingly focusing on the initial or even on the preclinical phases of AD; novel molecules that act on the pathogenic mechanisms (so-called "disease-modifying" drugs) have been studied, but the results are far from being definitive. In light of these considerations, the interest of researchers has therefore turned towards possible non-pharmacological intervention strategies (Bahar-Fuchs et al., 2013). The term "non-pharmacological intervention" refers to a broad range of interventions, directed at the patient, the caregiver, and the environment where the subject is living. It involves the use of several different methodologies ranging from the simplest ones, such as environmental modifications, to the most complex, such as new technologies, computer programs (García-Casal et al., 2017), virtual reality (VR) (Garcia-Betances et al., 2015), home automation (Gitlin, 2010). Obviously, these interventions are not influencing the physio-pathological mechanisms at the basis of the disease, which remain unchanged. The main purpose is an adaptation, in other words, the maintenance of the functionality of the subject as long as possible and the limitation of the progression of the disease, thereby reducing in the meantime the disability and improving the quality of life of the patients and their caregivers (Robert et al., 2014). Caregivers are known to play a crucial role and their involvement in the therapeutic process is essential. Since dementia is a chronic and progressive disease, it is evident that the needs of the patients and their caregivers change over time; consequently, the rehabilitative interventions will have to be modified over time and adapted to the different stages of the disease progression (Gitlin, 2010).

In this chapter, we will illustrate the principle rehabilitative interventions, such as physical exercise and motor rehabilitation, cognitive rehabilitation-stimulation, occupational therapy, complementary interventions of alternative medicine, and innovative interventions, based on a theoretically defined rationale and potential benefits. It will be clear, as a unifying consensus on the real efficacy of the various methods does not exist, but the issue is of considerable interest and it is open to future speculation. Finally, we will explore the future of rehabilitation, taking into account telerehabilitation.

## 2. Physical activities and motor rehabilitation

Robust epidemiological data reveal that better control of the most significant modifiable risk factors (diabetes, obesity, hypertension, high cholesterol level, low level of education, smoking, coronary heart diseases) has a protective effect on the possibility of developing cognitive impairment and could

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lead to a reduction of the 30% in the incidence of new cases of dementia (Ngandu et al., 2015). Furthermore, prospective studies show that regular physical activity can improve cognitive functions acting on neuronal plasticity and reducing the risk of development of AD or other types of dementia or, at least, delay their onset. Indeed, delaying the onset of the disease at a later age represents a desirable objective, both in terms of socio-sanitary costs and in terms of the quality of life of the patient, since the onset moves closer to the “natural” end of life and thus reducing the time of life the person lives with dementia (Kurz et al., 2012).

In patients with the already diagnosed disease, physical exercise improves the health status and well-being; a recent review of the literature confirms positive effects on activities of daily living (ADL), while the results on other aspects, such as cognitive functioning, behavioural disorders, mortality or the caregiver’s burden appear to be poor (Bahar-Fuchs et al., 2013). Since the interventions applied include a wide variety of techniques, ranging from aerobic methods (generally walking) to postural exercises, weight lifting, and resistance training, in the same way, the measures of assessment are heterogeneous (Ngandu et al., 2015). Numerous mechanisms have been proposed to explain the effects of physical activity at the cerebral level: improvement in perfusion through a reduction of the pressure, oxidative stress, inflammation, and an improvement of the endothelial function, facilitation of the neurogenesis and synaptogenesis, and finally an augmentation of the neuronal plasticity. These latter data have been confirmed by neuroimaging studies, which showed, in subjects doing regular physical activity, a reduction of age-related atrophy particularly in the frontal, parietal, and temporal areas that are crucial regions for cognitive functions (Domingos et al., 2021; Kirk-Sanchez & McGough, 2013).

### 3. Cognitive interventions

Despite the growing interest in this field, there is no unanimous agreement on the utility of cognitive interventions in AD, since we are dealing with a disease where the underlying pathological processes are in an inexorable and continuous evolution. As mentioned earlier, therefore the main aim is of a compensatory nature, based on the residual capacities, trying to help the patient and the caregiver to live with the disease and to maintain as long as possible a decent autonomy in daily life (Bahar-Fuchs et al., 2013).

Table 2 summarises the principal types of intervention. As can be observed, they range from simple compensatory prosthetic aids, and external supports such as agendas or diaries, useful especially for patients with less severe impairment, to more targeted interventions. Concerning the cognitive approach, it is necessary to make a distinction between cognitive stimulation and cognitive rehabilitation. Where, on one hand, the term “cognitive stimulation” refers to an approach based on offering enjoyable activities aimed at producing a global activation of thought processes, memory, and attention, usually in a small social context and without using specific cognitive modalities (Treiber et al., 2011). On the other hand, the term “cognitive rehabilitation” refers to a structured intervention focused on specific functions, using methods based on a well-defined theoretical construct (Kurz et al., 2012).

Cognitive stimulation includes different types of interventions, such as reality orientation therapy (ROT), validation therapy (VT), and reminiscence therapy (RT). ROT aims at reorienting the patient with respect to him or herself, to his or her personal history, and to the surrounding environment through repetitive and multimodal stimulations (verbal, visual, written, and musical). We distinguish an informal ROT, which consists of temporal and spatial facilitations in the environment of the patient (calendar, colour of rooms, easily interpretable signals), and a complementary stimulation including the sanitary personnel and the family members. While, there exists also a formal ROT consisting of daily sessions lasting 45 minutes, conducted in groups of 4–5 people, homogeneous by the severity of the disease, where the therapist uses standardized and targeted techniques to re-orient the patient. Whereas the VT does not aim to bring the subject back to the current reality, on the contrary, it aims to identify empathically with the patient’s world in order to understand his or her feelings, behaviours, and emotions, and it can be conducted individually or in small groups. Lastly, using materials from the patient’s life and historical period, RT helps the subject to retrieve a sense of continuity of his own personal history (Kurz et al., 2012). Among the different techniques, the ROT is, without doubt, the one used with larger enthusiasm by practitioners, also

because relatively non-specialized personnel can manage it. However, the best results seem to come from the integration of those different approaches in multimedia and multidisciplinary stimulation programs.

Cognitive rehabilitation is mainly focused on memory and its different components through techniques that use residual capacities. Because of the preservation of procedural memory for a longer time in AD, differentially from the episodic one, interventions using this function seem to achieve more likely positive results, facilitating the re-learning of skills necessary to maintain as long as possible a sufficient autonomy in daily life (Bahar-Fuchs et al., 2013; Kurz et al., 2012). Interventions can be divided into more specific techniques such as memory training and the subject-performed task, which use mainly procedural memory, and others, such as the spaced retrieval technique, the vanishing cue method, the errorless learning technique, and finally the visual imagery methods, which focus on some aspects of explicit memory, particularly encoding and retrieval of information (Bahar-Fuchs et al., 2013).

While several studies report the effectiveness of cognitive stimulation regardless of any pharmacological therapy, no significant results were found for cognitive rehabilitation; however, researchers agree that methodological problems, such as limitations of the study design and insufficiently sensitive assessment measures, could have prevented the observation of potential benefits and therefore they suggest the necessity of further investigations. An interesting approach, proposed by Law et al. (2014) shows a positive effect of the association between cognitive rehabilitation and physical activity.

Nevertheless, in order to have some effects, the rehabilitative intervention has to be proportioned to the severity of cognitive impairment; anyhow, regardless of the severity of the deficits, some general measures can help make the approach more effective: simplifying the tasks, establishing a regular routine, providing learning in specific tasks through repetition and positive feedback, informing and educating the caregiver. Multiple factors can influence and modulate the effects of the interventions of cognitive rehabilitation; the lack of awareness or the presence of behavioural disorders, particularly apathy, constitute negative factors; therefore, engaging methods for the patients must be provided (Bahar-Fuchs et al., 2013). Moreover, cognitive reserve is an important factor since rehabilitation relies on alternatives and mostly preserved circuits to modify cerebral processes. Thus, a good cognitive reserve can facilitate these effects (Treiber et al., 2011).

Finally, it has to be mentioned the relevance of modifications to the living environment of the patients in order to guarantee their safety, compensate as much as possible memory deficits and especially orientation, simplifying paths, and avoiding stressful and repetitive stimuli.

**Table 1.** Principle approaches of cognitive rehabilitation and stimulation

<i>External supports</i>	<i>Prosthesis support</i>
Cognitive intervention — Cognitive stimulation	Reality orientation therapy (ROT)
	Validation therapy (VT)
	Reminiscence therapy (RT)
Cognitive intervention — Cognitive rehabilitation	Memory training
	Subject-performed task
	Spaced retrieval technique
	Vanishing cue method
	Errorless learning technique
	Visual imagery method
Innovative interventions	Telerehabilitation
	Virtual reality (VR)
	Techniques of transcranial stimulation (TMS, tDCS)

#### 4. Occupational therapy and daily activities interventions

The fulfillment of functional activities during daily living for as long as possible, even when relative, is a crucial goal for patients with dementia and caregivers. Occupational therapy employs a combined approach, including environmental changes, compensatory aid, problem-solving strategies, and caregiver education (Bahar-Fuchs et al., 2013). Previous studies report positive effects not only on

functioning and quality of life but also on behavioural impairment, improving awareness and reducing negative communication. Some practical recommendations must be followed: the rehabilitation plan must be built for every specific patient, as well as the compensatory strategies, which must be implemented accordingly to the specific needs; suggestions and support must be clear and settled; the participation and education of the caregiver are essential in order to move forward the program. Occupational therapy is contained within the recommendations of several guidelines for the management of dementia patients (Bahar-Fuchs et al., 2013); further investigations are necessary to describe better methodological aspects.

## **5. Complementary interventions of alternative medicine**

These kinds of interventions have been increasingly applied in the last decade for a broad spectrum of pathologies, including dementias. They are especially employed for patients with behavioural symptoms, and involve aromatherapy, music therapy, art therapy, massages, and touch. Potential positive effects include relaxation, sleep improvement, and a reduction of depressive and eventual painful symptoms. However, the evidence in the literature is lacking, also to methodological limits. Music therapy seems to possess a stronger rationale compared to the other methods (Ueda et al., 2013). Neurophysiology and neuropsychology offer a theoretical basis proving how music exerts its effects at the cerebral level, involving cortical and subcortical areas, in particular, limbic and paralimbic areas designated to emotional processes. From a strictly psychological point of view, music eases communication and emotional expression; furthermore, it stimulates motor function, which can be used in rehabilitation treatments, for instance in Parkinson's disease (Ueda et al., 2013). Besides, people with dementia are able to appreciate music, and this ability can be still well preserved in advanced stages of the disease when verbal communication is reduced or even disappeared. Nevertheless, recent reviews of the literature underline methodological limits and lack of experimental rigour, therefore emphasizing the issue of specificity of music's effect compared to other similarly pleasant activities (Ueda et al., 2013). Regarding massaging techniques, physiological models suggest that this might have a calming and reassuring effect, and the following production of oxytocin reduces agitation and discomfort feelings, improving the mood. This can influence some parameters, such as lower breathing, cardiac frequency, and blood pressure while increasing body temperature (Remington, 2002). However, overall, for all the different considered types of approach, there is too little experimental evidence to draw conclusive results, and further studies constructed with a stronger methodological rigour are needed.

## **6. Innovative interventions**

In recent years, there has been a proliferation of various innovative technologies in the dementia rehabilitation field, including telerehabilitation (TR), neurostimulation techniques, and Virtual Reality (VR). Traditionally, cognitive rehabilitation programs take place in hospital settings, which could bring some limitations regarding time, costs, and patients' accessibility, reducing programs' provision outside the clinical setting. A possible alternative in order to overcome these limits is TR, which could be defined as the set of instruments and protocols aimed at providing rehabilitation at a distance through computer-based cognitive training. This approach provides patient-tailored interventions that can be easily delivered not only in-person but also remotely, at patients' homes. TR can be considered a useful tool in the management of chronic diseases including those related to aging, such as dementia and other neurodegenerative disorders. In addition, a user-friendly design of TR platforms, tailored according to patients' needs and monitored by the therapist, is advisable to overcome some possible constraints, such as poor informatics skills or hearing, vision, and cognitive impairment that patients. Furthermore, there is evidence that cognitive TR is a valuable methodology, with comparable effects on treatment in hospital settings in terms of global cognitive performance and can produce benefits such as autonomy, mood, and self-efficacy in patients, with consequent positive effects on the caregiver (Bernini, Stasolla, et al., 2021). In this field, in recent years, we improved a computer-supported cognitive training program (Cognitive Rehabilitation — CoRe — software) for in-person sessions, developed within a research project between engineers and clinicians (Bernini et al., 2019,

Bernini, Panzarasa, Barbieri, et al., 2021; Rodella et al., 2022). Following the encouraging results observed in the hospital setting, we recently developed a TR version of CoRe that allows the provision of treatment at patients' homes: HomeCoRe, home-based Cognitive Rehabilitation software (Bernini, Panzarasa, Sinforiani, et al., 2021; Bernini, Stasolla, et al., 2021). This software can be considered a useful support for home-based cognitive rehabilitation in neurodegenerative diseases, through a patient-tailored intervention aimed at stimulating several cognitive abilities (for instance logical-executive functions, attention/processing speed, working memory, and episodic memory) through a series of sessions of exercises remotely planned. Besides, this could extend the duration of the rehabilitation treatment of inpatients beyond the hospital discharge. Hence, HomeCoRe could be incorporated into clinical routine practices as a complementary non-pharmacological therapy to contrast cognitive impairment and dementia directly at home, also when needed to extend the duration of cognitive programs started in the hospital setting and to reduce the dropout rate. The availability of effective and feasible TR modalities could address the paucity of healthcare personnel dedicated to cognitive rehabilitation within the neuropsychology services, thus increasing the offer to a wider population.

In addition, TR can use different types of technologies, therefore not only ad-hoc development software but also sensor-based technology, tele/video-conference, or virtual reality. Programs of cognitive rehabilitation based on VR, meaning that include a stimulation mediated by a computer, with the possibility to see, hear, manipulate, and interact with artificial surroundings, must be mentioned (Garcia-Betances et al., 2015). Such techniques are designed for physical rehabilitation, cognitive rehabilitation — acting on various functions, such as memory, attention, and executive functions — or both (García-Casal et al., 2017). In particular, VR rehabilitation programs, stimulating patients from both a physical and cognitive point of view, can also have a positive impact from a social and emotional perspective, for example improving mood and increasing positive emotions in patients. In wider terms, the VR application can offer multiple advantages linked to the possibility of creating individualized and adaptive interventions, in order to remotely follow the patient while monitoring their progress, as well as aim for a wider transferability of benefits in the everyday context, thanks to their high ecological validity (Garcia-Betances et al., 2015).

Finally, transcranial stimulation techniques must be mentioned among innovative interventions, most notably TMS (transcranial magnetic stimulation) and tDCS (transcranial direct current stimulation). TMS is a non-invasive method based on an electric current induction in the brain tissue, which can stimulate the brain's neural tissue (including the cerebral cortex, spinal nerves, and cranial and peripheral nerves) through an external magnetic field. TDCS is a method that can induce functional changes inside the cerebral cortex, consisting essentially of applying electrodes on the scalp, which deliver a low-intensity continuous current influencing neural functions (Hsu et al., 2015). The transcranial stimulation can induce cortical plasticity modifications that last besides the stimulation time. This can be applied alone or in combination with cognitive rehabilitation programs, which seems particularly useful to enhance the consolidation of learned abilities (Cotelli et al., 2012; Prehn & Flöel, 2015). As a matter of fact, there are various pieces of evidence showing the benefit of stimulating the left prefrontal cortex, which is involved in both learning processes and the application of memory strategies (Cruz Gonzalez et al., 2018; Miniussi & Vallar, 2011). Although the numerous evidences regarding the safety and efficacy of non-invasive cerebral stimulation techniques in dementia patients, more studies are necessary to identify which subjects could better respond to this kind of intervention, as well as to evaluate the actual functional changes induced by cortical reactivity (Hsu et al., 2015).

## 7. Conclusion

This chapter aims to review the main rehabilitation interventions for dementia. It seems clear that, to date, various rehabilitation intervention possibilities can be mentioned, and they must be adapted based on the level of the patient's impairment and the disease's progression. However, these interventions despite their extensive use in clinical practice, in most cases still do not have support and definitive guidance, based on the clinical field's results (Bahar-Fuchs et al., 2013). Their wide diffusion, the care workers' familiarity with these approaches, and the positive results that have been empirically obtained encourage their usage, with the ultimate goal of allowing the patient, and

consequently, the caregiver, to reduce the disability with a relevant impact in making the quality of life better. In this field, it should be noted all advances that innovative interventions can provide in order to extend these rehabilitative possibilities to a wider range of patients. In fact, due to the increase in the aging population, we are witnessing a steady increase in the number of older adults at risk of developing cognitive decline with a consequent increase in the economic burden on health care. Therefore, the World Health Organization's (WHO) Global Action Plan on the Public Health Response to Dementia 2017–2025 recommends taking global action against cognitive decline and dementia, encouraging governments worldwide to focus on prevention and improving healthcare services (WHO, 2017).

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# INNER AREAS AND ENVIRONMENTAL SUSTAINABILITY IN ITALY: A CASE STUDY IN CAMPANIA REGION

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**Keywords:** Inner Areas, Sustainability Environmental, Territorial Capital, Local Community, Campania Region

## 1. Introduction

The pandemic phenomenon has led to the emergence of alternative solutions to the logic of agglomeration, and has led some scholars to theorize that in the future there could be a regeneration of small and medium-sized areas: a thought that goes against all the estimates of the last 50 years (Bonomi & Masiero, 2014). And so the debate on inland areas<sup>1</sup>, especially due to the health crisis caused by the COVID-19 pandemic and the resulting economic and social fallout, has become topical again and very much alive, even at the government level. The theme of Italian areas that are difficult to access, fragile in terms of structures and infrastructures (especially digital), unstable, often depressed, weak<sup>2</sup>, and, in many cases, poor with low productivity and reduced employment, with archaic ways of life and production, as opposed to a significant wealth of rare and precious environmental and cultural values, led to the drafting of the National Strategy for Inland Areas (SNAI).

Inland areas are defined as “fragile” from a socio-demographic point of view linked to demographic ageing. They are unstable from an environmental, physical, and eco-systemic point of view, due to high hydrogeological instability, loss of biodiversity, and a slow but cumulative process of degradation of landscape values.

Faced with this situation, some municipalities have launched cooperation processes, involving local communities, for the production of essential services, and the protection of environmental and cultural resources in order to enhance them.

At the same time, other inland areas have generated good policies and good practices, many of them located in the central-northern area of the country and a few in southern Italy, which have made it possible for the population to remain in their places of origin<sup>3</sup>.

In general, however, inland areas are not synonymous with depressed or poor areas, since national public policies, such as the strengthening of the welfare state and the promotion of local development projects, have made it possible in some realities to achieve an adequate level of per capita income. These are areas in which, although there is considerable territorial capital (buildings and settlement systems, arable land, practical knowledge, landscapes, and ecosystems), it is not possible to create a virtuous circle capable of enhancing the considerable tangible and intangible heritage available to local communities. On a political level, the SNAI, since 2013, created as an experimental territorial policy within the framework of the 2014–2020 EU Programming<sup>4</sup>, has proposed to overcome the previous redistributive logics in order to test a new intervention model conceived according to place-based policies of territorial cohesion, of resources based on places and communities.

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<sup>1</sup> The definition of “inner areas” is the source of an extensive discussion by academic and ministerial sources, both on a European and Italian scale, and professionals in the sector that has been enriched by further contributions, all of them interesting, such as in European Network for Rural Development (n.d.), Ietri and Pagetti (2019), and Dipartimento per le Politiche di Sviluppo (DPS, 2014).

<sup>2</sup> Slightly less than 25% of the Italian population can be considered as suffering from “social weakness” as survival is ensured by public transfers, pensions, employment in minor local activities (Persi & Ugolini, 2017).

<sup>3</sup> Some good sustainable practices in our country are reported in Legambiente (2022).

<sup>4</sup> This phenomenon was particularly serious in the 1970s and 1990s, especially in the last quarter of the 20th century, when the differences and specificities of the various regional areas defined as inland were rediscovered, even within a “leopard-spot” *mezzogiorno*, and the need to support development starting from local identities was re-evaluated, as opposed to the application of homologating top-down intervention models, the result of a general rethinking of development mechanisms underway since the end of the 1970s (Cencini et al., 1983; Dematteis & Governa, 2005; Sommella, 2017, p. 77).

The aim is to control demographic problems and relaunch the inland areas, starting with the improvement of essential services, governance, active protection of the territory, enhancement of natural and cultural resources, revival of local production chains, and improvement of digital infrastructures. SNAI has selected 72 areas in which to test the national strategy in order to identify the most suitable interventions in view of the specificities of the territories<sup>5</sup>, to stimulate growth processes<sup>6</sup>.

## 2. The “strategy” for the development of inland areas

In the European and international panorama, Italy is recognised for its extraordinary polycentrism<sup>7</sup> and for a wide and diversified network of small and medium-sized inhabited centres, which have a significant potential for economic development, from which policies have not been able to take adequate advantage. For this reason, the “Strategy for Inner Areas”, its gradual, integrated, and monitored approach, can change the state of the art, improving the quality of life of residents, making a useful contribution to national development, and participating in the EU’s objective of territorial cohesion.

Inland areas are defined as those areas that are far from centres and have essential services such as schools, hospitals, and transport. According to studies drawn up by the Agency of the Ministry of the South and Territorial Cohesion (*Agenzia del Ministero del Sud e della Coesione Territoriale*), whose technical reference documents must be implemented by the individual Italian regions, a quarter of the Italian population lives in inland areas, which account for more than 60% of the total national territory and include more than four thousand towns (DPS, 2014).

Since the Second World War, inland areas have suffered a strong marginalization process due to the lack of interest in institutions, with a consequent decrease in the investments allocated by the national government instead of directed towards urban and coastal areas. This has led to a decrease in population, an ageing population, a contraction of job opportunities, poor land use, and the availability of essential public services.

Inland areas must now be considered a “national issue”, because they also have a significant impact in terms of the social costs caused by the poor maintenance of the territory needed to contain hydrogeological instability. Further elements of land fragility derive from the loss of biological diversity and the dissipation of practical knowledge, i.e., *savoir-faire*. The priority objective is therefore to reverse negative demographic trends, reduce emigration from these areas, and attract new residents, including younger ones. From a national perspective, other problems of inland areas concern the low degree of accessibility to basic services — health, education, mobility, and, last but not least, virtual connectivity. The limited accessibility of essential services, as they are considered in Europe, identifies the “right of citizenship”, greatly reduces the well-being of the local population, and restricts the opportunities of individuals — even potential new residents. The inland areas must be considered as an evolving territorial system that is integrated on a national scale and concerns economic, social, and cultural aspects. Consequently, any development strategy aimed at the country’s inland areas as a whole must be measured against a global analysis and assessment of the economic, social, and environmental scenario, which requires special attention from public intervention. A systemic approach requires an in-depth analysis, first of all at a general level, and then on to the identification of the perimeters of the inland areas which, on a regional scale, require particular attention. Once the local specificities have been identified, different actions must be calibrated for the various territorial sub-systems. The identification of the differences between the local systems of the internal areas is the first step toward the recognition of their complexity. The relationship between “environment” and “economy” which for centuries has characterized the internal Italian areas has led

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<sup>5</sup> The objectives indicated by the SNAI are in synergy with the Law No. 158 of 8 October 2017 (so-called “Small Municipalities” law), which framed the phenomenon of depopulation of inland areas within a strategy of regeneration of small municipalities.

<sup>6</sup> The Union of Municipalities, governed by Legislative Decree No. 267 of 18 August 2000, is an “entity” set up by two or more municipalities for the joint exercise of functions or services pertaining to the municipality.

<sup>7</sup> The literature defines polycentric as a vast area or geographical region made up of two or more cities 1) historically, economically, politically independent of each other, 2) without hierarchical relationships (dependence) with each other, 3) close to each other (contiguity), and therefore 4) linked by relationships of mutual functionality and complementarity with each other. Polycentric organisation is considered to be the optimal approach to metropolitan governance (Prezioso, 2020, p. 75).

to settlement practices, production technologies (and practical knowledge), consumption models, and cultural representations which, in their interdependence, identify very complex human systems with a high and valuable degree of specificity. The main dimension to consider is the demographic one. Although with varying intensity, the local systems of the internal areas have reached a degree of aging that does not ensure sufficient generational change. Many territorial systems are destined to undergo demographic collapse in the medium to long term. In some cases, the reduction of the population in the working age groups produces a consequent strong reduction or zeroing of the endogenous development capacities. In this regard, there are interesting analyses of the flows of migrants that, in the last decade, have affected a large part of the internal areas.

The second dimension to be taken into consideration is the development of basic services, which has undergone a significant contraction, both in quantitative and qualitative terms, over the last decade. In addition to internal factors, SNAI's strategy must also take account of external factors. The general process of de-industrialization and the new settlement logic of manufacturing and service activities have influenced those territorial sub-systems of the internal areas that have had, however, limited, the process of industrialization. Another external element to be considered is the change in the conditions of territorial competitiveness brought about by the entry of new tourist territories into the European space with characteristics similar to those of the Italian inland areas, which have become more acute in these pandemic years. Changing consumer preferences and climate change are further factors in the instability of future development trajectories in inland areas, which are particularly fragile.

It is therefore necessary to imagine concrete opportunities, defined through accurate and appropriate analyses, the aim of which must be the definition of sustainable strategies.

### **3. Inland areas and environmental sustainability in Italy**

The construction of an economic development strategy for the inland areas starts from the unexploited "territorial capital" present in these territories composed of:

- the natural, cultural, and cognitive capital,
- the vitality of the local population and potential residents,
- productive systems (agricultural, tourism, and manufacturing).

The territorial capital of the inland areas is today largely wasted as a result of the de-anthropization process mentioned above (Mastronardi & Romagnoli, 2021, p. 5). In a local development strategy, unutilized capital must be considered as a measure of development potential. The presence of innovative players in the inner areas, such as advanced manufacturing sites, can represent added value. Local development policies are, first and foremost, policies for activating under-utilized capital.

Dwell on the great extension of the inner areas — in demographic and territorial terms — allows us to verify how consistent the growth potential that they express today as a whole and how important is therefore their contribution to the national economic development. Italy has a substantial unemployed workforce on a national scale, which could be employed by activating local territorial capital in new ways.

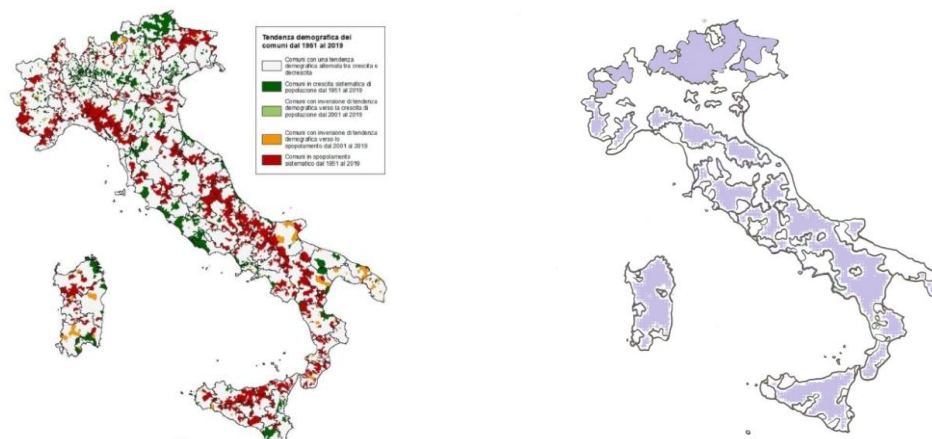
The idea is that in the places (cities) where there are more dynamic economic circuits, in the name of material growth at all costs, the maintenance of qualitative standards of living adequate to the needs of communities has been renounced. It would be appropriate to activate valid alternatives to the recurrent development models and processes, which are rather unsustainable material growth phenomena, incapable of re-distributing, in a more balanced way, people, activities, and goods on the territory. The most important effect would be to achieve a sustainable and lasting "balance".

The inner areas have, however, also been an area of "good policy" and "good practice". In fact, the process of marginalization has not affected the inner areas homogeneously, so much so that in some territories it can be observed that:

- the population has remained stable or has grown,
- environmental and cultural resources have been the subject of enhancement projects,
- forms of cooperation between towns for the production of certain basic services have been established.

These factors presumably also indicate the presence of good governance skills on the part of local communities. Thanks to cooperation between administrations and the involvement of local actors, the population has remained stable and it has been possible to maintain the production of essential services and the protection and enhancement of environmental and cultural resources, which have often acted as a driving force for innovative business initiatives. One of SNAI's objectives is to disseminate good practices that have contributed to improving knowledge of the territories and making them attractive to tourists and visitors. Central to SNAI is the quality of life of people, to be achieved also through the increase of local growth, the increase of well-being, and the social inclusion of the resident population. As can be seen from Figure 1, which has been appropriately drawn up to highlight the evolution of the demographic distribution from 1961 to 2019, in the inland areas identified according to SNAI the most significant decrease was recorded along the entire Apennine arc and in Sicily. And it is precisely this phenomenon that SNAI attempts to remedy in the first 72 selected areas (DPS, 2014). The superimposition of the maps of the inland areas identified by SNAI and the demographic evolution 1961–2019 shows that the effect of depopulation is marked and that it is strongly concentrated in the Apennine mountain, from Liguria to Calabria and Sicily. In Campania, too, the recovery from population loss remains a priority.

**Figure 1.** Demographic evolution from 1961 to 2019 superimposed on the map delimiting the inland areas as identified by the National Strategy for Inland Areas (SNAI)



#### 4. The path and criteria for the identification of inland areas in the Campania Region

Since the 1990s, the Campania Region has been experimenting with activities centred on territorial development through partnership and concerted processes in the Regional Territorial Plan (PTR) Regional Law No. 13 of 2008.

The PTR identifies areas characterised by homogeneous identities and vocations and by networks of stable relations between the various players present on the territory in order to strengthen Campania's identity and enhance polycentrism, focusing on the plurality that characterises its territory and on the balance in the distribution of functions between major, intermediate and minor centres.

The PTR is defined as the long-term objectives of:

- to stop the exodus from marginal rural areas,
- to increase employment levels,
- to improve services to citizens and, more generally, the living conditions and levels of social and economic well-being of the local populations,
- protecting and enhancing the environmental, natural, and cultural heritage of inland areas,
- safeguarding and enhancing the cultural heritage and identity of the individual territorial areas.

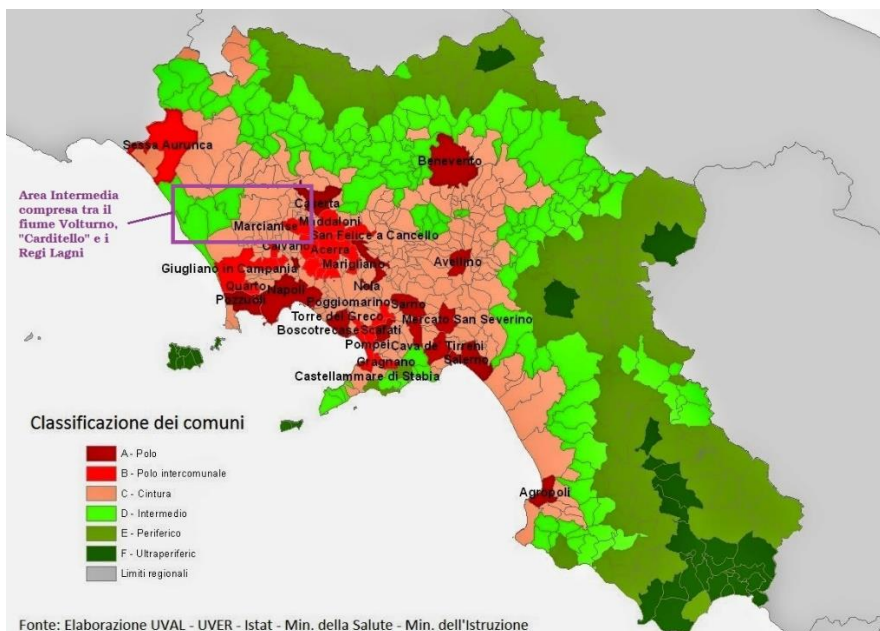
The activities aimed at achieving these objectives have produced results that, rather than on the economic front, have led to a strengthening of local participation and consultation and the implementation of new development models.

In practice, there has been a shift from the logic of extraordinary intervention, conceived as an economic support external to the territories, to the construction of a development model that is not so much differentiated according to the context to which it refers, but rather a proactive approach in which local actors identify innovative strategies designed for the territory. Both strategies, PTR and SNAI, are framed in the context of Italy's economic and social recovery policies (2014–2020); in particular, they operate in a synergic manner and each on its own scale, distinctly with respect to the centres of agglomeration and the offer of essential services (education, health, and mobility).

In line with the SNAI characterized by different levels of peripherality was carried out in the Campania Region. A detailed mapping of these areas emerged from the data, which are configured as an articulated set of inter-municipal local systems defined by a spatial organization based on “small towns”, and by a common environmental, socio-economic, and identity context<sup>8</sup>.

The mapped areas are endowed with important environmental resources (water resources, agricultural systems, forests, natural and anthropic landscapes) and cultural resources (historical dwellings, settlements, abbeys, museums) but, at the same time, they have experienced progressive depopulation and a marked decrease in the utilized agricultural area (SAU) and a lack of control of the territory with a consequent increase in the level of hydrogeological risk, loss of biodiversity and alarming environmental pollution phenomena (Figure 2). The contribution of municipalities in associated form, even if small and contiguous, is fundamental for the identification of projects on the territory. In this direction, the selected case study includes all the characteristics identified in the development strategy of the intermediate internal areas and represents an example of a project built on the sense of belonging to places.

**Figure 2.** Zoning of the Campania Region in the light of the analysis of the National Strategy on Inner Areas with the identification of the intermediate area being studied by the Ismed group for the Pon Ideha Project



Note: A - Urban Area; B - Inter-municipal Hub; C - Citybelt; D - Inner Area; E - Inner Area Suburban; F - Inner Area Ultra-Peripheral; Regional Boundaries (in gray).

Source: Unit for the Evaluation of Public Investments (UVAL - UVER - Istat-Ministry of Health-Ministry of Education).

<sup>8</sup> In this direction, the delimitation of inland areas in the Campania Region is the result of the intersection between the information contained in the national mapping, carried out by the Department for Cohesion and Economic Development (DPS), the territorial organization in Territorial Development Systems (STS), defined by the Regional Territorial Plan (PTR) of Campania, approved by Regional Law 13/2008, and the delimitation of social areas and health districts that the Campania Region has modified with Resolution 320/2012 for the purposes of reorganizing the network of territorial assistance services.

#### 4.1. Dimensional characteristics of intermediate areas

In this subsection, we have gathered some useful references for quantifying some of the characteristics of intermediate areas, as mapped by SNAI. In demographic terms, 23% of the population resides in inland areas and 15% of the latter lives in intermediate areas.

From 1971 to 2011, the population in Italy increased by 10%, while in intermediate areas the increase reached 12%. The ageing population has increased, and in intermediate areas, the increase has reached 30%. The presence of immigrants, however, has balanced out the ageing phenomenon (as the resident immigrants are all under 65 years of age) with a percentage presence that from 1971 to 2011 increased from 1.8% to 5.4%. With concern to territorial capital, the Utilized Agricultural Area (SAU) decreased between 1982 and 2010 by 39% in the inland areas; it was stable in the belt areas. At the same time, the Sau increased in intensively farmed areas and inland areas with quality agricultural systems (especially wine-growing areas). The reduction in the amount of land devoted to agriculture has been matched by an increase in the area covered by forests, which has more than doubled since 1948 and covers, according to 2010 data, more than a third of the national surface. Inland areas account for 73% of the forest area and about 82% of the area is classified as “forest”, which represents the productive base of the forest-wood-energy chain. The inland areas of the southern Italian regions show a more widespread agricultural specialization than those in the Centre-North and in the inland areas of regions such as Calabria and Campania, surprisingly, above-average values can be found in the services sector. In particular, many areas of the inland areas are places of naturalistic and faunistic interest: in fact, more than 70% of the Sites of Community Interest (SIC), Special Protection Zones (ZPS), and protected natural areas are included in these areas<sup>9</sup>.

If all the parameters are analysed, Italy’s inland areas are not always synonymous with backwardness, because the lifestyle there is on average good, decorous, and in keeping with the needs of the residents.

Those who inhabit these places have chosen to live far from the frenetic life of urban areas and prefer a context in contact with nature where human relations are more fulfilling. However, even within the same region, there are very different inland areas, which makes it difficult to devise an effective national strategy. Campania’s areas of economic and social distress are concentrated in particular in Alta Irpinia, the area devastated by the earthquake of 23 November 1980, the negative effects of which are still present today.

#### 5. A case study in Campania: The intermediate area and the “Real Site of Carditello”

The case study of Campania that we analyze in this chapter concerns an area that has become very well-known, both nationally and internationally, also known as the “*terra dei fuochi*”. It lies between the Caserta conurbation to the east, the Aversana conurbation to the south, the course of the Volturno River to the north, and the coastal strip to the west as far as Castelvoturno. Both of these conurbations are close to the metropolitan area of Naples and in a broader territorial view, they constitute a periphery, located at the northern edge of the large Neapolitan conurbation, which reaches three million inhabitants.

Although the Caserta conurbation is made up of 22 municipalities, because of its location close to Naples, it is unable to become an autonomous urban system, even though it is self-sufficient. On the other hand, it is part of a highly productive area, so much so as to represent one of the poles of excellence in Italy for the agri-food sector and in particular for dairy products. It is an extremely flat area<sup>10</sup> and historically with a strong agricultural vocation<sup>11</sup> where 26% of the region’s agricultural production is concentrated with over 17,800 farms (SVIMEZ, 2014).

<sup>9</sup> “Sites of Community Interest” and “Special Protection Areas” are the areas of community interest that are part of the “Natura 2000 Network”, which covers the whole of Europe and constitutes the interconnected network of protected areas across the entire European continent.

<sup>10</sup> The municipalities that, in whole or in part, with their territories contribute to defining the study area are: Castel Volturno, Villa Literno, Casal di Principe, Cancelli di Arnone, San Tammaro, Santa Maria Capua Vetere, Capua, Portico di Caserta, Macerata in Campania, Capodrise, San Prisco, Recale and Caserta.

<sup>11</sup> The area is part of the land that has gone down in history as “Campania Felix” or “Ager Campanus”, the territory of the ancient city of Capua with the plains of many neighbouring municipalities, which constituted one of the most important granaries of the Roman Empire. In the Norman era (12th century), it was more extensively called “*Terra Laboris olim Campania felix*”, as also shown on maps of the 16th, 17th and 18th centuries.

## 5.1. *The potential of the selected area*

In relation to the mapping carried out by SNAI, the area identified in Figure 3 is particularly interesting and is included between the course of the Volturno River, the Regi Lagni, the real site of Carditello, the urban centre of Capua, Santa Maria Capua Vetere, the Royal Palace of Caserta and Caserta Vecchia. The economic and social fabric is vital and dynamic thanks to the presence of commercial, industrial, and craft centres of interregional importance. From a cultural point of view, it can count on an extremely interesting environmental, historical, artistic, and archaeological heritage. In addition to the already well-known and valued Reggia di Caserta, the area can also count on the San Leucio complex, the village of Caserta Vecchia, the archaeological excavations of Santa Maria Capua Vetere, the archaeological resources of Maddaloni, the religious complex of Sant'Angelo in Formis, the Royal site of Carditello and the sites of minor architecture spread throughout the territory. In particular, to the east of this intermediate area, which is entirely in the province of Caserta, is the medieval village of Casertavecchia, which is an important tourist center with medieval artefacts of great architectural interest, such as the cathedral and the remains of the castle with Sicilian-Norman influences. To the north, in the municipality of Santa Maria Capua Vetere, there is another valuable architectural element, the Roman amphitheatre, built between the 1st and 2nd centuries AD<sup>12</sup>.

The Benedictine Basilica of Sant'Angelo in Formis<sup>13</sup> is also located nearby, but a little further away. Other noteworthy cultural elements that stand near the intermediate area and that can contribute to the enhancement of the area are the Archaeological Museum of Ancient Calatia (Maddaloni) with finds from the prehistoric, Roman, and medieval eras, the State Archaeological Museum of the Agro Atellano (Succivo) that houses the findings related to the ancient city of Atella, and the Archaeological Area of Ancient Cales (Calvi) where the remains of two large thermal complexes and a Roman temple can be found (Figure 3).

The environmental heritage ranges from the rural landscape to the river landscape (Volturno River), from the reclaimed land to the urban landscape, from the historical landscape to the architectural landscape, and from the artistic landscape to the urban landscape.

The Real Site of Carditello<sup>14</sup> has become a place where universities, local authorities, and associations can experiment with an innovative model of development and growth, which focuses on culture as an engine for development, economic revival, and community bonding.

In this sense, in continuity with the Site's vocation as both a residence for the sovereigns' hunting art and a modern farm<sup>15</sup>, the site is over time recovering part of its past by revitalising the surrounding areas.

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<sup>12</sup> Not to be overlooked are the Museo Provinciale Campano (in Capua), which houses a collection of archaeological and medieval artefacts, the Museo Archeologico dell'antica Capua (in Santa Maria Capua Vetere), which contains archaeological finds from excavations carried out in the area since the 20th century, and, also in Santa Maria Capua Vetere, the Museo dei Gladiatori (Museum of the Gladiators), opened in 2003 and dedicated to the historical reconstruction of the events surrounding the Campanian amphitheatre.

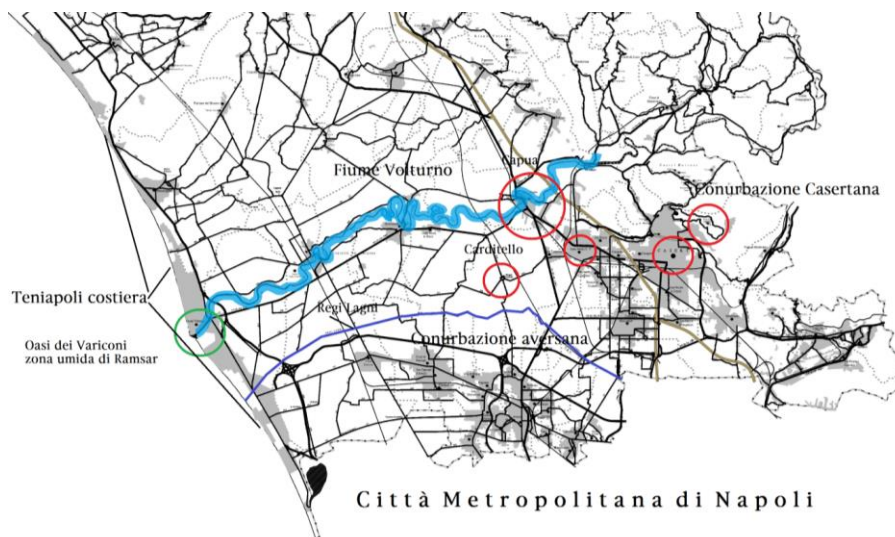
<sup>13</sup> The basilica of Sant'Angelo in Formis stands on the remains of a pagan temple dedicated to Diana Tifatina. The basilica was built in the Lombard period (6th century) and rebuilt in the 10th century. Its importance lies in the frescoes of the Byzantine-Campana school (11th century), which date back to the origins of Italian painting prior to Giotto and constitute one of the most important and best-preserved pictorial cycles of the period in southern Italy. To complete the brief description of the complex, we would like to point out the portico in front of the church, added in the 12th century and embellished with remarkable frescoes, together with the bell tower rebuilt in an atypical position, a little apart from the main building (Centro Regionale Beni Culturali della Campania).

<sup>14</sup> Over the years, many texts have dealt with the site. Among these are Alisio (1975) and Iacono (2005).

<sup>15</sup> The Foundation that has been set up proposes cultural activities and initiatives related to the equestrian and agri-food sector, in collaboration with the University of Naples Federico II, the University of Campania Luigi Vanvitelli, the CNR, other bodies and associations (Informare, 2020).



**Figure 3. Province of Caserta**



*Note: Extract of the map of the provincial road network (updated July 2013). The map, appropriately revised by Bertini, shows the peculiar elements (the course of the Volturno River, the Regi Lagni, the real site of Carditello, the urban centre of Capua, Santa Maria Capua Vetere, the Royal Palace of Caserta and Caserta Vecchia) of the intermediate area under study.*

*Source: Province of Caserta-Settore Viabilità (retrieved December 6, 2023, from <http://www.terradilavorospa.com/public/wp-content/uploads/2010/07/MAPPA-STRADE.pdf>).*

It represents an example and a model of a common good that has been ignored for too long and left in a state of abandonment, which is being returned to the community and valorised in terms of culture and tourism, to the point of becoming a positive reference point for the area. A pole of social cohesion and connection of opportunities from the point of view of employment, with particular reference to the revival of traditional activities such as the art of silk weaving, which, being based in San Leucio, is capable of restoring the Real Fabrica to its former glory and creating new economic activities.

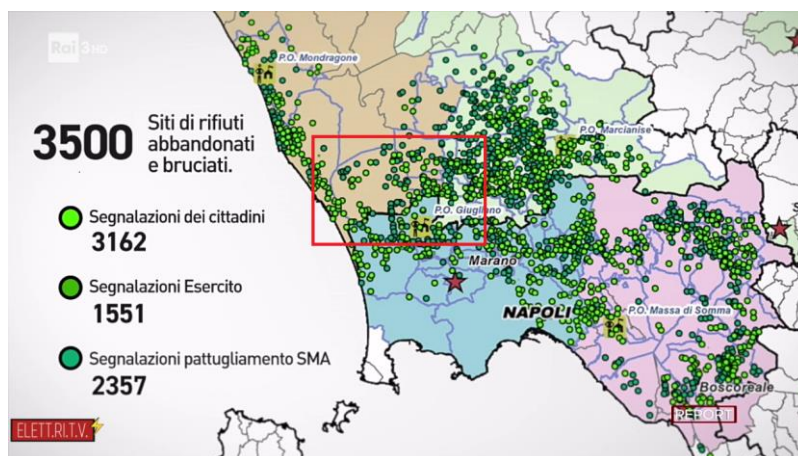
The preponderant contribution comes from creativity and creative-driven activities that use cultural assets to strengthen their competitiveness by becoming the hub of the territory's cultural production system and therefore of all those activities linked to the production of goods or services connected to artistic and cultural heritage. Finally, the recent activation of the Carditello biomonitoring station, which is used to certify the level of healthiness of the environment, is not to be overlooked because of its importance in experimenting with sustainability initiatives<sup>16</sup>.

## **5.2. The problems of the area**

One of the elements that determine the structural weakness of Carditello is the surrounding environment and the interests of criminal groups that control the area and undermine its revival. Agenda 21's proposal on the recovery of Carditello stresses that the process cannot be limited to architectural restoration and the land adjoining the estate, but must include, first and foremost, environmental reorganization covering the entire Regi Lagni basin, with reclamation and restoration work. To this end, it is important that a coordinated effort be made between the various public bodies, in both political and economic terms. Moreover, the territorial context remains uneven even when analyzing the sectoral data of the entire cultural sector.

<sup>16</sup> An environmental biomonitoring station has been installed in the trees surrounding the Real Site, consisting of beehives in which the bees are constantly monitored by experts. Scouring an area of around 7 square kilometres and taking up to 10 million micro-samples a day, the bees are able to provide a clear analysis of their surroundings. Bees are an extraordinary "moving sensor" that can detect the health of the environment through the analysis of wax, bees and honey.

**Figure 4.** The map of abandoned and burnt waste sites, with the intermediate area under analysis (red rectangle)



Source: Regional Environmental Agency (Agenzia Regionale per l'Ambiente [ARPA]).

## 6. Conclusion

The SNAI represented a breakthrough in policies for the protection and enhancement of inland areas, whose fragility, together with their significant potential, had not been the subject of such organic and programme-oriented attention. It is from that moment on that inland areas have been considered strategically, outlining a plan of actions targeted and conceived on specific characteristics, focusing on the sense of territorial identity.

This approach makes it possible to go beyond strictly defined boundaries to give new space to concerted, planned, and coordinated initiatives based on the needs of the territories and the communities living in them. Having said this, we focused on the intermediate area analysed, which has two absolutely opposite aspects: a historical, artistic, architectural, archaeological, urban planning, landscape, environmental, and agricultural heritage of considerable interest, in the face of the dangerous presence of illegal dumps, areas full of toxic waste, and quarries that have had a negative impact on the environment, with very serious repercussions on public health.

In any case, the intensive land reclamation carried out in recent years has contributed to the reduction of negative impacts on local communities and landscapes. In this context, one of the contributions made by the ISMED research group to the Pon Ideha project, “Innovations for data processing in the cultural heritage” sector was the identification of a number of interconnected itineraries concerning both naturalistic-territorial and landscape aspects and the historical-artistic and architectural-urban heritage<sup>17</sup>.

The current health emergency due to the spread of COVID-19 seems to have laid the foundations for a development process in favour of the most marginalized local communities, thanks also to the possibility of using remote work and the opportunities offered by land development. Tangible results require targeted policies and funds to be invested in essential community services so that good practices can become permanent rather than transitory. The achievement of these objectives is also strongly linked to the National Recovery and Resilience Plan (NRP), which is a great opportunity to reduce the historically existing gaps in our country and to show that there is a renewed awareness on the part of political forces of the importance of intermediate areas, places where living conditions require dedicated recovery plans.

<sup>17</sup> [www.ideha.cnr.it](http://www.ideha.cnr.it)

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# THEORETICAL CONCEPTUALIZATION OF RESILIENCE AND ITS RELATIONSHIP IN PSYCHOLOGICAL TREATMENT

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**Keywords:** Resilience, Psychological Relapses, Psychological Treatment, Mental Health, Emotional Stability

## 1. Introduction

In psychological treatment, it is essential to prepare the patient for situations that may arise after the completion of the therapy process. Other situations could cause a potential imbalance in the patient, however, if he has the necessary tools to face them this could mean one more link in his recovery. Therapeutic techniques should be aimed at psychoeducating the patient on resilience to face possible psychological relapses, since it has been observed for many years that when a patient relapses, a high level of frustration is generated, at the individual or family level. However, visualizing the above from a more realistic perspective, with this fact an action plan could be generated to prevent possible setbacks.

The idea of resilience, as referred to by Uriarte Arciniega (2005), has reinforced a more current, contextual, and systemic perspective of human development. An unhappy, precarious, and conflicted childhood does not necessarily determine or inevitably lead to maladjustment and future psychological disorders. In the same way, he insists that unfavorable contexts do not affect all people equally and the change that characterizes the human being also influences the evolution of their conflicts and disorders.

Psychology evolves day by day, therefore, the management that is carried out in the clinical area must do so. What is expected then would be to empower the patient who is prepared to face the possible favorable or unfavorable scenarios that may arise in their daily lives and this defines exactly the concept of resilience.

## 2. Definitions and conceptualizations

The term “resilience” is a castilianization of the English word “resilience” or “resiliency”, which was initially used in thermodynamics. In biology, it is defined as the ability of an ecosystem or an organism to return to stability when undergoing an alteration (Monroy Cortés & Palacios Cruz, 2011). For the resilience process to occur, it is necessary that the individual is exposed to internal or external conflicts where their efforts end up being oriented towards a positive adaptation despite suffering aggression throughout the development process.

In continuity with the above, the term resilience was added in the social sciences in the 60s and explains the ability that people have to develop psychologically healthy and successful to weigh living in high-risk contexts, such as environments of poverty, dysfunctional families, situations of prolonged stress, internment centers, among others (Uriarte Arciniega, 2005).

Resilience therefore distinguishes two components: resistance to destruction, which is the ability to take care of one’s integrity under pressure; on the other hand, beyond resistance, the ability to build a positive perspective despite difficult circumstances and the ability of a person or social system to adequately cope with difficulties, in a socially acceptable way (Vanistendael, 1995).

Finally, the concept of resilience refers to the individual differences that people manifest among themselves when faced with situations of risk. Consequently, it is important to know the specificities that have manifested human beings who, living in adverse situations, have achieved an “adequate” or “normal” level of development; these people have been called resilient (Kotliarenco et al., 1997).

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### 3. Perspectives, theories, and models

The concept of resilience is polysemic, the meaning of which varies according to the approach from which it is taken. It was first used in 1973 by ecologist C. S. Holling. The term resilience has been taken up in various disciplines of the social and human sciences to explain the capacity and factors that facilitate people or societies to overcome adverse situations (Rodríguez Aldabe, 2018).

Uriarte Arciniega (2005) states that, from the point of view of individual development, the concept of resilience is part of the interactions of the human being with his environment, in the ecosystem formed by the individual, his family, and other social areas more or less close and other sociocultural factors in force in each historical moment. Building resilience depends on the functioning of individual, family, and socio-cultural factors and their continuing interdependencies.

Kotliarenco et al. (1997) identify that the resilience approach starts from the premise that being born in poverty, as well as living in a psychologically unhealthy environment, are high-risk conditions for people's physical and mental health. Rather than focusing on the circuits that maintain this situation, resilience is concerned with observing those conditions that make it possible to open up to a healthier and more positive development.

That is why the advances achieved in research on the characterization of resilient behaviors, the growing accumulation of knowledge about protective factors and mechanisms; as well as the possible ways to promote resilience, place the scope achieved in this direction, in a privileged place to design possible forms and contents for preventive work in popular sectors (Kotliarenco et al., 1997).

### 4. Previous studies

Ospina Muñoz (2007) conducted research on the measurement of resilience and concluded that it is a complex process that merits interdisciplinary work. The elaboration of an instrument with the capacity to address the resilient phenomenon in its different dimensions could constitute an opportunity for important theoretical development in the subject and advance the intervention proposals that involve programs and projects on resilience.

On the other hand, Monroy Cortés and Palacios Cruz (2011), in their article, conclude that resilience involves more than just being invulnerable in the face of stressful events or adversities. On the contrary, it is a dynamic process that any individual can implement so that the expected development takes place despite adversity.

Becoña (2006) in his research states that the interest in resilience in the psychological field is ancient, however, it has been in recent years when it has gained great relevance. This is because several follow-up studies, such as clinical reports and case analyses, indicate that there are individuals who, having gone through difficult, extreme, or traumatic circumstances in childhood, such as abandonment, abuse, wars, and hunger, do not develop mental health problems, drug abuse or criminal behaviors of adults.

### 5. Application in psychological therapy

For psychologists, the interest in resilience arises from the need to understand why some children, adults, or families overcome great adversities favorably. This characteristic translates into the practice in which the resilient individual believes that his performance can modify the situation in which he finds himself, that the persistent effort is worth it, and that dangerous situations and failures are inevitable and surmountable, without causing them a level of excessive anxiety or a desire to give up (Oriol-Bosch, 2012).

Resilience opens up a range of possibilities while emphasizing the strengths and positive aspects present in human beings. Rather than focusing on the circuits that maintain high-risk conditions for people's physical and mental health, it is concerned with observing those conditions that enable a healthier and more positive development (Kotliarenco et al., 1997).

The ability to turn the crisis into a source of strategic opportunities is one of the important functions of the term resilience, this being a necessary characteristic to create in the processes of psychological therapy (Fiksel, 2006).

In turn, resilience in the processes of therapeutic intervention is understood as the process that the individual performs in adverse situations, their reactive or proactive behavior, where the ability to make decisions necessary to face and get out of the conflict is measured, turning resilience into a dynamic, emerging and changing process, that allows to be prepared for its development in future situations (Longstaff, 2005).

## 6. Conclusion

At present, according to Pinto Cortez (2014), the concept of resilience remains an ambiguous construct that needs further clarification, especially in questions related to its theoretical configuration. In order to implement it in optimal conditions, a model is needed to improve the health outcomes of vulnerable populations and the general population.

One of the virtues of the concept of resilience lies in the observation or tendency that a person by the fact of living in a meager environment and in conditions of extreme need, adversity, or inequality, does not imply that person is doomed to social, personal, or health failure. What empirical research shows is just the opposite, that despite adversities a resilient person is able to overcome and learn from adversity (Masten, 2001).

A resilient person is able to face the adversity of their own and/or others' health, emerging strengthened from the situation. Strengths appear when the resilient person rises to the occasion of adversity and is able to modify the concept of himself. In addition, in adverse situations, it is able to strengthen interpersonal relationships (Haidt, 2006).

Psychology evolves day by day; therefore, the management that is carried out in the clinical area must do so. The challenge for therapists is to empower the patient who is prepared to face the possible favorable or unfavorable scenarios that may manifest themselves in their day-to-day and this defines exactly the concept of resilience.

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# THE IMPACT OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE ON THE FINANCIAL SECTOR

*Mattia Calosci \**

**Keywords:** Environmental, Social, and Governance, Sustainable and Responsible Investment, Sustainability Strategies, Sustainable Financial Performance

## 1. Introduction

This chapter examines the issue of sustainability, which has become increasingly characteristic for the reputation of companies, directing investors, those who have potential interests in companies, to examine the performance/corporate social responsibility (CSR) relationship through environmental, social, and governance (ESG) metrics (Duque-Grisales & Aguilera-Caracuel, 2021).

This indicator, which is suitable for representing the exposure of firms, and the related management of non-financial risks and opportunities has generated a trend in which “the principles and techniques of accounting and financial management are applied to the governance of people and organizations” (Shore & Wright, 2015, p. 428).

The paradigm shift has allowed ESG metrics to focus on financially relevant information for investment performance that can create strategies based on ecological and sustainable models. Green finance, focused on the impact of allocative choices with respect to the environment and elements of ethics and sustainability bases its dimension on choices and financing decisions suitable to allocate money in the best way and at the same time be socially responsible.

The analysis addresses sustainable and responsible investment (SRI) funds and ESG factors, which are considered the three pillars of sustainability (Staub-Bisang, 2012).

The interdependence between the elements, reinforced during the COVID-19 pandemic and related exogenous shock to the economy (Umar et al., 2020) directed investors towards flexible funds with greater resilience than conventional financial market disruptions (Folger-Laronde et al., 2020).

The trend of sustainable investing, relying on funding organizations and products that promote and comply with sustainability and regulatory guidance on decarbonization and climate change, has generated increasing returns and better long-term performance than portfolios that do not incorporate ESG practices (Lieberman, 2020).

With the establishment of the High-Level Expert Group on Sustainable Finance (HLEG) by the European Commission in 2016 to develop functional recommendations for the development of sustainable finance, the Action Plan promoted by the European Commission has gained great importance in managing and direct capital flows towards sustainable investments; weigh and manage growing risks derived from climate change, environmental degradation, and social issues; and identify and guide transparency and long-term vision in economic and financial activities.

Among the European Union (EU) measures, the 2020/852 “Taxonomy Regulation” is applied to financial market participants and companies subject to the Non-Financial Reporting Directive (NFRD) (listed companies and companies of national interest), which are required to report the percentage of turnover and all investment decisions that meet sustainable development criteria.

Another central element is Goal 8, “Decent Work and Economic Growth”, of the United Nations 2030 Agenda where sustainable business models and investments with low environmental impact are envisaged.

The mission is to create socially responsible investments that become drivers capable of promoting growth potential, combining qualitative and quantitative factors, and integrating innovation (of product, service, or process) with the theme of sustainability.

To answer the research question, the analysis will focus on the indices that include the overall basket of “ethical and non-ethical” products and that of only ethical-sustainable products: MSCI All

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Country World Index (ACWI) and the respective MSCI All Country World Index SRI (ACWI SRI) considered the benchmark of sustainable and responsible investment.

The rest of this chapter is organized as follows. Section 2 reviews the literature. Section 3 presents the characteristics of SRI funds and ESG benchmarks. Section 4 compares the indices over the analysis period (2011–2021) with respect to overall performance and risk/return analysis. Section 5 includes concluding remarks.

## 2. Literature review

The implementation of ESG parameters originates from the idea shared by corporate finance that the overriding goal is to maximize shareholder value (Jensen, 2001; Battisti et al., 2020).

Given that stakeholder theory establishes that the interests of a company in the short and long term are influenced by the stakeholders (Freeman, 1999), it becomes evident that it is impossible to evaluate only strictly economic relationships because they no longer embody the main interest to be taken care of.

This assumption gives rise to the theme of CSR as the adoption of business practices based on transparency, ethics, and respect for employees, society, and the environment (Rey-Martí et al., 2016; Belyaeva et al., 2020).

CSR is based on sharing annual information about operations, activities, and programs that promote resilient impact on all direct and indirect stakeholders (Chan et al., 2014).

Previous studies suggest that disclosure of CSR information and behaviors can maximize corporate reputation and strengthen investor confidence (Park et al., 2014).

The evolution of practices implemented to meet stakeholder expectations of the environment, society, and shareholders (Fiore et al., 2020) is based on the use of policies and programs designed to develop competencies and competitive advantages in compliance with sustainability trends (Dressler & Paunović, 2019).

ESG ratings are “corporate assessments based on comparative analyses of quality, standards, or performance on environmental, social, or corporate governance issues” (Escrig-Olmedo et al., 2019). These ratings are conducted by rating agencies through analysis of non-financial mandatory disclosures, and integrated sustainability reports (Jackson et al., 2019) to provide a composite score on ESG parameter elements.

Although it is shared in the literature that a firm’s reputation for adopting ESG practices increases financial performance (Aguilera et al., 2007; Li et al., 2019) as a result of an increased focus on environmental and social issues, benefits on reduced taxation and operational risks suitable for consumer loyalty (Malik, 2015); several studies have raised criticisms about the validity of ESG ratings and how they can impose and define a common framework for measuring social and environmental responsibility (Chelli & Gendron, 2013). The assignment of ratings could construct a dubious social and corporate view, intentionally differentiating one company from another (Eccles & Strohle, 2018).

In response to this critique, it can be argued that ESG factors are based on concrete, non-arbitrary extra-financial analysis that ensures environment, social issues, and governance, implementing the relatively new concept of “making environmentally and socially friendly investments”. This approach is embodied in SRI: “Sustainable and Responsible Investing is a long-term oriented investment approach that integrates ESG factors into the research, analysis and stock selection process within an investment portfolio. It combines fundamental analysis and engagement with an assessment of ESG factors in order to better capture long-term returns for investors, and to benefit society by influencing corporate behaviour” (Eurosif, 2018, p. 12).

In contrast to traditional economic and financial theories where investment decisions are referred to the logic of risk/return, responsible investment embodies an ethical and social ideal whose theoretical genesis we find in the economics of identity in which individuals make economic choices based on monetary incentives and in reference to their identity and social context (Akerlof & Kranton, 2000, 2005).

### 3. Characteristics of sustainable and responsible investment funds and environmental, social, and governance parameters

SRI allows for value creation through long-term strategies by integrating ESG analyses with economic and financial analyses (Eurosif, 2018, p. 74). These investments are based on seven strategies as shown in Table 1.

**Table 1.** Sustainable and responsible investment strategies

<i>Strategy</i>	<i>Description</i>
Exclusion	Through negative screening, excluding anything that does not meet sustainability and social responsibility criteria (weapons, tobacco, pornography, animal testing).
Integration of ESG	Integration of investments with ESG criteria.
Engagement and voting	Dialogue and confrontation with companies on everything related to sustainability with an intention to influence the behaviour of companies through voting rights in capital participation.
Norm-based screening	Investment choice based on international regulations and standards (OCSE, ONU).
Best in class	The approach of selecting or weighing issuers in a portfolio using ESG criteria by selecting the best within a sector.
Sustainability themed	Selection of assets related to sustainable development.
Impact investing	Selection of investments in entities that are created to generate an economic return and a positive and resilient impact on the socio-economic sector (social bonds, green bonds).

Source: Author's elaboration based on elements acquired from Eurosif (2021).

Those who make sustainable investments base their choices on evaluating ESG parameters.

The environmental element is used to measure risks and opportunities as a result of climate change and to evaluate conversion to renewable resources suitable for long-term financial stability; the social element is based on appropriate labour standards, equal opportunity between men and women, human rights, and health and safety; governance addresses gender-neutral board composition, understanding of environmental and social risks, potential financial impacts, audit functions, internal controls, and shareholder rights (Townsend, 2018).

ESG factors are composed of three levels:

1) Investment: in which the elements of the parameter are considered in relation to the target companies. Screenings are prepared to assess the business model, the impact the company has in the context in which it operates, the products it sells, and in which markets it operates; all of which must be evaluated following the best practice strategy.

2) Monitoring and reporting: the inputs necessary to assess sustainable performance are considered. Key Performance Indicators (KPIs) representing the target company must be identified within the ESG elements.

3) Exit: allows for an assessment of how ESG factors have been managed giving buyers the opportunity to get an overall picture of the company.

There are differences between SRI and ESG that are presented in Table 2.

**Table 2.** Differences between sustainable and responsible investment and environmental, social, and governance

<i>SRI</i>	<i>ESG</i>
Investments driven by ethical-moral values	Includes long-term sustainability factors and directs investments towards companies with
Prohibits investing in unethical assets (exclusion strategy)	Does not present investment prohibitions. Assigns values to ESG factors (if values are negative, it does not technically exclude a company from investment but is cause for further consideration)
They are restrictive for investors	Incorporate factors that guide the investor in selecting securities
SRI analysis is driven by moral factors and is different for every investor	ESG analysis is potentially applicable to all investment options

Source: Author's elaboration based on evidence acquired from Commonfund Institute (2018).

Although the elements analyzed present differences, both elements aim to address current ESG issues surrounding climate change, resources, and human rights.

While SRI are concerned with ethical and moral issues specific to investors activated through a top-down approach, ESG criteria are concerned with the risks and opportunities deriving from individual assets, making it possible to grasp their intrinsic quality, activated through a bottom-up approach.

In the following section, the MSCI ACWI and MSCI ACWI SRI indices will be shown and explained. The SRI index follows a mixed approach by combining a top-down framework (based on the exclusion of those that do not meet ethical, sustainability, and social responsibility criteria) with bottom-up evaluations (based on the Best in Class strategy, selecting the best issuers in the portfolio according to ESG criteria).

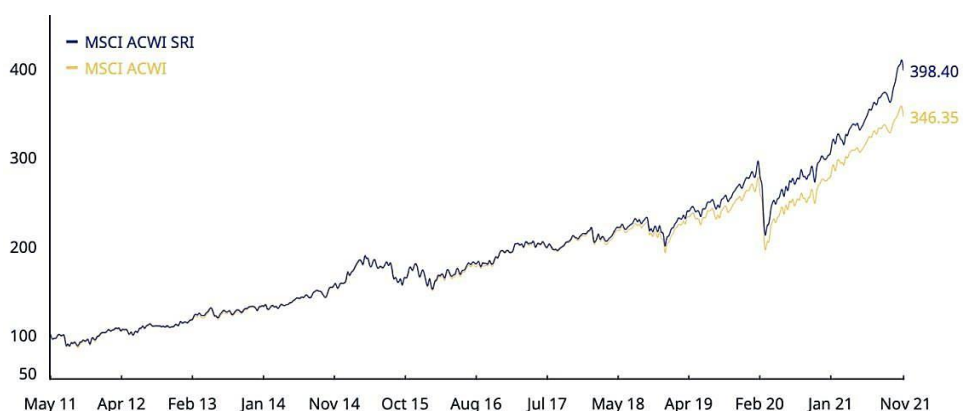
#### 4. General performance and risk/return analysis MSCI All Country World Index— MSCI All Country World Index SRI

For the analysis, the MSCI ACWI and the respective MSCI ACWI SRI will be considered.

The MSCI ACWI SRI includes large- and mid-cap stocks from 23 developed market countries and 27 emerging market countries, is a capitalization-weighted index that provides exposure to companies with excellent ESG ratings and excludes companies whose products have negative social or environmental impacts.

It represents the benchmark for SRI and is composed of companies with strong sustainability profiles.

**Figure 1.** Cumulative index trend (May 2011–November 2021)



Source: MSCI ([www.msci.com](http://www.msci.com)).

Comparing the two indices over the analyzed 10-year period (2011–2021) in terms of performance between the basket of ethical products (MSCI ACWI SRI) and the basket of all products both ethical and non-ethical we see the ethical-sustainable index show a higher performance than the traditional index.

**Figure 2.** Risk/Return (May 2011–November 2021)

	Beta	Tracking Error (%)	Turnover (%) <sup>1</sup>	ANNUALIZED STD DEV (%) <sup>2</sup>			SHARPE RATIO <sup>2,3</sup>			Since May 31, 2011 (%)	MAXIMUM DRAWDOWN (%)	Period YYYY-MM-DD
				3 Yr	5 Yr	10 Yr	3 Yr	5 Yr	10 Yr			
<b>MSCI ACWI SRI</b>	0.96	2.11	19.47	15.59	13.07	11.55	1.34	1.26	1.32	1.20	32.43	2020-02-19–2020-03-23
<b>MSCI ACWI</b>	1.00	0.00	3.33	16.14	13.43	11.82	1.08	1.03	1.19	1.06	33.40	2020-02-19–2020-03-23

<sup>1</sup> Last 12 months <sup>2</sup> Based on monthly gross returns data <sup>3</sup> Based on EMMI EURIBOR 1M from Sep 1 2021 & on ICE LIBOR 1M prior that date

Source: MSCI ([www.msci.com](http://www.msci.com)).

From Figure 2, we can see that in terms of risk/return, the SRI index presents a lower standard deviation and therefore lower volatility, guaranteeing a higher return at 3, 5, and 10 years obtained with less risk (Sharpe index) than the traditional index; furthermore, there is a maximum loss in the period considered which is slightly lower than the traditional index.

## 5. Conclusion

During the period analyzed, the year 2020 witnessed major shocks to financial markets and the economy in general. The turbulence generated by the COVID-19 pandemic as a result of the global spread of the infection and shocks on both the demand and supply sides generated the collapse of over 30% of financial markets in the second quarter of 2020 (Gormsen & Koijen, 2020). Ethical and sustainable funds have demonstrated greater resilience than the rest of the market. The research question of whether financial performance can be achieved by investing in long-term ethical and sustainable funds can be answered in the affirmative.

Responsible, social, and ethical investing is the driving force behind the finance of the future. The performance comparison between the SRI index and the traditional index shows a higher return for the sustainability index.

Those who invest using ESG parameters can achieve higher returns than traditional investments, reflecting on the market their own ideas and ethical principles and respect for the surrounding environment, society, and the future of the world; paving the way for a sustainable finance that is no longer transitory but definitive.

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# CLIMATE PROTECTION GAP: METHODOLOGICAL TOOLBOX FOR THE AGRIBUSINESS

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**Keywords:** Climate Risks, Copula

## 1. Introduction

Climate change represents a relatively new risk compared with other traditional insurance and financial risks. Nevertheless, it gained priority in the agendas of governments, public institutions, and private stakeholders. Climate change mainly involves two kinds of risks: the physical and the transitional risks. The former determines effects directly from climate change due to the physical impact of increasing severity and frequency of extreme climate change-related weather events, and the latter effects arising from the change to a carbon-neutral economy, to meet the objectives of the Paris Climate Agreement.

The main features of climate-related risks rely on the long-term nature of the related events, being the impact likely structural, irreversible, and non-linear (European Insurance and Occupational Pensions Authority [EIOPA], 2022). They affect the insurability of risks, impacting on affordability and availability of financial and insurance products, also determining the protection gap. Typically protection gaps are areas in which societal risks are not covered by the insurance industry, either because of lack of penetration, or because the risks are uninsurable in profit-oriented markets.

In this chapter, we support the early identification of protection gaps and the development of shared resilience solutions between the insurance industry and public protection facilities, by setting out methodological toolboxes in the agribusiness context. Agriculture both contributes to climate change and is affected by climate change. Crops need suitable soil, water, sunlight, and heat to grow. Warmer air temperatures have already affected the length of the growing season over large parts of Europe. Flowering and harvest dates for cereal crops are now happening several days earlier in the season. These changes are expected to continue in many regions. In general, agriculture and forestry are highly exposed to the impact of rising global temperatures: increased fluctuations in seasonality disrupt farming cycles, while substantial challenges arise from changing rainfall patterns and extreme weather events, such as heat waves, droughts, storms, and floods. In other terms, agriculture has a key passive and active role in climate change and resilience against adverse climate events can start from this important sector. The insurance industry can pilot climate resilience solutions, by providing parametric insurance bundled with loan contracts can reduce also credit rationing in this sector (Biffis et al., 2022). The chapter aims to set out a methodological tool-box for supporting the insurance industry in developing contractual solutions for adverse climate events, in the agribusiness field. The toolbox is based on the copula approach for describing the dependence between yields in agribusiness and bioclimatic indicator trends. Section 2 explains data and results starting from a practical case based on Italian data. Section 3 presents the conclusion.

## 2. Methodological toolbox in agribusiness

We set out methodological principles to develop solutions for smallholder farmers against weather shocks. In particular, we evaluate the effectiveness of the bioclimatic indicators in terms of their

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relationship with wheat yields. The data refer to two groups of time series, one for Northern Italy and the other for Central Italy. Bioclimatic indicators have been built from satellite data from the NASA-MERRA-2 (Bosilovich et al., 2016) database and measure the drought as a combination of exceeded heat and precipitation deficit. Yields are obtained from the wheat price listed on the Bologna Commodity Exchange<sup>1</sup>. Bioclimatic indicators have been developed based on two different methodologies: the first starts from the analysis of the historical series through the Seasonal ARIMA (SARIMA) model class, and the other one with the use of temporal dynamic random forest (Carannante et al., in press). The relationship between yields and bioclimatic indicators is analyzed through an Archimedean copula.

Table 1 and Table 2 show the dependency structure of data, using Pearson linear correlation coefficient and Kendall rank correlation coefficient.

**Table 1.** Pearson linear correlation coefficient among bioclimatic indexes and wheat yields

<i>Pearson linear correlation</i>		<i>XGBoost</i>		<i>Yields</i>		<i>SARIMA</i>	
		<i>Precipitation</i>	<i>Heat</i>	<i>Wheat North</i>	<i>Wheat Centre</i>	<i>Precipitation</i>	<i>Heat</i>
<i>XGBoost</i>	<i>Precipitation</i>	1	0.397	0.111	0.117	0.031	-0.002
	<i>Heat</i>	0.397	1	-0.175	-0.177	0.127	0.474
<i>Yields</i>	<i>Wheat North</i>	0.111	-0.175	1	0.995	0.191	-0.153
	<i>Wheat Centre</i>	0.117	-0.177	0.995	1	0.189	-0.153
<i>SARIMA</i>	<i>Precipitation</i>	0.031	0.127	0.191	0.189	1	0.199
	<i>Heat</i>	-0.002	0.474	-0.153	-0.153	0.199	1

**Table 2.** Kendall rank correlation coefficient among bioclimatic indexes and wheat yields

<i>Kendall rank correlation</i>		<i>XGBoost</i>		<i>Yields</i>		<i>SARIMA</i>	
		<i>Precipitation</i>	<i>Heat</i>	<i>Wheat North</i>	<i>Wheat Centre</i>	<i>Precipitation</i>	<i>Heat</i>
<i>XGBoost</i>	<i>Precipitation</i>	1	0.114	0.022	0.005	0.013	0.144
	<i>Heat</i>	0.114	1	-0.340	-0.234	-0.322	-0.156
<i>Yields</i>	<i>Wheat North</i>	0.022	-0.34	1	0.733	0.778	0.201
	<i>Wheat Centre</i>	0.005	-0.234	0.733	1	0.862	0.120
<i>SARIMA</i>	<i>Precipitation</i>	0.013	-0.322	0.778	0.862	1	0.125
	<i>Heat</i>	0.144	-0.156	0.201	0.120	0.125	1

Table 1 shows that the precipitation index obtained with the XGBoost method has a positive linear correlation of 0.11 with the yield of North wheat. In fact, as precipitation decreases, a higher yield is obtained. The SARIMA precipitation indicator detects the same linear correlation with the yield of the same wheat, slightly higher (0.19). Since the SARIMA model is linear, shows a greater linear correlation than the XGBoost. However, as will be seen from Table 2, data may present non-linear aspects that the seasonal time series model fails to capture. The heat indicator, on the other hand, has a negative linear correlation with North wheat, both what is calculated with XGBoost (-0.17) and with SARIMA (-0.15). As the heat increases, the yield of the crop is lower. As for the yield of Centre wheat, the results are very similar. In particular, the deficit precipitation indicator shows a positive linear correlation of (0.11) when calculated with XGBoost and (0.18) with the SARIMA method. Similar to the previous performance, it registers a negative correlation when it is evaluated with the heat indicator with both methodologies.

Table 2 shows that the SARIMA method, unlike the XGBoost method, fails to grasp the non-linear dependence that exists between the bioclimatic indicators and North/Centre wheat. In fact, according to the XGBoost bioclimatic precipitation indicator, there is a positive non-linear dependence for North wheat with a tau of 0.14 and a tau of 0.17 for Centre wheat. The SARIMA method, on the other hand, estimates 0.089 and 0.086 Kendall correlations for the yields of the North and the Centre, respectively. A tau close to 0 would assume no dependency between indicators, but

<sup>1</sup> <https://www.bo.camcom.gov.it/it/borsa-mercii/listino-settimanale-dei-prezzi-rilevati-il-gioved%C3%AC>

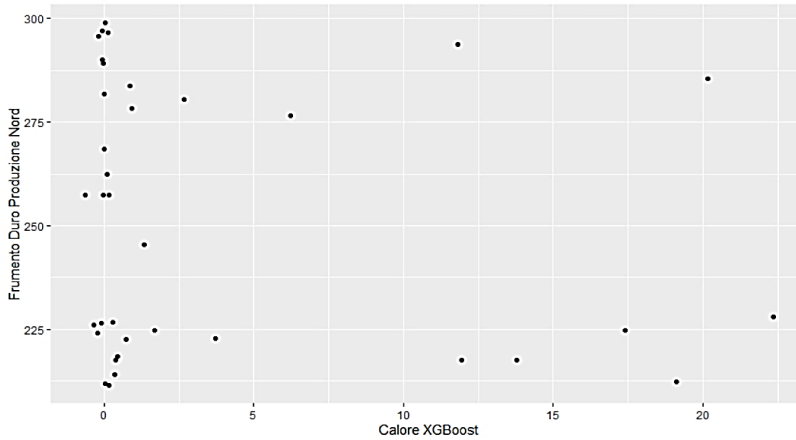


this is not true. Keep in mind that the seasonal time series method is linear, so it cannot grasp non-linear aspects of the Kendall tau as the XGBoost method does. Moreover, the SARIMA method fails to grasp the negative dependence that exists between the heat indicator and the performance of North wheat (0.10) and Centre wheat (0.11), detected instead by the XGBoost methodology with a tau of -0.16 and -0.13, respectively.

This result confirms that the choice of machine learning methods allows for obtaining more performing bioclimatic indicators than traditional methodologies.

The next step concerns the choice of the most suitable copula to analyze the dependence among bioclimatic indicators and yields. Figures 1–6 compare the bioclimatic indicators estimated with XGBoost or SARIMA and the yields.

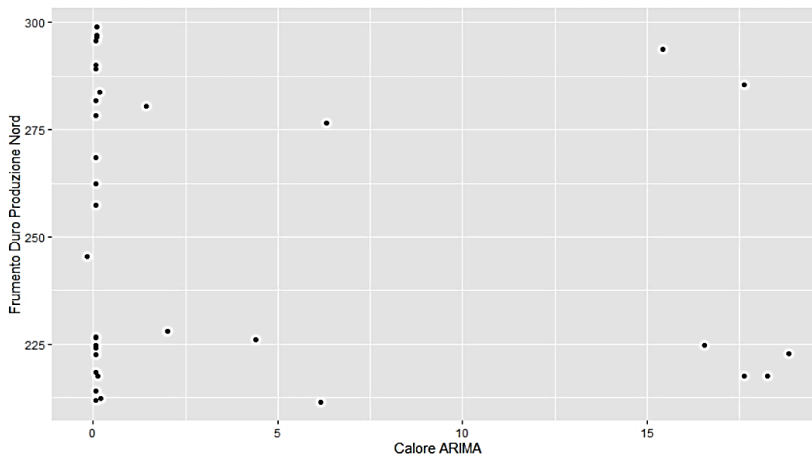
**Figure 1. Heat and North wheat correlation**



As can be seen from Figure 1, the relationship between wheat yields and heat presents heat values concentrated around zero in most cases with a variation in production yields. There are also cases of high heat and lower efficiency.

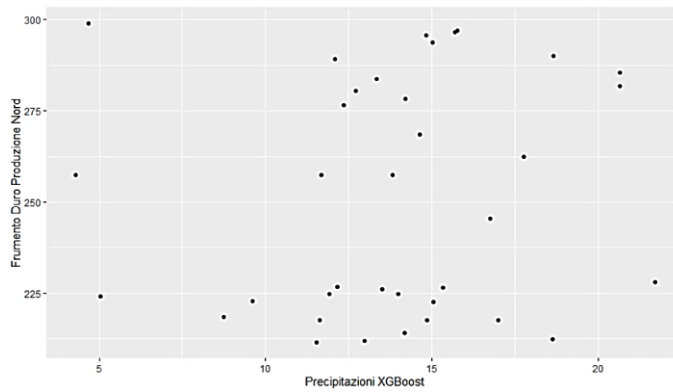
Figure 2 shows that yields are concentrated mainly when the heat indicator is zero.

**Figure 2. Heat and North wheat correlation**



Given the evident non-linear relationship between adverse weather events and loss of performance, we use a Frank copula.

**Figure 3.** Precipitation deficit and North wheat correlation



**Figure 4.** Precipitation deficit and North wheat correlation

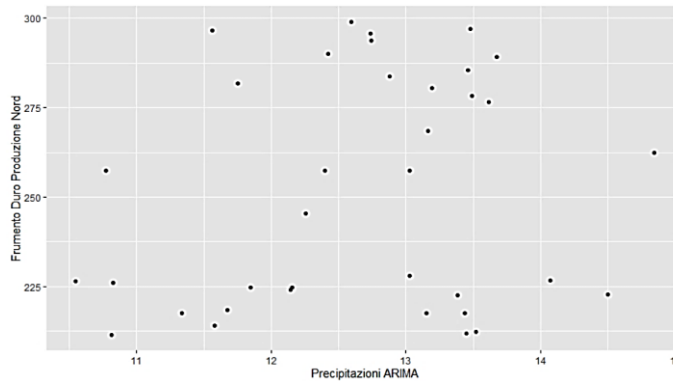
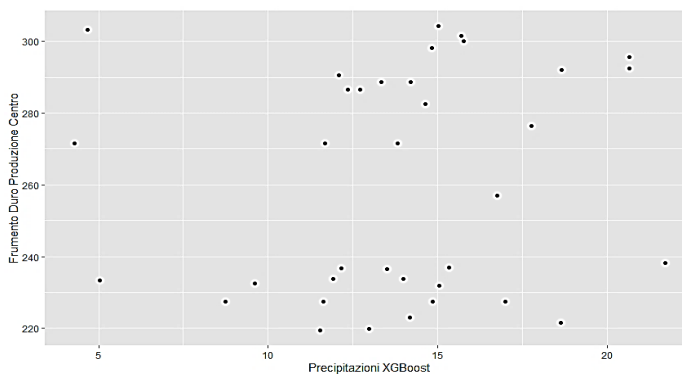


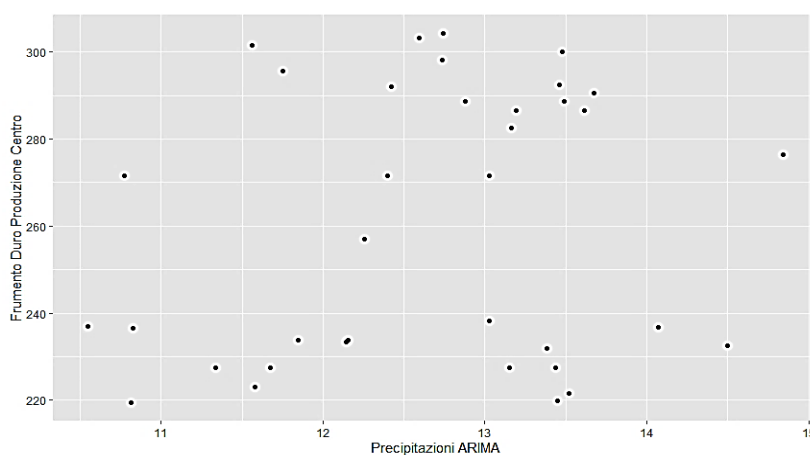
Figure 3 and Figure 4 show the precipitation indicator with North durum wheat, instead, show that in both methods there are random and independent values. This could be explained by considering that the yield of wheat is not affected by climatic precipitation. In this case, it is not necessary to estimate the copula, as no dependency between the data is verified.

Figure 5 and Figure 6 show a strong asymmetry between the data, no longer concentrated in zero. It should also be noted that the hybrid policy takes rainfall deficit as a benchmark.

**Figure 5.** Precipitation deficit and Centre wheat correlation



**Figure 6.** Precipitation deficit and Centre wheat correlation



Once the most suitable copula has been chosen to model the dependency structure between the data, the results are compared in Table 3.

**Table 3.** Copula estimation

	<i>North wheat and heat</i>		<i>Centre wheat and precipitation</i>	
	<i>XGBoost</i>	<i>ARIMA</i>	<i>XGBoost</i>	<i>ARIMA</i>
Copula	Frank	Frank	Frank	Frank
Parameter	-1.579	0.556	1.581	0.805
P-Value	0.618	0.010	0.461	0.382
Statistics	0.033	0.106	0.031	0.033

To model the dependence between the yields of North wheat with the bioclimatic indicator of heat, it was considered for the XGBoost method a Frank copula with parameter -1.58 while for the indicator estimated with the SARIMA method it was considered a Frank copula of parameter 0.56.

Table 3 shows that in the case of the heat indicator, the machine learning method is better than the SARIMA method in terms of p-value. The test, in fact, does not reject the null hypothesis in which the estimated dependence structure is equal to the observed dependence structure. In this way, accepting this hypothesis, it is asserted that there is no difference between the estimated and the observed structure of dependence. The test, however, is rejected for the heat indicator by the traditional method.

It can therefore be said that there is a structure of dependence between the two variables, and not only that, this dependence is estimated by Frank copula. It is therefore possible to assume that the heat indicator used in the hybrid policy for the cultivation of North wheat allows mitigating the basic risk.

As for the copula between the Center wheat and the precipitation, it is estimated a Frank (1.58) for the XGBoost method and a Frank (0.80) for the SARIMA method. Also in this case we can confirm what was said before, the machine learning method allows us to have indicators whose dependence structure is detectable through the copula function with a significant p-value.

To carry out a sensitivity analysis of the policy under consideration, several scenarios were examined to observe how the nature of the events the soil type, and the premium rate affect the refund of an insurance contract. The objective of this analysis was to identify the optimal composition of the soil in the number of hectares in order to ensure the solvency of the insurance company.

To proceed with this goal we divided the analysis into several working steps:

1) The first analysis to be carried out concerns the extreme case, considering the prevalence of hectares in the different types of soil;

- 2) An intermediate scenario was then studied in order to identify the limit composition;
- 3) Once the two limit cases have been obtained, the optimal composition of the consortium in terms of Solvency Capital Requirement and Fair Premium has been assessed.

In order to assess how the Solvency Capital Requirement and the fair premium affect the policy definition, several scenarios have been developed in which the composition of the soil type and the premium rate have been changed.

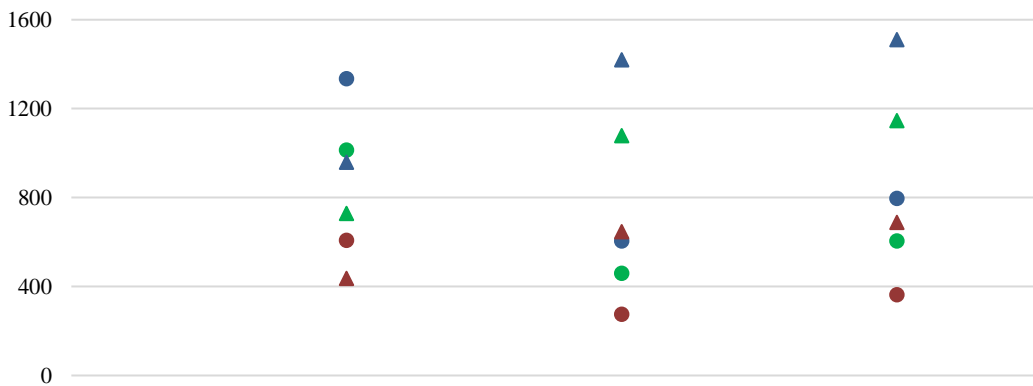
In particular, it is observed how the type of soil affects the probability of the event, extreme or not extreme, due to the strong correlation that exists between bioclimatic factors and the nature of the soil. Based on the pixel corresponding to the ground, the probabilities of the adverse event, extreme or not extreme, on which it is possible to build insurance policies are determined.

As a result, the combinations of the different types of soil and the probability of occurrence of the event were taken into account and based on this the different types of contracts were constructed.

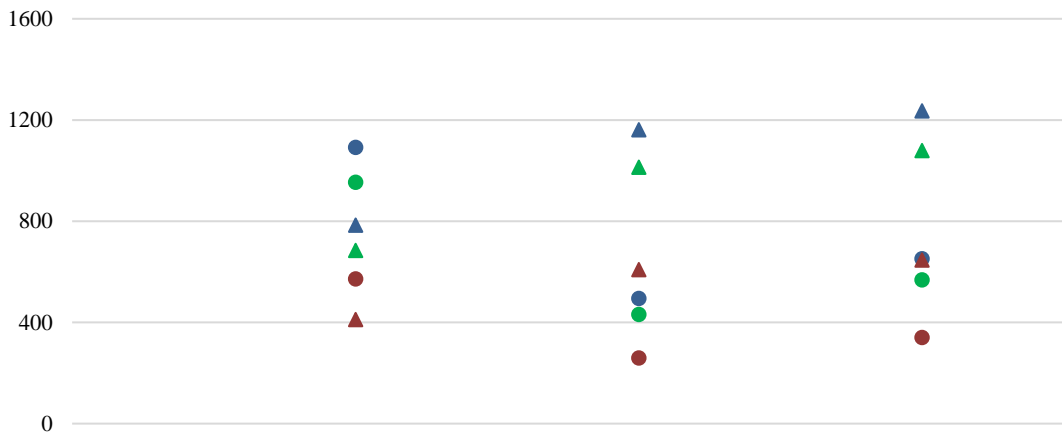
Subsequently, three new scenarios were considered, assuming the distribution of the number of hectares in the following way:

- Scenario 1: 50 hectares per A, 40 hectares per B, 10 hectares per C.
- Scenario 2: 40 hectares per A, 10 hectares per B, 50 hectares per C.
- Scenario 3: 10 hectares per A, 50 hectares per B, 40 hectares per C.

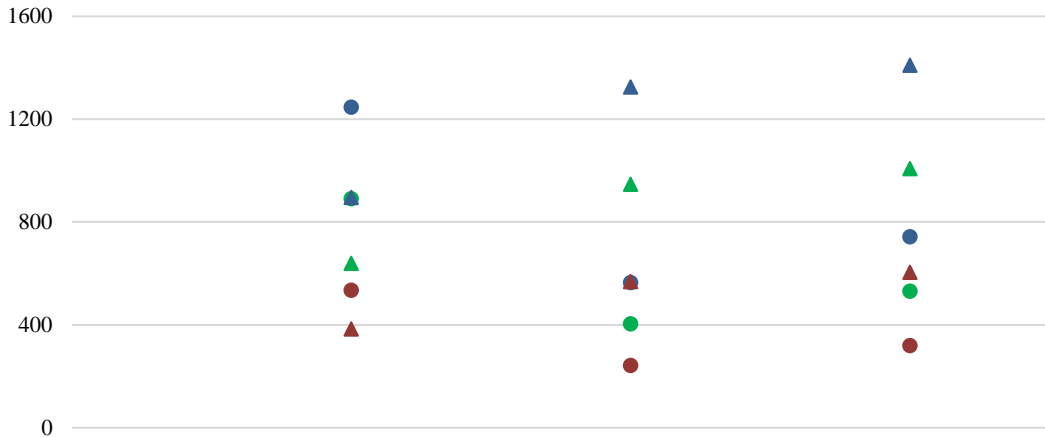
**Figure 7. Scenario 1**



**Figure 8. Scenario 2**



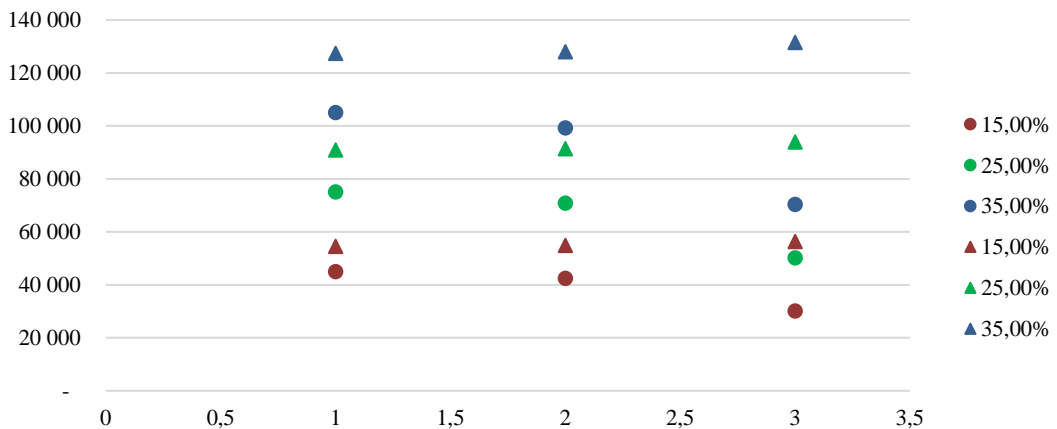
**Figure 9. Scenario 3**



Even when the composition of the consortium changes, for all three scenarios and premium rates taken into consideration, for soil A, a more expensive solvency capital, is obtained than the premium.

To get more information, we analyze the graph of the total pricing of the three scenarios considered.

**Figure 10. Scenarios comparison**



In this case, the main conclusions that can be drawn are as follows. For the premium rate at 15%, 25%, and 35% there are similar premiums for different scenarios, but the presence of fewer hectares in soil A (scenario 3) allows for having a lower SCR.

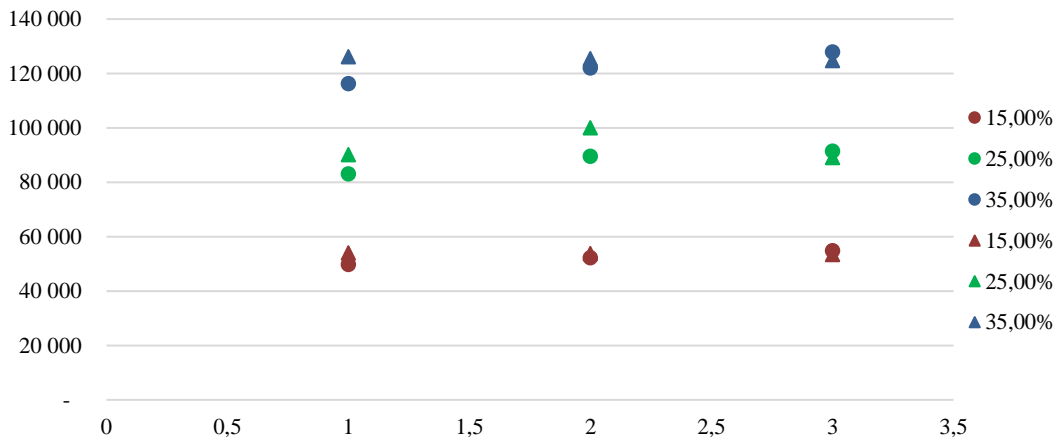
When the number of hectares is predominantly in acidic and saturated soil, values similar to scenario 1 are obtained, where acid and neutral soil prevail.

At this point, the results obtained for scenario 1 (50 hectares for soil A, 40 hectares for soil B, 10 hectares for soil C) and soil prevalence A were taken into account to assess the composition of the limit consortium (80 hectares for soil A, 10 hectares for soil B, 10 hectares for soil C) a saleable policy and an inadequate policy are obtained, respectively.

By fixing the premium rate at 15%, 25%, and 35% and the composition of soil C at 10 hectares, the composition of the soil was assessed as follows:

- 60 for A, 30 for B, 10 for C
- 65 for A, 25 for B, 10 for C
- 70 for A, 20 for B, 10 for C

**Figure 11. Ideal scenario**



From this, it is deduced that the company must fix the composition of soil A at 65%.

### 3. Conclusion

“It is all too well known that risks are high in agriculture and that exposure to uninsured risks is a major cause of low yields, slow growth, and persistent poverty” (Carter, 2014, p. 3). Uninsured weather shocks thus also affect farm workers, input suppliers, entrepreneurs and workers in agribusiness, and providers of non-tradable goods and services in the rural and non-rural economies. In other terms, the role of agribusiness is crucial and needs to be supported in particular against climate risks for developing the resilience of the whole economic system.

In this paper, we contribute to proposing methodological solutions for enhancing risk management and understanding how to assess climate-related risks, by offering a practical tool-box for promoting the insurability of these risks, in order to fill the climate protection gap. The results we show are promising and can be adapted to the case of the other European regions.

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# TECHNOLOGIES, ENVIRONMENT AND QUALITY OF LIFE: THE CAPITAL OF THE SMART VILLAGES

*Luisa Carbone \**

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**Keywords:** Technologies, Environment, Smart Villages

## 1. Future perspectives

The studies of the urban space in this post-pandemic era make us reconsider, once again, the effect that information and communication technologies are producing, but above all the community's perception of the environmental capital and tourism resources. The COVID-19 emergency has driven us to rethink the system of values, lifestyles, and the needs of communities. In this perspective, it has relaunched the role of the so-called smart villages. These smart villages, which are characterized by low density and rural depopulation, digital divide, division between urban and rural areas, and centralization of basic services, are experiencing a new vision that places them at the center of territorial marketing interventions declined in the four following dimensions: urban, agricultural, environmental, and technological. In this context, technologies are central to the revitalization of the territories. In particular, there is an interest in the use of Geographic Information Systems (GIS), which are tools and consolidated methods for geolocation, for the monitoring of environmental risk over time and the use of the environmental heritage, and for the economic and sustainable policies that pursue an efficient production, increased competitiveness and quality production. Therefore, the concept of sustainability is no longer linked only to eco-compatibility, energy saving, and/or waste management, which are now partial indicators of the quality of life, but becomes a new way of generating value requiring a more systematic recourse to dimensions (such as the territorial one), to actors (such as businesses, but also citizens/consumers), to approaches (such as the system one), to policies (such as local ones), which can make prosecutable a new development model in different contexts (Lascoumes, 1994).

In this way, the interaction with the territory and the technological enhancement become factors of attraction and an effective meeting point between the need to economically develop the territory and the need for a new way of experiencing it. From this point of view, smart villages are characterized by being hybrid territories and resilient to the historical and environmental events that distinguish them. Smart villages can be divided into three types: historical centers encapsulated in building expansion and industrialized agriculture, new settlements transfigured by the homologating recovery of tourism, and abandoned for catastrophic reasons. In this context of inhabited and uninhabited, green capital and its sustainability is becoming one of the most consistent objectives for the success of every operation in the territories. But, how can we economically measure sustainability if it is a multidimensional concept? Therefore, economic, social, and environmental aspects must be considered simultaneously.

## 2. Social media smart villages

From a technological point of view, the most appropriate tool for a multidimensional representation is the GIS for the ability to punctually and continuously analyze the territory, manage a large amount of information, possibility to update it, and be an excellent decision support tool. However, precisely this availability of technologies brings up a problem. It is necessary to build a real involvement of the population on environmental issues starting first of all from the awareness-raising and education phase, then putting together the right to enjoy a quality territory and the responsibility of the citizen, who must be active in this. The importance of sealing a sort of collaboration pact with the citizens to

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re-launch a smart village by recognizing the green heritage as a real economic resource and rediscovering one's own cultural identification is once again reaffirmed. In fact, it is no coincidence that the global and local tourist trend of the use of the environmental heritage of the smart villages, sees an increase in tourists with a higher level of education, belonging to the age group 35–55, who choose to visit parks and areas rural areas, even if not very popular, in order to get to know the local culture, traditions and gastronomy. These trends are produced by COVID-19. It must also be considered that the coronavirus stop has brought back the need for nature in the city (Intergovernmental Panel on Climate Change [IPCC], 2021).

The question is more open than ever: the combination of city and nature seems to be moving towards a symbiosis. This is because communities aspire to enjoy a high quality of life, so much so that they positively consider the restoration and reuse of existing structures, even at high density, as an antidote to sprawl. Therefore, territorial and environmental policies must take into account the needs of a new and different population with different real estate needs, but with an idea of the city and nature (Lynch, 1960).

This is demonstrated by the posts shared on social media with their unique ability to capture the mood of the moment and stimulate powerful actions. What are the problems in social media smart villages? The ubiquity of access to the web can lead to a huge flow of data on any announcement or initiative that is launched by local authorities on social networks; not everyone has access to or is sufficiently interested in, online activities. Knowing who is contributing is not entirely simple. The anonymity of the web arouses a healthy skepticism. On the web, undiscovered information becomes a chasm within a few clicks and that is why there must be prompt responses. There is a need for competent staff ready to respond to requests for information from citizens/users in an appropriate manner. Therefore, in a vast range of technologies, we still need a continuous updating of information and rapid assessments of the possible impact on the territories, in terms of identity and experiences, but also on the possibility of structurally understanding how the social network is formed and expands and is effective in local development.

It is evident that active citizenship is certainly an opportunity for smart villages as it is easier for the smaller urban dimension to become a space dedicated to dialogue, sharing, and development. In a certain way, all this availability of technologies not only makes us imagine but produces a village or a virtual landscape in real-time, which is increasingly illustrated through social media.

Citizens are able to report on everything because the social network is formed and expanded and is effective in local development. It is not just a matter of having to choose a specific and specific settlement model, but rather of identifying the sustainability rules applicable to all settlement models.

A joint effort is needed to restore the centrality to marginality by systematizing all the elements of a territory, which can activate a process of empowerment so that citizens and the sensors of the place can become the real protagonists of the green transition.

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# THE ECOLOGICAL TRANSITION: AN IMPOSSIBLE CHALLENGE OR A GREAT OPPORTUNITY FOR ENVIRONMENTAL SUSTAINABILITY?

*Giovanni Chiola \**

**Keywords:** Environment, Deep Ecology, Animal Protection, Principles of the Constitution

## 1. Pandemic and European funds

During the COVID-19 health crisis, the world's population realized how close the continents, states, and people that make up the global community are and how fragile it was as the pandemic rapidly unfolded. The universality of public health put to the test during the pandemic emergency allows us to focus our attention on environmental issues. We have lived for almost two years as prisoners inside our homes, witnessing from afar the impressive spectacle of nature reclaiming its space, for too long threatened by immoderate anthropization. Therefore, the ecological transition that has come to the fore in the last decade to bring about a change in our society has become a priority objective in the 2019–2024 period of the European New Green Deal<sup>1</sup>, respecting the criteria for environmental sustainability and seeking to halt the widespread and deadly phenomenon of climate change. After the pandemic emergency — thanks in large part to the President of the European Commission, Ursula von Der Leyen, the green transition has regained new momentum through the Next Generation European Union (EU) recovery plan (1/3 of the 1.8 trillion euros investment) and by raising substantial funding from the EU's seven-year budget. Analyzing the Next Generation EU package, it can be seen that the most crucial tool for the economic recovery of individual countries is the Recovery and Resilience Facility, commonly known as the Recovery Fund and, consequently, Recovery Bonds. This is a European recovery and resilience plan designed to shake up the economies of member states, such as Italy, which have been hit hard by the economic crisis triggered by COVID-19. The resources available from the European Fund regarding the ecological transition are very substantial compared to the other objectives (around 70 billion euros, 60 of which are financed by the European Facility). Still, the essential condition for European countries to receive European funds — in the form of low-interest loans and grants — is the presentation of well-designed projects. These must deal with the circular economy, energy efficiency of buildings, water resources, and pollution, but also with improvements in waste management that can contribute to the ecological transition. The PNRR (National Recovery and Resilience Plan), finally approved by a Council implementing decision implementing the European Commission's proposal, has enabled Italy to receive 24.9 billion euros in pre-financing or 13% of the total amount. Following a Europe-wide survey of priority actions to be taken by the European Parliament, climate change ranked first (43%).

## 2. The deep ecology

The strong need to rapidly innovate the law to address sustainability within the different member states, especially in light of the inability of environmental law to halt the degradation of the planet and protect the health of citizens, has forced a reconsideration of its foundations. It is thanks to the impetus of associations such as the Ecological Law And Governance Association (ELGA, [www.elga.world](http://www.elga.world)), created following the approval of the Oslo Manifesto, drafted in 2016 within the framework of the Academy of Environmental Law of the International Union for the Conservation of Nature (UCN) and the encyclical *Laudato si*<sup>2</sup>, that the new ecological constitutionalism has come

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<sup>1</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "The European Green Deal" on December 11, 2019.

<sup>2</sup> Holy Father Francis' encyclical letter *Laudato si* on caring for the common home can be found at [https://www.vatican.va/content/francesco/it/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](https://www.vatican.va/content/francesco/it/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html)

about. From this valuable laboratory, from the latest environmental perspective, capable of selecting virtuous case studies and creating new legal models of ecological protection and territorial governance, emerging best practices in different world areas have been rapidly disseminated. In particular, some recent proposals for change have been based no longer on an anthropocentric vision but on an ecocentric one (deep ecology), that is, placing ecological integrity at the center of law instead of human dominion over nature. Therefore, the earth will no longer belong to man, but man will belong to it (Cartay Angulo, 2012).

With the achievement of the indicators for monitoring the Sustainable Development Goals (SDGs) and the related 2030 Agenda, the principle of responsibility towards nature must be pursued by all countries through new legal norms and environmental governance. This involves making strategic choices in environmental, economic, and social issues to be carried out on a global scale. This is the result of the historical achievements in terms of international environmental rights, reached since the Stockholm Declaration of 1972, which incorporated the international principle of the connection between environment and economic development, but also with the Rio de Janeiro Conference of 1992, which established in Article 1 that “human beings are at the center of the issues of sustainable development. They have the right to a healthy and productive life in harmony with nature”. The implementation of this international provision is entrusted to public authorities and social components. In addition to cooperation between states, it is up to citizens to use instruments of direct participation and to resort to instruments of claim before the courts.

Today we realize, however, that the State, in order to achieve the *Buen Vivir*<sup>3</sup> (Greene, 2012) of the population, must necessarily invest nature with a special value, different from the past, that is, by giving it rights. The rivers, trees, and mountains seriously threatened by climate change can no longer be considered objects of right, but subjects of right, to recreate that harmony with nature governed by European legislation. Thanks to the indigenous movements, further developed protection was established through the jurisprudence of the land<sup>4</sup> (Baldin, 2014b) and the season of Latin American neo-constitutionalism. Andean constitutions introduced some provisions related to the rights of Mother Earth, which allowed the recognition of specific rights to “natural objects” such as rivers, trees (Mattei & Quarta, 2018), and animals<sup>5</sup> (Stone, 1972). Some Latin American states — such as Ecuador, which on October 20, 2008, following a popular referendum, introduced in the constitutional text the Universal Declaration of the Rights of Mother Earth (Franklin, 2013) and Bolivia, which adopted the document on February 7, 2009 (Storini & Noguera, 2008; Baldin, 2014a, 2015) — refer to the cosmo-vision of the Andean peoples<sup>6</sup> (Huanacuni Mamani, 2010; Pacari, 2009) that subverts the classical Western social, economic and political structure<sup>7</sup>. The juridical importance assigned to the rights of the earth is rooted in the most ancient traditions — that is, in the ancestral culture that revalues the primordial relationship with nature — and in recognition of a cosmopolitan juridical plurality belonging to the ethnic-cultural diversities present on the territory (Griffiths, 1986). In addition to human values (Bariè, 2014), ecologically sustainable practices have also been constitutionalized through the actions of indigenous peoples, aimed at claiming food sovereignty<sup>8</sup>.

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<sup>3</sup> The *Buen Vivir* used in Ecuador and *Vivir Bien* in Bolivia, cannot be translated as well-being but is translated as beautiful existence or worthy life through the delicate balance between instincts, reason and feelings to live existence intensely.

<sup>4</sup> On March 20, 2017, in the case of *Mohd. Salim v. State of Uttarakhand & others*, the High Court of Uttarakhand at Nainital, in the State of Uttarakhand, issued a ruling declaring that the River Ganga and River Yamuna are legal persons with all corresponding rights, duties and liabilities of a living person in order to preserve and conserve; on March 31, 2017, in the case of *Lalit Miglani v. State of Uttarakhand & others*, the High Court of Uttarakhand at Nainital issued a ruling declaring “the Glaciers including Gangotri & Yamunotri, rivers, streams, rivulets, lakes, air, meadows, dales, jungles, forests wetlands, grasslands, springs and waterfalls, legal entity/legal person/juristic person/juridical person/moral person/artificial person having the status of a legal person, with all corresponding rights, duties and liabilities of a living person, in order to preserve and conserve them. They are also accorded the rights akin to fundamental rights/ legal rights”; in Ecuador in 2011 the right of the Vilcabamba River to constitute itself as a civil party to defend its possibility to thrive from the threat of cementification was recognized. Some rulings produced during the brief constitutional experience of Ecuador and Bolivia are contradictory in their effective protection of the ecosystem.

<sup>5</sup> Following the publication of the volume of Stone, the idea arose that nature should be understood as a subject and not merely as an object of rights.

<sup>6</sup> The Andean cosmo-vision is a philosophy of life of indigenous peoples that compared to the tradition of the West intended a different relationship between man and nature, recognizing the rights of Mother Earth.

<sup>7</sup> The social construction linked to individualism, typical of Western societies, is replaced by the community life of the Andean peoples, as well as the monotheistic religion by the animistic indigenous one, the economy by the subsistence economy based on the simple principle of reciprocity.

<sup>8</sup> Articles 309, 375, and 407 of the Constitution of Bolivia; Articles 13, 281, and 282 of the Constitution of Ecuador.

This means preserving the autonomy of decision-making on their food and production system in contrast to what is imposed by the system of multinational food corporations and the World Trade Organization (WTO), marked by the intensive exploitation of essential resources such as land and water. Respect for the cycles of nature constitutes the concrete guarantee of the collective rights of indigenous peoples and the salvation of their lands seriously threatened by industrial progress (Hidalgo Flor, 2011). Some global Rights of Nature were recognized in the U.S. by the City of Pittsburgh, Pennsylvania in 2010<sup>9</sup>, the General Council of the Ho-Chunk Tribe in Wisconsin in 2016<sup>10</sup>, the City of Lafayette, Colorado in 2017<sup>11</sup>, the Ponca Tribe of Indians of Oklahoma in 2018<sup>12</sup>, the White Earth Band of Ojibwe in 2018<sup>13</sup>, the Yurok Tribe in 2019<sup>14</sup>, the General Council of the Nez Perce Tribe in 2020<sup>15</sup>, the Menominee Indian Tribe of Wisconsin in 2020<sup>16</sup>, by Orange County, Florida in 2020<sup>17</sup>, in Colombia in 2016<sup>18</sup>, in New Zealand in 2017<sup>19</sup>, in Mexico by Mexico City in 2017<sup>20</sup>, in Brazil by the city of Paudalho in 2018<sup>21</sup>, in Canada which recognized the Magpie River (*Muteshekau-shipu* in the Innu language) as a rights bearer in 2021<sup>22</sup>, in Ireland by the cities of Derry City and Strabane District Council, and the Fermanagh and Omagh District Council which passed rights-of-nature motions in 2021. These are subjects of law that can take legal action (as a living ecosystem where different human, animal, and plant species reside) to protect their rights and obtain reparation for any damage suffered. Stone (1972) argued that, like minors, the incapacitated or abstract legal entities, natural goods also need the assistance of guardians or legal representatives (through a guardian ad litem) who are holders of ordinary and extraordinary administration. The recognition of the rights of Mother Earth is an achievement of the legal sciences, as happened recently in the legislation of New Zealand<sup>23</sup>, but also in the jurisprudence of the supreme courts and

<sup>9</sup> United States: Pittsburg, Pennsylvania — Section 618.03(b): Rights of Natural Communities del 2010, establishes that: “Natural communities and ecosystems, including, but not limited to, wetlands, streams, rivers, aquifers, and other water systems, possess inalienable and fundamental rights to exist and flourish within the City of Pittsburgh. Residents of the City shall possess legal standing to enforce those rights on behalf of those natural communities and ecosystems”.

<sup>10</sup> In 2016, the Ho-Chunk General Council adopted a resolution declaring that ecosystems and natural communities possess inherent rights including the “right to exist and thrive”. The Ho-Chunk Nation is the first tribe to advance rights of nature proposal.

<sup>11</sup> United States: Lafayette, Colorado: Climate Bill of Rights del 2017 recognizes that: “ecosystems possess a right to a healthy climate”.

<sup>12</sup> In 2018, the Ponca enacted a customary law recognizing the “inherent rights of nature, including rights to exist, clean air and water, and to be free of contamination”.

<sup>13</sup> In 2018, White Earth adopted a law recognizing rights of manoomin, or wild rice. The inherent rights of manoomin, under the law, include, “rights to exist, flourish, regenerate, and evolve, as well as inherent rights to restoration, recovery, and preservation”.

<sup>14</sup> In 2019, the Yurok adopted Resolution 19–40 recognizing rights “of the Klamath River to exist, flourish, and naturally evolve; to have a clean and healthy environment free from pollutants; to have a stable climate free from human-caused climate change impacts; and to be free from contamination by genetically engineered organisms”.

<sup>15</sup> In 2020, the Nez Perce Tribe General Council adopted a resolution recognizing the Snake River as possessing fundamental rights, including rights to exist, flow, regenerate, and to restoration.

<sup>16</sup> In 2020, the Menominee adopted Resolution 19–52 recognizing rights of the Menominee River, declaring the river possesses “inherent and legal rights including the right to naturally exist, flourish, regenerate, and evolve; the right to restoration, recovery, and preservation; the right to abundant, pure, clean, unpolluted water; the right to natural groundwater recharge and surface water recharge; the right to a healthy natural environment and natural biodiversity; the right to natural water flow; the right to carry out its natural ecosystem functions; and the right to be free of activities or practices, as well as obstructions, that interfere with or infringe upon these rights...”.

<sup>17</sup> In November 2020, a law was passed in Orange County, Florida, that recognizes “the rights of rivers and other waterways to exist, flow, to be protected against pollution and to maintain a healthy ecosystem”.

<sup>18</sup> Colombia’s Constitutional Court in 2016 issued the first ruling in the country recognizing rights of an ecosystem. In its decision securing legal rights of Rio Atrato, the Court recognized “the Atrato River, its basin and tributaries as an entity subject to rights of protection, conservation, maintenance and restoration by the State and ethnic communities...”.

<sup>19</sup> New Zealand: Te Urewera Act, 4. Purpose of this Act of 2017, which states that the river: “is a legal person and has all the rights, powers, duties, and liabilities of a legal person”.

<sup>20</sup> Political Constitution of Mexico City, Article 13, A(3) of 2017, requires that “a secondary law shall be issued to recognize and regulate the broader protection of the rights of nature formed by all its ecosystems and species as a collective entity subject to rights”.

<sup>21</sup> Brazil: Paudalho Rights of Nature Law in English and Portuguese of 2018, which recognizes “that nature possesses rights to “exist, flourish, and evolve”.

<sup>22</sup> The resolutions adopted by the Innu Council of Ekuaitshit and the Minganie Regional County Municipality in 2021 are stable: “il Magpie River and its watershed possesses fundamental legal rights including: the right to live, to exist, and to flow; the right to respect for its natural cycles; the right to evolve naturally, to be preserved and to be protected; the right to maintain its natural biodiversity; the right to maintain its integrity; the right to perform essential ecosystem functions; the right to be free from pollution; the right to regeneration and restoration; the right to sue”.

<sup>23</sup> In New Zealand, on March 15, 2017, Parliament granted legal subjectivity to the Whanganui River. The Maori community in whose territory the river flows was named as the legal representative of the natural asset.

courts of merit in India<sup>24</sup> that associations and local communities have called to protect the rights of plants. In this regard, the Universal Declaration of the Rights of Mother Earth, signed during the First People's Conference on Climate Change and the Rights of Mother Earth, held in Bolivia in 2010, was presented for adoption to the General Assembly of the United Nations (UN) in 2012<sup>25</sup>. The future may constitute a new model of ecologically sustainable development within the European perimeter if not even internationally (Zaffaroni, 2011).

### 3. Animal protection

Issues related to environmental sustainability and climate change are intertwined with respect for all forms of life, including animal and plant life (Poncibò, 2016). Recognizing the rights of inanimate beings and animals requires a profound change of perspective (Viola, 2020; Mancuso, 2019), if not even of the form of the State that must turn towards the Caring State (Bagni, 2013), i.e., the State attentive to the needs of human beings in a holistic way, away from the liberal tradition and capitalist logic (Perreault, 2006). The EU has considered farm animals a “utilitarian” nature (Bertoni, 2016). These animals are necessary for the supply of human beings or other purposes, for which animal health prevention is essential for the protection of human health<sup>26</sup>. On the other hand, international animal welfare legislation also reflects this utilitarian approach despite different cultural and religious traditions. However, protecting the health of farm animals does not mean respecting the rights of animals. In legal terms, animals must be allowed to be subjects of law (Regan, 1986; Castignone, 2013). Bentham (2013) was the first philosopher to speak explicitly about rights, followed by Spencer's theory of rights (Spencer, 1852). He affirms that animals should be given mercy without exaggerating in order not to deprive them of their evolution. In 1800, some provisions against animal mistreatment and cruelty will be included in criminal law<sup>27</sup>.

The first international provision on respect for all forms of life was adopted on October 15, 1978, with the proclamation of the Universal Declaration of Animal Rights, while in 1970, the European Community enacted special legislation in favor of animal welfare through the establishment of minimum standards of protection, leaving ample freedom to each Member State to decide whether to adopt, consistent with the European system, stricter standards<sup>28</sup>. The first countries to constitutionalize the recognition of animal rights were Germany, Switzerland, Austria, and India, while other countries limited themselves to revising their criminal and civil codes (Rescigno, 2005). In Italy, we had to wait until Law No. 157 of 1992, which, in Article 1, states that wild fauna is an unavailable heritage of the State, and Law No. 189 of 2004, which prohibits the mistreatment and use in clandestine fighting or unauthorized competitions, introducing the ninth title of the Penal Code — Crimes against the feeling for animals (Article 544 ter). The Agreements stipulated between the Ministry of Health and the regional authorities on improving the conditions of pets have given them precious value. The position of animals as subjects of law instead of objects has changed with the approval of the amendment of Article 9, c.3, Cost. The change came about thanks to some bills such as the De Petris ddl<sup>29</sup>; the ddl No. 83, which provided that the Republic should pursue the improvement of the conditions of air, water, soil, and territory, as a whole and in its components, protects biodiversity and promotes respect for animals and the Perilli bill (A.S. 1203) which stated

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<sup>24</sup> See *Lalit Miglani v. State of Uttarakhand & others*, 2017, in which the courts reiterate the importance of trees to human survival and the connection of forests to the culture of the Indian people.

<sup>25</sup> The law can be found at <http://bolivia.infoleyes.com/shownorm.php?id=2689>

<sup>26</sup> The first law for the protection of livestock was passed in London in 1822; in 1824 the first Society for the Defence of Animals was established in London.

<sup>27</sup> Article 491 of Book III, Title III dedicated to the contraventions concerning public morality of the Zanardelli Code of 1889: “whoever is cruel to animals or, without necessity, mistreats them, or forces them to manifestly excessive work, is punished with a fine of up to one hundred liras. The same punishment shall apply to anyone who, even if only for scientific or educational purposes, but outside the places intended for teaching, subjects animals to experiments that are so repulsive”.

<sup>28</sup> Article 13 of Title II of the Treaty on the Functioning of the European Union states that the Union and the Member States shall pay full regard to the welfare requirements of animals as sentient beings, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage; Council Directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes; Regulation 2019/6 of the European Parliament and of the Council of 11 December 2018 on veterinary medicinal products.

<sup>29</sup> The ddl A.S. 212, De Petris added to Article 9 Cost. a paragraph according to which: “the Republic recognizes animals as sentient beings and promotes and guarantees their respect to an existence compatible with their ethological characteristics”.

that “the Republic protects the environment and the ecosystem, protects biodiversity and animals, promotes sustainable development, including in the interest of future generations”.

#### **4. The “untouchable” principles contained in the first twelve articles of the Constitutional Charter and the modification of Article 9**

In a historical period in which the perception of the unitary dimension of the environment concept is present, the modification of the fundamental principle of Articles 9 and 41 present in the first part of the Constitution has been approved in Italy. With the procedure of constitutional revision, the Republic guarantees the protection of the landscape and the historical and artistic heritage of the Nation and the safety of the environment, biodiversity, and ecosystems, also in the interest of future generations. The constitutional project, following an evolutionary line of constitutional jurisprudence, which has long placed the environment at the rank of a fundamental value of the Charter<sup>30</sup> (Caravita, 2005; Carbone, 2004), has revised a constitutional provision placed among the basic principles at the base of the constitutional text<sup>31</sup>, overcoming the many doubts about the actual feasibility of such a constitutional revision (Dogliani, 1990; Silvestri, 1987; Rescigno, 1997; Paladin, 1997; Modugno, 2005; Gambino & D’Ignazio, 2007). Many of which were fed by the sentence of the Constitutional Court No. 1146 of 1988<sup>32</sup>, which imposed a limit to the power of constitutional revision ex-Article 138 Cost, concerning the form of the Republican State, as provided by Article 139 Cost and consequently, of the supreme principles that make up the essence (Frosini, 2021)<sup>33</sup>. Many of which are contained in the first twelve articles of the Constitutional Charter, while others are located elsewhere in the Constitution. Equally, the problem arises of their immodifiability or the possibility of their integration as long as the most characteristic nucleus is not distorted.

It has undoubtedly been an “additive” correction that has determined an alteration of the balance between the fundamental principles of the Constitutional Charter. But the integration brought by the new value or fundamental principle is “improving”, despite the exercise of a strong compression against other principles, tampering with the architectural structure laid down by the fathers of the Constitution (Porena, 2020). Therefore, the limits encountered by the constitutional legislator in the operation of revision of the articles, including among the fundamental principles of the Charter, would concern not the drafting but the preservation of the normative content of such provisions<sup>34</sup>. On the other hand, it must be remembered that the environmental value was already contained within the fundamental principles of the Charter<sup>35</sup>, so it was a matter of fixing in writing what has always been done by the judges of the Constitutional Court with the evolutionary interpretation of Article 9 on the protection of the landscape “in conjunction” with Article 32 on the protection of health (Nicotra, 2021). If anything, some observations have emerged within the scientific literature on the actual usefulness of constitutional revision (Frosini, 2021; Di Plinio, 2021), especially in light of the conclusions reached by the Constitutional Court. Although it must be noted that the judgment expressed by the Constitutional Court must be confirmed from time to time, the opportunity of canonizing the environment cannot be denied, even if not dictated by reasons of particular necessity. In Italy, notwithstanding the results obtained by the Constitutional Court, the gap shown by

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<sup>30</sup> Constitutional Court sentence No. 407 of 2002 had stated that: “the legislative evolution and the constitutional jurisprudence lead to exclude that the environmental protection can be identified as a “matter” in the technical sense, considering that the environment should instead be configured as a constitutionally protected “value”, which covers in a transverse way different spheres of action”.

<sup>31</sup> Article 9 of the Constitution, following the completion of the constitutional reform pursuant to Article 138 of the Constitution, would be supplemented by the following paragraph: “The Republic protects the environment, biodiversity and ecosystems, also in the interest of future generations. The law of the State regulates the ways and forms of animal protection”.

<sup>32</sup> The Constitutional Court in its sentence of December 29, 1988, No. 1146, considered by law, is the second part of the sentence 2.1, has explicitly stated that: “the Italian Constitution contains certain supreme principles that cannot be subverted or modified in their essential content even by laws of constitutional revision or other constitutional laws”.

<sup>33</sup> Frosini argues that in order to avoid modifying the supreme principles, which would lead to the birth of a dangerous precedent, they could be interpreted as “meta-principles” which, however, would not allow them to be placed as a constitutional parameter.

<sup>34</sup> According to Porena (2020), “...not the drafting of the first twelve articles: what the Charter preserves, rather, would be the durability over time of the normative content of the aforementioned provisions” (p. 314).

<sup>35</sup> Constitutional jurisprudence has long affirmed the fundamental constitutional value of the environment. Some of the most important decisions of the Constitutional Court are: No. 167/1987; 210/1987; 641/1987; 800/1988; 324/1989; 437/1991; 54/1994 in [www.giurcost.org](http://www.giurcost.org)

the constitutional provisions on environmental matters will finally be covered by the new constitutional norm, which will assume a substantial scope and will petrify the choice of a value type. In the last decades, the Constitutional Court has laboriously interpreted Articles 2, 9, and 32 of the Constitution, elevating the environment to a fundamental constitutional value worthy of being balanced with other values and principles potentially in conflict (Caravita, 2005). Some (de Cesaris, 2021), however, deny the actual usefulness of this codification since the transversal value of the environment has never been confined in an enclosure, thus allowing the jurisprudence to extend the protection made necessary by technological innovations or developments in science or human activity.

## 5. The environment, biodiversity, and ecosystems

Over the past decade, the Constitutional Court has behaved in a “bipolar” manner on environmental issues. On the one hand, it has accepted the concept of the environment as a biosphere, implementing the 1972 Stockholm Declaration, which gave it a systemic meaning. On the other hand, it has considered examining the textual data offered by the Constitution (Article 117, c. 2, lett. s, Cost.), which contains a concept of environment-good that requires the centralized protection of exclusive state competence. The constitutional jurisprudence has been sensitive to recognize a dynamic scope to the environment, including in the biosphere all living things on earth, in the oceans and the atmosphere, or to acknowledge a global ecosystem including all ecosystems on the globe. The discipline, however, of the environment declined to the single ecosystem that belongs exclusively to the State must be interpreted as the protection of rights and interests that pertain to the Italian jurisdiction, leaving aside the discipline of other ecosystems (Vosa, 2017). The political appreciation must constitute the full realization of the principle of subsidiarity, involving the different levels of government concerned through the necessary forms of participation, even in open contradiction with the local, territorial realities (Azzariti, 2015; Feola, 2015). These are more aware of the changes in the ecosystem of reference and can directly influence environmental choices (Bifulco, 2008). The territorial boundaries in environmental matters do not reflect this concentricity, failing to protect the rights and interests of local authorities. The ecosystem must be a place where citizens who directly contact nature enjoy a legal position pertaining to environmental matters. Therefore, the local authorities, starting with the municipalities, the metropolitan cities, and the regions themselves, must recognize the rights and interests of citizens as living beings of environmental importance. The sensitivity of citizens, like that of institutions, has changed profoundly on environmental issues since the Constitution came into force. The Constituent Fathers were concerned with defending the historical, artistic, and natural beauty of our country by petrifying nature<sup>36</sup>. With the reform of Title V, made possible by constitutional Law No. 3 of 2021 was added to Article 117, c. 2 Cost., the words “protection of the environment and the ecosystem”, denoting attention to protecting the naturalistic habitat.

Finally, with the modification of the constitutional principle, the concept of biodiversity and “ecosystems” is inserted to underline the need for their composition with the environment. If, however, the environment already seemed to contain the ecosystem, following the constitutional reform that has made a clear division between the environment, biodiversity, and ecosystems, the content appears reduced and not very understandable. The concept of environment could alone absorb the ecosystems and, therefore, biodiversity which coexist with the different animal and plant species, climate, and various natural resources (Santini, 2021). The pre-existing Article 117, c. 2, points, Cost. would already protect the environment and biodiversity whose protection is entrusted to the legislature exclusively. Would this then be a repetition? In addition, the third paragraph of the new Article 9 Cost., contains a reserve of ordinary law on the regulation of the ways and forms of protection of animals. This is a profound change in the legal protection of animals, which has been treated as *res* until now. Italy is trying to comply with Article 13 of the Lisbon Treaty of 2007, in which animals were defined as “sentient beings”, even though this definition lacked legal protection.

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<sup>36</sup> On October 30, 1946, the First Subcommittee of the Commission for the Constitution had formulated a precise definition of nature: “Historical, artistic and natural monuments, whoever they belong to and in any part of the territory of the Republic, are under the protection of the State”.

It should be remembered that there are laws protecting animals, even if these same laws do not consider animal beings as subjects of law. But not even the constitutional amendment that seeks to imitate what was stated by the Treaty of Lisbon, if not adequately supported by the legislature, would be able to recognize animals as legal subjects. We have moved from an extensive interpretation of Article 9 Cost. to a comprehensive constitutional provision on the environment, including the animal heritage and its dignity as a living being. The dignity of animals, through its constitutionalization, would enjoy equality partially comparable to the human one that can mediate between some animal and human interests (Rescigno, 2021). We will have to wait for the constitutional prediction if and how the legislator will be able to implement the provision since the inertia shown so far on significant issues such as euthanasia, the responsibility of journalists, and life imprisonment does not allow us to have any illusions about its actual implementation.

## 6. Articles 9 and 41 of the revised Constitution

Moreover, the constitutional law had the ambition of modifying the provisions of the second and third paragraphs of Article 41 of the Constitution<sup>37</sup>, expanding the number of limits opposed to the freedom of private economic initiative. The second paragraph would substantially modify the list of values with the inclusion, together with security, freedom, and human dignity, of “health, environment” which, according to what was foreseen by the fathers of the Constitution, was traced back to the centrality of the human being to trace the balance between business and economic development. The first part of the formula, which proclaims that private economic initiative “cannot be carried out in contrast with social utility”, has remained unchanged. The last part of the third paragraph is involved in the widening of the discipline in the part in which it allows public intervention using appropriate programs and controls so that public and private economic initiatives “can be directed and coordinated for social purposes”, including “environmental” purposes. The new constitutional law is a confirmation of what has been summarized by the constitutional jurisprudence and what was anticipated with the reform of Title V, which introduced the exclusive task of the State to protect “the environment, the ecosystem, and the cultural heritage” (Constitutional Law No. 3 of 2001). However, it also conforms to the legislator’s direction who has intervened with extraordinary measures, such as the Alitalia case, to guarantee consumers and the relaunch of strategic companies for the national economic interest<sup>38</sup>. Health and the environment, which involve increasingly high-quality standards, have long constituted a limit to the freedom of enterprise. We remember, in fact, the implementation, even if late compared to other countries, of the European directives of the early eighties on the protection from pollutant emissions from industrial plants (Cassetti, 2021). The conflict between business growth and the Cost. of technological measures to ensure a reduction in the impact of industrial production on air quality has been resolved by the Constitutional Court by establishing the pursuit of the “best available technology” to ensure the essence of the right of business to continue to produce<sup>39</sup>. Before the constitutional reform, the environment was considered a fundamental interest of the community, as a general limitation of “social utility” in Article 41, c. 2 Cost.<sup>40</sup>. The constitutional reform, which has expressly included the words health and environment as opposable limits to economic initiative, must constitute a strengthening of the State’s commitment through their inclusion in a hierarchy of values. This would appear impractical in the light of the constitutional jurisprudence on the government’s decision to adopt emergency measures to ensure the continuity of production at Ilva of Taranto. In this decision, the judge of laws excluded the existence of the absolute and rigid hierarchy of values since he recognized their intertwining and connection in the logic of the system. Alternatively, it would seem that the constitutional legislator had limited itself to giving a “green” imprint to the constitutional system influenced by the Ilva affair even if for many decades the environment has been recognized as a constitutionally protected value that is protected through the pursuit of a “transversal” subject.

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<sup>37</sup> The new Article 41 of the Constitution includes in paragraph 3: “Private economic initiative is free and cannot be carried out in contrast with social utility or in such a way as to damage health, the environment, safety, freedom and human dignity”. “The law determines the programs and controls necessary to ensure that public and private economic activity is directed and coordinated for social and environmental purposes”.

<sup>38</sup> Constitutional Court sentence No. 270 of 2010.

<sup>39</sup> See Constitutional Court sentence No. 127/1990, para. 2 of the Consideration in law.

<sup>40</sup> See Constitutional Court sentence No. 190/2001, para. 4 of the Consideration in law.

The possibility of adopting, based on the new constitutional provision of public interventions in economic relations (programs and controls) based on purposes that are not exclusively social but also environmental, confirms what was previously invoked at the time when the public intervention in support of Alitalia (national airline) seemed to clash with the European principle of market competitiveness.

The Court affirmed the constitutional legitimacy of the regulation that allowed for the merger between Alitalia and AirOne, albeit in contrast with national and European antitrust regulations, acknowledging the necessary balancing act with other fundamental consumer rights to be guaranteed continuity of services. This was the constitutional coverage of the national antitrust law (Law No. 287 of 1990), using the instruments to intervene by the State in economic relations for social purposes, followed by the protection of competition according to Constitutional Law No. 3 of 2001. The rights of consumers which are protected in this procedural matter cannot disregard the interests connected to the protection of the environment, which constitute a basis for legitimizing instruments of public regulation that can be traced back to the general formula of controls and programs necessary for the coordination for “social purposes” of economic initiative ex-Article 41, c. 3 Cost, provided that the adopted measure conforms with proportionality and reasonableness canons (Cassetti, 2021).

## 7. Some critical observations on the constitutional reform

Since this is a reform *in melius*, the constitutional legislator has been allowed to act in an attempt to fill a normative gap that for too long has required an extensive interpretation. Only at the beginning of the third millennium, with Law No. 3 of 2001, was the environment expressly regulated. This determined a sudden shift from an excessive interpretative vacuum to the confusion generated by the provisions, which affected the division of competencies at a state, regional, and concurrent level.

The operation of constitutional engineering occurred during a challenging period for our country, that is, during the health crisis triggered by COVID-19, in which the Republic took on the task of constitutionalizing a commitment to animals and the environment.

Considering these premises, the doubt concerns the definition of environment, biodiversity, and ecosystems that, if on the one hand, would seem to presuppose different concepts such as ecosystem variety, living organisms interacting with each other, and adapting to the environment in which they are, on the other hand, the pregnant meaning of environment would seem to contain them. Therefore, the nomenclature provided for in Article 9 Cost. would reproduce the same confusion caused by the discipline set by Article 117, c. 2, point s, Cost., inherent to the state competence in the field of environment, ecosystem, and cultural heritage set by Article 117, c. 3 provided the shared competence between State and Regions in the enhancement of cultural and environmental heritage and, finally, of that discipline provided by Article 117, c. 4, Cost., which implicitly set the Regions’ residual power in environmental matters. Therefore, the regulation would be useless because it would not be followed by the rules and procedures necessary to implement the constitutional provision. For others, it would be, instead, a modification by addition that would strengthen the protection of the environment, including the landscape, so there would be no doubt from the point of view of the protection of cultural heritage, landscape heritage, and landscape. If in the past was derived from Article 9 Cost., the environment could generate a divergence of meaning with the notion of landscape, recently sharpened by the use of “ecological transition”. These are indefinite concepts that assume a different value depending on whether they are applied by the European Union or aiming to adopt measures to contain climate change.

The absence, in the past, of the word “environment” within Article 9 of the Constitution, that is, respecting an ecological balance, did not mean the absence of protection of an asset. The specific norm<sup>41</sup> (Pellizzoni, 2003) must be read in the context of the provisions and their actualization with social changes. The combination of Articles 9 and 32 of the Constitution constitutes the true essence of environmental protection. Environmental protection not only pre-existed Constitutional Law No. 3 of 2001 but it was also reaffirmed later in Article 117, para. 2, lett. s) Cost., which assigned the State the exclusive legislative competence of the “protection” of the environment, ecosystem, and cultural heritage.

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<sup>41</sup> In the bill A.S. 1532, Gallone, only one word was inserted in Article 9, c. 2, Cost: “environment”. It was a lighter intervention on the textual level as previously hoped by the doctrine.



The reference to the interest of future generations looks pretty abstract and inconsistent because it is not clear whether the reference is to a current and future interest or human interests in general. On the other hand, the reference to posterity is reminiscent of the preamble to the Constitution of the United States of America of 1787<sup>42</sup>, the Constitution of the Federal Republic of Germany of 1949<sup>43</sup>, and the Constitution of Luxembourg<sup>44</sup>. The constitutional legislator probably wanted to preserve natural resources — preventing, that is, a damaging imbalance that could affect the entire planet — allocating them to future generations and thus averting the danger of extinction of the human species itself. The new Article 9 Cost. would put on the same level the protection of the landscape of the nation and the protection of the environment, that is, inserting an equal-ordination between the substance and the form of both.

It should be noted that there are several limits to the approved provision. First, as Santini (2021) notes the general character of the precepts inscribed in the Constitutional Charter prevents the articulation of a discipline that could, instead, be successfully carried out with the instrument of constitutional law. Moreover, according to Santini (2021), one cannot overlook the excessive timidity of the reform, characterized, for example, by the lack of implementation of even extremely consolidated concepts such as that of “sustainable development”, not to mention the missed opportunity to offer possible solutions to the new problems discussed above. In particular, the opportunity has not been taken to design a decision-making process that would welcome and regulate the instances of transparency, participation, and collaboration between science and politics, so salient in ecological and environmental matters. In this regard, the lack of effective tools for governing environmental policies represents a significant negative constant in Italian institutional history.

## 8. Conclusion

Despite the important results achieved at the international, community, and recently national level, it has not yet been possible to avoid the ecological crisis that finds its most dramatic expression in climate change due to excessive gas emissions into the atmosphere, the impoverishment of biodiversity, and the unregulated exploitation of global resources. This “predatory approach to nature” perpetrates an anthropocentric logic based on the unchallenged dominance of the human being who, instead of enhancing the existing ecosystems, exploits them excessively, inevitably causing calamitous phenomena. This shows that environmental protection is inadequate and that it is essential, if not vital, a new vision that considers all the needs of nature and living species.

The global ecological crisis can be overcome with a biocentric (Gudynas, 2009) turn by the States that can enhance the ethical dimension and recognize nature as the owner of specific claims. The promoters must operate “from below” or through the codification of the rights of Mother Earth within the individual national and local legal systems. Undoubtedly, it will not be easy to recognize an autonomous entity of nature that can take legal action to defend its rights. The task of the judges must consist of defining the boundaries of the rights of nature to be evaluated on a case-by-case basis to which the recognition as a subject of law by politics must be added (Zaffaroni, 2011).

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<sup>42</sup> The Preamble of the Constitution of 1787 of the United States states: *We the People of the United States, for the Purpose of effecting a more perfect Union, establishing Justice, securing domestic Tranquility, providing for the common Defence, promoting the general Welfare, and securing the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.*

<sup>43</sup> Article 20 a. (Protection of the natural foundations of life and animals) of the Constitution of the Federal Republic of Germany of 1949: “The State shall protect, and thereby assume its responsibility towards future generations, the natural foundations of life and animals through the exercise of legislative power, within the framework of the constitutional order, and executive and judicial powers, in accordance with the law and the law”.

<sup>44</sup> Article 11a of the Luxembourg Constitution: “The State guarantees the protection of the human and natural environment, working to establish a sustainable balance between the conservation of nature, in particular its capacity for renewal, and the satisfaction of the needs of present and future generations. It promotes the protection and welfare of animals”.

The constitutional reform of Articles 9 and 41 is proof of the implementation by the constitutional legislator that, even if late, seems to have finally implemented the EU law on environmental protection<sup>45</sup>. Furthermore, the attempt to place in the foreground human responsibility in the preservation of ecosystems, in the name of future generations, allows, for example, our State to align with the process of constitutionalization, if not of the deep ecology of the Andean countries<sup>46</sup> (Pozzo, 2004), to many other countries, filling a severe deficit for a liberal democratic society.

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<sup>45</sup> See Article 25 of the Single European Act, which introduces a Title VII on environment to the EEC Treaty. For more precise references see Article 37 (Protection of the Environment) of the EU Charter of Fundamental Rights, states that: “A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development”.

<sup>46</sup> The Belgian Constitution in Article 23 regulates the right to protection of a healthy environment; Article 15 of the Constitution of Bulgaria guarantees the protection and reproduction of the environment, the maintenance and diversity of wildlife and the rational use of the country’s natural resources; the Constitution of Croatia in Article 52 provides that the sea, the beach, the islands, the waters, the air space, the mineral resources and other natural goods, as well as land, forests, flora and fauna, enjoy a special constitutional protection; the Constitution of Finland in Chapter II provides that public authorities shall endeavor to ensure that everyone has the right to a healthy environment and the opportunity to influence the adoption of decisions concerning his or her living environment; the Constitution of Latvia in Article 115 The Constitution of Latvia in Article 115 provides that the state shall protect the right of everyone to live in a favorable natural environment by providing information on the condition of the environment and promoting its preservation and improvement.

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# SOME CONSIDERATIONS ON THE RELATIONSHIP BETWEEN THE ROLE OF LOCAL PUBLIC ADMINISTRATION AND SUSTAINABILITY MANAGEMENT

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**Keywords:** Public Administration, Local Administration, Management, Sustainability, Public Management, Social Responsibility, Sustainable Development, Stakeholders

## 1. Premise: The need for socially responsible behavior

The legitimacy of the local public administration also depends on its ability to meet the expectations of numerous stakeholders. Furthermore, in recent years there has been more and more discussion on the social role of public administration, also due to the increase in environmental complexity resulting in particular from globalization, technological innovations, and cultural changes. Public administrations found themselves in the situation of having to implement, in order to be still viable and efficient, socially responsible behaviors in compliance with the following variables: 1) public interest; 2) value shift; and 3) stakeholder management. The pervasiveness of these components leads to improving internal and external relations of the administration and becomes a powerful means of communication between administration and stakeholders (De Matteis & Preite, 2015).

The implementation of socially responsible behavior generates a series of advantages for the administration; among the most important we can list:

- image improvement;
- increase in the satisfaction of citizens/service users;
- increase in employee satisfaction;
- reduction of waste, both material and immaterial;
- building a more efficient and effective organization;

Local public administrations, which will be able to operate in the logic of sustainability and maintain and improve it over time, will enjoy greater credibility, and a considerable competitive advantage and will thus, be able to satisfy the requests of all stakeholders (Anselmi, 1995).

To build a socially responsible management it becomes necessary to follow a specific path, the fundamental steps of which are:

- raising awareness of management on corporate social responsibility (CSR) issues;
- managerial training;
- formal assumption of social responsibility;
- identification and mapping of stakeholders;
- dialogue through a stakeholder-oriented structure;
- construction and monitoring of a set of performance/social sustainability indicators;
- cross-reading of social and economic performance, with identification of areas for improvement;
- external communication of the social report;
- critical discussion with stakeholders about the administration's work and its objectives.

All this presupposes effective public governance with adequate and well-defined management policies, including human resources as a determining factor for the creation of public value (Anselmi, 2005).

## 2. The concept of eco-efficiency in local public administration

The sustainability-oriented programming and control tools differ from the conventional ones because they aim to integrate the economic-financial data, subject to detection and representation of traditional

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accounting systems, with a series of information that substantially concerns the environmental and social impact generated by the production processes and the products/services offered by the local public administration (Fiordella, 2020).

On a scientific level, the adaptation of the more conventional public management tools with a view to sustainability has also required innovations at the scientific level.

With specific reference to the environmental dimension, the rationale on which such tools are built is represented by the concept of eco-efficiency which was originally introduced and illustrated in the international academic field (Schaltegger & Burritt, 2017). However, the term became widely used only later, when it was used by the World Business Council on Sustainable Development (WBCSD, 2000). In other words, eco-efficiency is achieved by providing goods and services at competitive prices that meet human needs and contribute to the quality of life, progressively reducing the environmental impact and the intensity of resources absorbed during the life cycle. We refer to both economic and ecological resources, referring to an optimal use of both.

To better understand the meaning, it is appropriate to start from the well-known business-economic concept of efficiency.

Efficiency is considered an integral part of the broader character of the economy — one of the fundamental distinctive elements used to qualify the company system — and indicates the ability to obtain the maximum result from the production means used (Potito, 2020). As a rule, it is expressed in the form of a ratio between the output obtained and the input used.

Of course, reference is made implicitly to an essentially economic meaning of efficiency.

Starting from this approach, the concept of eco-efficiency is developed by including in the reasoning the ecological dimension of efficiency, which, unlike the economic one, refers to the ability to achieve the maximum result from the means used, while simultaneously reducing the negative effects of productive activity on the environment.

Eco-efficiency, therefore, sums up economic efficiency and ecological efficiency, recording the improvements (and worsening) that occur in the two dimensions.

Ecological efficiency, in particular, can be observed with respect to two main objects, namely the product/service offered by the local public administration and its use.

The ecological efficiency of a product/service is commensurate with the environmental impact it generates with respect to its entire life cycle or a part of it. It can be expressed in terms of energy/resources consumed for each unit built. Eco-efficiency can be improved, in this case, by reducing the consumption of the input, replacing it, and introducing devices to treat the product that must be discarded, but it is not possible to go beyond certain limits if the asset in question by its nature has characteristics not at all or not very compatible with the environment. Think, for example, of some types of highly polluting vehicles (buses, etc.).

The ecological efficiency associated with the use of a product/service responds to a broader logic. The product is analyzed as an alternative to others, based on the relationship between the function performed and the environmental impact connected to it. Eco-efficiency can be improved, in this case, by replacing low-efficiency products with those that show greater environmental compatibility, containing the amount of product necessary to perform the function and extending its useful life. With reference, for example, to the local public transport function, consider the choice of using vehicles that ensure less pollution.

On the operational level, therefore, eco-efficiency represents above all a guiding principle that can inspire various solutions (DeSimone & Popoff, 2000).

There are different analytical formulas to enhance eco-efficiency, but in most cases, it is summarized by the relationship between the output, expressed in the monetary unit, and a measure of environmental impact.

The numerator can be quantified with multiple economic-financial parameters, while the denominator can be approximated with information of a “physical” nature.

It is not difficult to imagine that while the collection of economic and financial information falls within the full domain of conventional corporate information systems, the collection of data necessary to determine the physical impact of the economic activity conducted by the public administration is more complex.

The possible alternatives lie along an ideal continuum between two extremes. On the one hand, there are the solutions that prefer internally estimated impact measures, fully in line with an approach that tends to adapt existing detection systems to include the socio-environmental variable; on the other hand, the choices that contemplate externally collected data are positioned, inspired by a proactive attitude that leads to a rethinking of the detection systems, for a broader and more pervasive consideration of sustainability (Bonacchi & Rinaldi, 2007).

In any case, in the context of public management, the concept of eco-efficiency is used because it allows the unified consideration of economic performance and environmental/social performance, revealing itself as particularly useful for building balanced programming and control tools, suitable for bringing together the three dimensions of sustainability simultaneously and therefore the results that the local public administration achieves in their respective areas.

Although consolidated practices are not available, over time operational proposals have been formulated to translate eco-efficiency into appropriate sustainability tools in order to better respond to the knowledge needs of public management (Orlandini & Amelio, 2020).

### **3. The relationship between sustainability and the responsibility of the local public administration**

Sustainability, in general, and the countless regulatory interventions, in particular, have generated increasing pressures on the life of local administrations, which are placed under constant observation for the weight they assume in economic systems and also for the environmental and social repercussions deriving from the activity properly carried out (Ball & Bebbington, 2010).

The role that the local administration (and management) should play with respect to the more general sustainable development goals has been widely interpreted, but it has certainly evolved with respect to the past, moving from positions that tend to respect the rules towards more proactive attitudes. At the same time, the doctrinal approaches to the boundaries and contents of the responsibility of the local administration have undergone significant metamorphosis, to take into account the changes in context (not just regulatory) that local administrations have been called upon to deal with over time. In this sense, we move from the abstract discussion on the responsibility of public administration to a theoretical approach, to start promoting a managerial point of view, especially focused on tools, techniques, and procedures capable of taking into account the social variable environmental (Borgonovi, 2005).

Starting from the 1980s, the strategic connotation of socially responsible behaviors emerges and is affirmed, being able, for example, to assist in the legitimacy of the local public administration's action in the reference community, foster the sense of belonging and participation within the public administrative organization and, more generally, improve relations in the medium-long term with stakeholders. Therefore, the idea is consolidated that sustainability is an important variable in the choices of local public administrations.

In the 1990s, the triple bottom line model (Elkington, 2018) was developed and disseminated, which offers an answer to the need to measure and report the performance of the local public administration not only from its economic-financial dimension but also from the perspective of environmental and social.

More recently, expectations of local administrations have increased, so that they play a more active role in the pursuit of environmental and social equity, contributing to economic development, and limiting and correcting environmental degradation (Borgonovi & Rusconi, 2008).

Expressions have been developed, for example, such as public citizenship which emphasizes to the maximum the ethical dimension of the activity of the public administration. In this context, local public administrations have a moral duty to be responsible in all aspects of their management, not only by respecting the law but by concretely collaborating in the achievement of social well-being.

In public management studies, peculiar interpretations have been observed regarding the relationship of the local public administration with respect to sustainability, testifying to the evolution that characterizes this issue. Public sustainability is conceived as a process that aims to integrate the systematic management of environmental and social aspects with economic aspects, to achieve sustainable development both for the local public administration and for society in general.

Therefore, a perception of progress of sustainability emerges, with respect to which economic performance is an integral part, rather than in contrast with environmental and social performance.

Interpreting sustainability in this way, it is stated that local public administrations have an ethical obligation to be responsible, integrating the environmental and social aspects of the complex public activity in the management and therefore, in the strategy, in order to also improve economic performance financially.

#### 4. Sustainability tools and local public administrations

In local public administrations, the orientation towards sustainability leads to concrete results, involving all management, through the use of appropriate operational tools aimed at characterizing the principle of sustainability in the planning, management, and control phases (Campebelli, 2004).

In the planning phase, strategies and objectives oriented towards sustainability are defined; in the management phase, action is taken to achieve the definitive objectives, trying to achieve the desired from the point of view of sustainability; in the control phase (and reporting), the results achieved are summarized by communicating them internally and externally to understand the degree of achievement of the predefined objectives in the context of sustainability (Table 1).

**Table 1.** Possible tools for implementing the sustainability cycle

<i>A phase of the sustainability cycle</i>	<i>Possible tool</i>
Programming	<ul style="list-style-type: none"> <li>• Strategic plan;</li> <li>• Urban environment management plan;</li> <li>• Environmental impact assessment and strategic environmental assessment;</li> <li>• Local action plan;</li> <li>• Participatory budget;</li> <li>• Participatory urban regeneration programs.</li> </ul>
Management	<ul style="list-style-type: none"> <li>• Environmental management systems;</li> <li>• Green public procurement;</li> <li>• Standards for social responsibility;</li> <li>• Public policy evaluation systems.</li> </ul>
Control (and reporting)	<ul style="list-style-type: none"> <li>• Accounting and environmental balance;</li> <li>• Social report;</li> <li>• Sustainability report;</li> <li>• Report on the state of the environment.</li> </ul>

Source: De Matteis and Preite (2015).

The adoption of these tools denotes considerable attention to the issue of sustainability on the part of local administrations, as well as the possibility that all the tools available represent stimuli for the development of choices oriented towards sustainability.

#### 5. Final considerations

The large number of sustainability tools implies that there must be no confusion on the issue of planning, management, and control of sustainability, trying to define uniform tools that make it possible to compare the sustainability profiles of individual local administrations. Furthermore, these tools must necessarily integrate with the traditional compulsory programming tools already in use in local administrations (e.g., Single Programming Document, Executive Management Plan, etc.), so that the new documents do not appear as an unnecessary burden on the workload of individual administrations.

From these considerations derives the need for careful use of the tools, which must meet certain requirements, such as consistency with the culture and skills existing in the administration, as well as integration with the mandatory planning and control tools already in place use in local administrations, in order not to elaborate documents extraneous to the effective strategies and operational possibilities of the public administration.



What has just been said highlights the importance of sharing between the political and administrative spheres, first, and then with the entire structure, of the actual potential deriving from considering overall management based on the principle of sustainability. This is necessary, in order to materialize in the effective implementation of the sustainability cycle, an adequate culture of sustainability, and suitable skills so that it is transformed from a theoretical discourse to a practical exercise.

In summary, the role of the local public administration is fundamental: it represents the institutional reference point closest to the citizens and economic and social organizations. It has the task of promoting the culture of sustainable development through the development of an overall strategy articulated on several levels and of guiding the behavior of the community. Therefore, its greater responsibility is evident not only in the phase of adopting sustainable choices but also in terms of promoting and supporting policies that encourage their development (De Matteis & Preite, 2013).

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# CLIMATE REFUGEES: A SOCIO-NORMATIVE READING

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**Keywords:** Climate Migrants, Refugees, Inclusion

## 1. Framework of the topic

Art. 1 of the 1951 Geneva Convention defines the term “refugee” and specifies both the rights of forced migrants and the legal obligations of States to protect them; yet, in certain contexts, the definition of refugee is extended “only” to anyone fleeing from events that seriously compromise public order (OAU Convention 1969; Cartagena Declaration 1984, up to secondary sources protecting the right to life, health, to the principle of non-discrimination, interpreted teleologically and therefore extensively to include environmental protection).

In this perspective, also in consideration of the historical contextualization of ratification and entry into force of the Geneva Convention, and therefore in the aftermath of the Second World War, a reflection on the data is currently being examined by the scientific literature and the institutions of the international community so, in addition to armed conflicts or the compromise of human rights, massive exoduses result from aggressive climate change.

These contexts, which to date lack specific recognition and protection both internationally and nationally, in fact represent a phenomenon that has an impact, also in terms of the dynamics of the connection (in itself climate change does not lead to conflict, but for example increases insecurity food, complicates access to the means of subsistence and increases pressure on the education or health system) on sensitive sectors of a State.

In addition to armed conflicts or the compromise of human rights, we are witnessing a slow but evident and inexorable phenomenon of massive migrations from entire areas of the planet to others, even following unusual routes and itineraries compared to the traditional ones to which public opinion was accustomed and, in some ways, addicted.

In fact, it is now known, as well as easily verifiable, that the critical issues that emerge from climatic harshness favor phenomena of abuse and, more generally, political-institutional instability in the states concerned, also compromising their solidity with respect to relations with other countries.

In other words, it is not certain that the migrant populations are the same ones that today move for reasons of political asylum or for the protection of human rights that are denied or strongly compromised, since in this further aspect lies the peculiarity of displacements due to climatic reasons and the unpredictability of the relative effects on the destination realities and on the global dynamics that would inevitably be influenced by them (just think of the financial balances and the connected commercial traffic between States and the consequent destabilization of the markets in the time segments that countries affected by the phenomenon would require to readjust their services and its own structures to the new social composition of users and their needs).

It is no coincidence that the same International Law Commission (*Commissione di Diritto Internazionale*) in its second thematic note dated 19 April 2022 on the occasion of the 37th edition, placed emphasis on the dangers deriving from the phenomenon of rising sea levels and the protection to be guaranteed to threatened populations from this problem (*Commissione di Diritto Internazionale*, 2022).

Furthermore, the Global Pact for safe, orderly, and above all regular migration has given autonomous dignity to environmental factors as etiological factors of the massive movements of some populations, enhancing international cooperation as the main resource for containment and management of the migratory phenomenon.

Indeed, not even among the forms of protection provided for by European Union law is there, to date, any protection for those individuals who migrate for reasons linked to natural disasters or for causes relating to objective difficulties and looming dangers due to climate change.

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In the Euro-unitary context, the topic presents a greater disarticulation as it is analyzed and only fragmentarily regulated as an implication, or rather a collateral effect, of other issues addressed directly: by way of example and not exhaustively, an example is given by the Repatriation Directive, by the Qualification Directive and finally by the Temporary Protection Directive which, in light of the recent developments of the Russian-Ukrainian war, seems to corroborate the common thread regarding the recognition of refugee status exclusively for those fleeing from a context of belligerence.

In reality, the European Union has always been sensitive to climate change and has played a leading role in often proposing ambitious self-discipline objectives (as most recently confirmed by the Paris Agreement in which the US flat rate during the Presidency of Trump) so much so as to commit in 2021 to imposing real self-restraint, legally relevant, in achieving climate neutrality by 2050 or to reach 0% of net emissions mainly through the energy efficiency of its resources and the implementation of the relevant sustainability, without however considering that in the meantime it becomes a destination for massive migration phenomena by other peoples fleeing from a hostile and inhospitable geographical and climatic context often in contrast with traditional migratory flows.

The common denominator of the community sources, integrated by recent interventions on the climate (from the European Green Deal to the compendium of the 2022 EU Regulations for environmental protection, respectively focused on the regulation of energy inputs, pollutants, water, chemical agents, and food safety) is that of addressing the profile of exoduses induced by climate change as possible and above all tangential compared to other macro profiles, thereby offering some valid food for thought, which unfortunately are still excessively unstructured and above all indirect if not even marginal compared to a phenomenon that statistical projections consider instead in the growth phase.

As is clear from the reference framework, European policies focus on techniques for preventing and containing climate change, thus certainly offering valid resources in terms of prevention and, above all, deterrence of the resulting consequences, where the objectives connected to the implementation strategies are respected of their respective programs, however, revealing a short-sighted and deficient approach to the migrations already underway.

The risk is that of underestimating an exponentially growing phenomenon that is however capable of influencing the sensitive sectors of an entire continent from an economic, institutional, sociological, demographic, health, and educational point of view.

The data available to date, in fact, from a prognostic point of view suggests that climate changes will amplify natural dangers already present (famine, drought, and harshness of some geographical areas with consequent institutional and service fatigue) which in turn will have a significant impact on migration outcomes (Xu et al., 2020).

However, since on the scientific front, it is not already possible to establish a sufficient causal link between exoduses and environmental factors such as floods, storms or droughts, and migrations, the current contributions on the topic focus on a broad-spectrum analysis of the phenomenon by referring to migrations and displacements induced by environmental factors in any way and for any reason connected to climate change.

The interdisciplinary nature of the research program will allow us to answer the questions underlying the field of investigation and that is, in the medium term, to explore the current preventive tools available and what further useful mitigation tools may be, and, in the long term, to verify the possibility of recognition autonomy of the status of climate refugee (differentiated from the climate migrant who, although in exodus, still makes a voluntary and not forced choice) and thus identifies effective vertical and multi-level protection tools from the supranational to the local context also through adaptation policies in territorial scope.

The criticality of the matter lies in the incompatibility of the newly coined definition of “climate refugees” with the current sources which presuppose the existence of a condition of armed conflict or serious and imminent compromise of the rights to life and/or health, as a filter for the activation of the corresponding protection techniques.

The policies of the Union, as anticipated above, certainly reveal an approach based on the interconnection of the thematic areas treated with broad regard to their impact on the financial and sociological side but still eccentric with respect to the present field of investigation which, to all effects, represents a novelty on a legislative and scientific level.

Paradigmatic, as far as the Italian experience is concerned, the Teitiota case remains on the point, which seems to lead to significant openings on the topic by positioning itself as a living law and therefore a valid instrument for soliciting the reaction of the legislator: in fact, the Court of Cassation follows the same path Italian language reveals a certain sensitivity to these profiles as in various rulings it has re-edited the same principle of law according to which in applications aimed at obtaining international protection by the appellants it is necessary to also examine climate changes in the country of origins which may have determined or even just corroborated and/or accelerated the exodus of the applicant towards other States (Court of Cassation, order no. 6964 of 8 March 2023).

In particular, as mentioned above, the Teitiota case, although linked to the negative impact of the climatic degradation of origin on the fundamental life needs of the applicants, has taken steps to extensively reshape the traditional principle of non-refoulement applicable to refugees even in the case of in which non-refoulement concerns those who do not fall within the technical, traditional and rigid notion of refugee as long as a serious compromise of the right to life is at stake (thereby marking a sort of external limit to the extensive interpretation of the principle, although admitted).

The ruling of the United Nations (UN) Human Rights Committee also had an echo in the jurisprudence of the national courts, initially allowing, in the most serious cases, the erosion of the comparative judgment of the individual applicant with respect to the judgment of his integration into the social fabric for the recognition of the right to asylum (also recognized outside the fruitful integration process due to the seriousness of the conditions affecting those displaced due to the inhospitality of their habitat of origin, which in itself is considered self-sufficient for humanitarian protection); on the other hand, it has allowed the affirmation of a jurisprudential line in the process of consolidation and inaugurated by the ruling of the Supreme Court of 2020 with which the jurisprudence shows itself to be sensitive to the concrete situation of unsustainability of the development of a geographical area despite the pigeonholing of the case in point in one or the other definition: living law therefore grants the recognition of humanitarian protection in all those cases in which environmental impacts compromise the right to life or to a dignified existence of individuals.

However, since already on the scientific front it is not possible to establish a sufficient and/or self-evident causal link between the exoduses and environmental factors such as floods, storms or droughts, and migrations — since the relevant studies in this regard have stopped at the stage of confirmation of non-generalized empirical evidence — the current contributions on the topic focus on a broad-spectrum analysis of the phenomenon referring to migrations and displacements induced by re-environmental factors in any way and for any reason connected to climate change.

The data available to date, from a prognostic point of view, suggests that climate changes will amplify natural dangers already present (famine, drought, and harshness of some geographical areas with consequent institutional and service fatigue) which in turn will have a significant impact on the outcomes of migration (Kaelin, 2019).

Therefore, the starting scientific basis, although oriented towards significant openings and the awareness of a deficit in terms of protection of a phenomenon that is destined to expand exponentially with important repercussions on several States both directly and indirectly affected by the migratory flow, on the other is still wary of the recognition of full and all-round protection as the glimmers of extensivity are in any case limited only to the serious and current compromise of the fundamental rights of life and in general of leading a dignified existence.

The main challenge that arises is to explore the areas of multilevel regulatory intersection since international cooperation with third countries is still the main instrument of connection and harmonization to achieve uniform standards of protection for individuals involved in migration and also to discourage phenomena of abuse of migratory flows by antagonistic states.

However, although the UN has launched initiatives and programs, such as the Nansen Initiative and the Global Compact on Migration which provide States with guidelines for the protection of

climate refugees — while the EU has taken action with the recent CLICIM project (Climate Change Induced Migration) — none of these instruments introduce binding protection obligations for States.

In reality, on the international front, there has been no shortage of standardization proposals, some of which are also suggestive although too advanced and unrealistic compared to still immature political and institutional times, such as the stipulation of a specific international convention on environmental displacement rather than the addition of specific protocols to international acts already in force, or through more streamlined regulatory techniques such as the use of soft law or temporary protection instruments that allow timely valorization of the peculiar characteristics of the concrete case by intervening in a subsidiary manner in the face of the generalized inapplicability of the Geneva Convention to the phenomenon migration generated by climate change.

Therefore, the question of whether it is actually necessary to wait for a serious and irreversible compromise of the right to life to grant protection tools to the individuals involved rather than pursuing, in a precautionary logic, preventive protection tools, and whether it is possible to conceive an autonomous legal qualification of a completely *sui generis* phenomenon which, conversely, requires the articulation of its own regulatory sources, not being able to borrow the relevant discipline from the existing ones (which are, instead, focused on their own axes of rotation and ontologically different from to the current field of investigation).

In particular, two distinct hypotheses appear to be accepted in the literature which respectively consider the migratory phenomenon as a risk multiplier (Centro Studi di Politica Internazionale [CeSPI], 2011) for the creation of situations of instability that can be subsumed under the current notion of refugee, rather than developing the theoretical bases for the recognition of a *status hoc*.

## 2. Analysis of national regulations

Given the preceding premises, and turning our gaze to an introspective dimension with respect to the national system, a preliminary reflection cannot be ignored.

Contrary to what one might be led to believe, the immigration system in Italian legislation is among the most advanced in the world also in light of the fact that Italy is the only Member State of the Union to provide in its own system multiple protection statuses for environmental migrants (Bruno et al., 2017).

The first provision in this sense is Art. 20 of the Consolidated Law on Immigration which, anticipating the Directive on Temporary Protection which would be adopted after a few years, allows the adoption of extraordinary reception measures for exceptional events, including natural disasters.

Despite today the Art. 20 T.U. Imm. has never been implemented for reasons of natural disaster, it remains a very important provision in the Italian panorama. According to the Court of Cassation (sentence 4455/2018), humanitarian protection completed, together with the status of refugee and subsidiary protection, the right to asylum in Italy. Unlike other protection statuses recognized at European and international levels, humanitarian protection was not based on criteria or definitions, but on the assessment of the subject's vulnerability.

The flexibility of this instrument has made it possible to protect people who have emigrated due to floods, earthquakes, floods, drought, and extreme poverty caused by unsustainable environmental conditions.

In 2018, however, the Salvini Decree radically intervened in reforming the Consolidated Immigration Act and abolished humanitarian protection from the Italian legal system, replacing it with typical types of protection. The Security Decree has, in fact, introduced the Art. 20-bis in the Consolidated Law, which provides a residence permit for contingent and exceptional disaster situations, which was then further modified by the Lamorgese Decree, which, to issue the relevant residence permit, requires that the disaster be "serious" and no longer "exceptional and contingent", presumably broadening the scope of the provision in question.

The critical issue to be noted in this case consists in the fact that the Decree does not provide a precise definition of serious disaster but still leads us to believe that in evaluating the objective circumstances in which the applicant's country of origin finds itself, the competent authorities are required to also consider climatic-environmental conditions.

True, Art. 20-bis TU Immigration was again modified with Legislative Decree 20/23 (CD Cutro Decree), converted with amendments into Law No. 50/23 which effectively eliminated the changes made in 2020, narrowing their scope again.

The residence permit due to natural disasters is a permit that is issued to a foreigner already present in Italy who cannot return to his country of origin due to a situation of serious calamity which does not allow him to return to his homeland and remain in safe conditions.

Art. 20-bis, in the version modified in 2020, provided for a generic reference to the severity of the event which in itself constitutes the real reason for not wanting to return to the affected area. The intent was to allow the issuance of this permit in any case in which the socio-environmental context was so degraded as to expose the individual to the risk of seeing his fundamental rights to life, freedom, and self-determination eliminated, or in any case of them reduced below the threshold of their essential and unavoidable core (order of the Supreme Court, section II, no. 5022/2021). Following the changes introduced with Legislative Decree 20/23, it is now required that the serious disaster situation be “contingent and exceptional”, thereby excluding the possibility of including in the reference cases a permanent condition of climatic harshness or unsustainable development of the area of provenance.

In any case, alongside the development of effective protection of the rights of exodus, we question the potential extent of the environmental impact of refugee settlements to minimize and contain the phenomenon on a large scale.

### **3. Climate migrants and fundamental rights: Education and teaching methodologies**

Particularly heated is the debate relating to measures to deal with the migratory emergency and manage the flow of exodus once individuals, regardless of their recognized legal status, are preparing to benefit from the services and rights they aspire to in the country of arrival.

One of the problematic issues concerns the right to education and in particular the possibility of being able to access the school system by those who are culturally (linguistically, and not only) alien to the country of arrival, and to be able to concretely exercise their rights of education and training — to be understood also in a solidarity key — with a view to effectiveness.

In this regard, already on the level of teaching and applied methodologies the topic presents itself in all its criticality.

Education constitutes the necessary precondition so that freedoms can be consciously exercised, individual vocations can be realized, and the common good can be increased with everyone’s contribution.

According to Smith (1995), since improving education levels favors the virtuous circle between economic development and social development, it was necessary to facilitate education itself, making it economically accessible, encouraging student participation, and imposing a basic level of education on the entire population.

True, technology applied to teaching has long been a consolidated integration tool for those individuals who, regardless of their legal refugee status, must integrate into the production structure of the destination country (European Education and Culture Executive Agency, 2015), on the other hand, however, it is best to avoid exclusively protective attitudes towards refugees and instead aim for their integration path.

The refugee, if correctly inserted into the social fabric, does not constitute a threat at all, but rather a resource that allows one to contribute to the production of wealth.

Integration and autonomy are, therefore, the two main objectives to proceed, even in progressive stages, towards the gradual stabilization of psycho-physical and material situations and, on the other, the acquisition and consolidation of knowledge relevant to their development path. integration and empowerment.

For these purposes, basic IT training acts as a tool for integration and specialist-level training. In fact, in addition to broadening skills and, therefore, enhancing the employability of foreigners, it

also allows immediate access to crucial information to use local services and allows you to strengthen your knowledge of the local language of the host country and to communicate actively with the outside world.

In continuity with language training, the skills acquired must be clearly recognized; that is, it is essential that the training course can be placed within the official framework of a certification.

#### 4. Conclusion

While on the one hand research and the academic world can imagine valid paths to support the training of migrants, thanks to the use of educational technologies, the demand for a significant political response that favors access to training and education paths remains high quality and in a timely manner, and which can allow the recognition of activities carried out through the use of new technologies.

Emblematic is the need for mobile telecommunications infrastructures to fully exploit the potential offered by mobile technologies. Any learner should be able to access high-performance mobile networks for free.

Only in this way can informal and non-informal learning experiences truly be promoted wherever the student is, so that the city becomes the stimulus for defining learning episodes.

All this appears to be of particular relevance because it would put refugees in a position to benefit from educational stimuli, especially where or in those periods in which they are unable to follow formal learning paths with consistency and continuity.

The need to ensure effective learning of the language of the host country, to accelerate the evaluation and validation of previous skills, to promote common European values systematically at all levels of education, and to avoid the geographical concentration of students are thus identified as priorities. All this, of course, by leveraging the organizational structures of national school systems, as well as the preparation of teachers and trainers for greater multicultural diversity in learning environments.

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# THE CREDIT ACCESS ACTION OF MUTUAL GUARANTEE CONSORTIA (CONFIDI) IN SUPPORT OF SMALL AND MEDIUM-SIZED ENTERPRISES

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**Keywords:** Confidi, Guarantees, Financing, Corporate Credit

## 1. The legal nature and function of mutual guarantee consortia (Confidi)

The financial crises on one side, and the changes introduced by the new regulation on prudential supervision for banks and financial intermediaries on the other, have contributed to strengthening a process of radical transformation of the relationships between enterprises and banking firms (Dell'Atti & Miani, 2016, p. 9).

From the point of view of the banks, the growing difficulties observed in assisting the recovery of the real economy have been supported by the redefinition of the credit granting criteria, characterized by a high standardization of the processing of overdraft applications and by the employment of specific rating systems.

From the enterprises' side, such evolution has been translated into difficulty in accessing credit and/or an increase in the costs related to the financing agreements (Dell'Atti & Miani, 2016, p. 10).

In this scenario, the Confidi, the main activity of which is meant to grant collective guarantees on finance loans disbursed by the banks in favor of affiliated enterprises, has taken on an important role in the country's financial system.

The mediation of the Confidi represents an efficient tool to help improve credit access conditions and increase the quality of bank credit (Columba et al., 2010). By relieving the financing subject of a part of the credit risk, this particular type of financial intermediary may play a significant role in favoring credit access to enterprises, especially in the presence of small and medium-sized businesses, the financial reports of which often tend to represent higher criticality situations (Dell'Atti & Miani, 2016, p. 10).

Therefore, the Confidi plays an essential role, especially in the financial and economic crisis phases, ensuring that the disbursement of credit to the economy is not interrupted by the banking system.

Particularly, the activity carried out by the Confidi comprises, according to the case law (Civil Court of Cassation, 2014; Masucci, 1978; Bollino, 1980; Tucci, 1981; Bione & Calandra Buonauro, 1982; Vittoria, 1981; Cabras, 1986; Pettarin, 1990, Sacchetto & Barassi, 1991, Mosco, 1993, 1994; Fino, 1994), the provision of a guarantee which compels such entity to hold the creditor harmless<sup>1</sup>, whether totally or partially, for any possible losses resulting from the non-fulfillment of a debtor or any of his possible guarantors, after the related prosecution.

The conduction of such activity, which is instrumental to obtaining credit and which constitutes a phase of the activity of the associated enterprises, according to Article 2602 of the Civil Code (c.c.), allows the traditional configuration of the entity in terms of "service consortia" (Petrelli, 2005; Buonocore, 1977, p. 243), which provides guarantees and technical assistance to shareholders in the relationships with the credit system (Costi, 1982, p. 41).

With regards to the legal nature and the type of guarantee given by the Confidi (Fino, 1994, p. 9), Law No. 317 of 1991 has allowed the identification of two main features of the Confidi: the variety of associative structures that can be used to the purpose of their founding and the typicality of the purpose pursued by them. The freedom of constitutive typologies allows the unconcerned

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<sup>1</sup> On the general aspects of credit guarantee, see Tucci (1992), who observes how, by guarantee, is intended whatever contributes to satisfy the claims of the creditor. In such case the term refers, first of all, to the asset guarantee, the preservation of which is ensured with proper means (Article 2900 and the following) in the interest of the creditors, since the creditor pays his obligations with the debtor with his holdings only, that is, as Article 2740 affirms, with all his assets, both present and future ones.



employment of the form of the limited liability consortia, or those of the consortia and/or cooperative company; the typicality of the purpose provides that the Confidi conduct credit service activities through the provision of collective guarantees in order to “favor the granting of loans to small associated enterprises”, that is, activities related to “information, consulting and assistance to member enterprises for the sourcing and the best employment of the financial resources” as well as “provisions of services for the improvement of the financial management of those same enterprises”, which are activities to be considered as “linked and complementary to that of provision of collective guarantees” (Fino, 1994, p. 121).

## 2. The need for cash for small and medium-sized enterprises

One of the main difficulties found by small and medium-sized enterprises (SMEs) in relation to the social-economic system is represented by the difficult access to the credit market. The banking crisis has caused a drastic reduction of credit, especially for SMEs, which, more than the larger enterprises depend on the possibility to access bank loans.

This phenomenon does not just show in Italy, as SMEs use mostly banking channels in order to finance the acquisition of assets all over Europe (Ferrando & Preuss, 2018; Bonsi & Bruzzo, 2015).

A common feature that is, by now, common in SMEs, is the imbalance of the financial situation, which shows in the scarcity of own resources, the predominance of short-term debts compared to long/medium-term debts, the difficulty in collecting credit with a consequent increase in the impossibility to recover it, in the absence of correlation between long term investments, in the lack of current assets.

Such financial imbalance inevitably translates into a scarce capacity to access credit and, where possible, in conditions that are not always advantageous and, in more critical situations, in difficulties paying on time. Therefore, if, on one hand, enterprises need more cash, on the other, banks have increased the requests for guarantees of the Confidi for the purpose of granting credit.

In such context what was the main purpose of the activity of the Confidi changes? If, indeed, previously the guarantee of such an intermediary was needed mostly to obtain loans at better conditions, now the intervention of the Confidi becomes necessary mostly for the granting of loans.

However, considering that it is difficult to imagine a recovery of the real economy without an increase in financing from banks, the role of the Confidi becomes of fundamental importance.

In particular, the enterprises affiliated to guarantee consortia obtain loans with lower interest rates compared to the unaffiliated ones. Providing the intermediaries with their own knowledge on the prospects of affiliated enterprises, the Confidi improve their ability to evaluate creditworthiness; in many cases, they significantly help facilitate the preliminary procedures. In Italy, the early credit consortia were founded in the late ‘50s and early ‘60s (Locatelli, 2013, p. 18), as the “expression of an associative vocation among minor entrepreneurs” (Vittoria, 1981, p. 12). In particular, the Confidi originated from the will of small entrepreneurs to not passively entrust public assistance with the solution of their problems related to the difficulties in accessing credit, which is an essential element for the economic chain, but to solve them with a direct approach, setting aside the individualism that is typical of such enterprises<sup>2</sup>. An initial argumentative attitude of the lesser entrepreneurial class against the public welfare approach pursued by large enterprises is, therefore, to be presumed.

In any case, thanks to Law No. 374 dated 30 April 1976 and to Law No. 675 dated 12 August 1977, even the credit consortia founded by SMEs will be included in the scope of soft loans deriving from public intervention.

The first cooperation agreements between small and medium-sized enterprises, meant to overcome the difficulties in accessing credit, mostly initiated the creation of consortia.

In the event of an insolvency of any affiliated enterprise, the banks that were affiliated with the credit consortia could benefit from the protection of two types of guarantees. First of all, there was a risk fund, which was powered by the contributions of local entities and Chambers of Commerce, as

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<sup>2</sup> Such affirmation, as reported by Vittoria (1981, p. 12), recurs in the Report of the former President of FederConfidi, presented in the first general meeting of the federation held in Rome on 19 April 1973.

well as the grants from the affiliated banks and by the cancellation of a certain percentage of the interest paid by the affiliated company on the credit obtained.

In more detail, once the insolvency of one of the affiliated enterprises had occurred, the bank, after having initiated the usual credit recovery procedures, had the right to withdraw, from the risk fund and after having communicated the intention to the consortia, a sum that was equal to the amount of the debt of the enterprise, less the risk percentage not covered by the consortia's guarantee. In other words, the functioning of the risk fund could be assimilated to that of security bonds or cash collaterals. A sort of real security was, therefore, constituted.

Secondly, there existed a personal guarantee, which was issued by each company affiliated with the consortia that, at the moment of subscription, signed a surety against the bank. It was a guarantee that was only applicable in case the risk fund was not sufficient to cover the insolvency that occurred; if, then, the insolvent enterprise did not comply with the request of the consortia to honor the guarantees provided, the bank had the right to levy execution on the affiliated enterprises. This way, through the collectivization of personal guarantees and the creation of a risk fund, the SMEs were able to overcome the difficulties in accessing credit, mostly due to their limited size, in relation, moreover, to the competition with larger enterprises.

In other words, SMEs, through the founding of credit consortia, have been able to obtain bargaining strength in their relationship with the banks.

Furthermore, they have managed to spread the cost of a high number of operations, reducing important large-scale diseconomies due to the small size of the companies. After all, they have allowed the banks to subdivide risk and to operate based on an evaluation of the credit score that had already been conducted by the credit consortia.

### **3. The regulatory evolution of mutual guarantee funds (Confidi)**

The collective guarantee credit consortia system has undergone significant transformations, over the years, that were mostly due to regulatory, direct, and indirect interventions, meant for a process of concentration of such entities and the strengthening of larger-sized companies (Locatelli, 2013, p. 15). The system, albeit maintaining a primary objective to provide support to smaller and minor enterprises trying to access credit, has developed segmentation from the point of view of the company's dimension, accompanied by a different legal treatment (Locatelli, 2013, p. 16).

However, at the beginning of the '90s of the last century, a process of legal characterization of the Confidi in Italian Law started to form. The legal nature of such an operator, however, as already mentioned above, was known among the actors of the bank sector since the '50s.

During those years, indeed, some associations of small entrepreneurs were founded to pursue overcoming the difficulties in accessing credit through the issue of guarantees to cover the financing loans disbursed by the banking system to single affiliated companies.

The real rise of these entities happened in the '70s, when the oil crisis pushed credit institutions, in general, to stricter credit evaluation measures.

The early interventions of the law in the '90s limited the access to public benefits to subjects with certain organizational, dimensional, and operational characteristics<sup>3</sup>. The associations of entrepreneurs had, therefore, started to acquire common characteristics based on the shared intention to acquire the requirements to access the facilitating and incentivizing measures promoted by the law, outlining, this way, the main features of the economic operators that we now identify in the form of "Confidi". In other words, the legislative provisions in place, aimed at regulating the growth, development, and protection of the sector of SMEs in Italy, are not particularly directed toward homogeneously regulating the disciplinary of the above-mentioned associations of entrepreneurs, founded to provide collective credit guarantees, allowed the delimitation and the outlining of the typical requirements of the "Confidi". The latter, indeed, in order to be the recipients of public financing and contributions, because of their substantial role in support of the Italian productive fabric, had to adjust their dimensional, organizational, and capital structure.

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<sup>3</sup> See, for example, Law No. 317, dated 5 October 1991 on the interventions toward the innovation and development of the SMEs, or Law No. 108 dated 7 March 1996, which provided rules against usury, or Law No. 266 dated 7 August 1997, which provided a general rationalization of the public funds within the scope of the national guarantee system.

During the '90s there was, anyway, a direct intervention of the law, finalized to dictate a substantial, albeit episodic, disciplinary on the subject of Confidi: the Testo Unico Bancario (TUB)<sup>4</sup> Article 155 of this in particular, in its previous formulation<sup>5</sup>, provided for the inclusion of the Confidi in a dedicated section of the list included in Article 106, para. 1, TUB, considering such operators extraneous to forms of control exercised by the Supervisory Authority.

The historical-economic evolution of the Confidi, led the operators to widen their range of activities and services offered, no longer limited to the provision of social insurance guarantees. In particular, the Confidi started to provide additional services to their associates, such as consulting and assistance in the choice of technical forms of financing; in the procedures for access to public incentives; in the control and management of financial costs; and in the evaluation of the enterprise's risk strictly linked to the acceptance of the enterprise/entrepreneur as a member of the consortia.

This way, the role of the Confidi became more and more complex, similar to that of a Financial Intermediary, though without the proper organizational and control protections.

Over the 2000s, several parties (the Supervisory Authority, the Law) started to foster the conviction that it was necessary to enhance the concentration of the Confidi, to reach a higher capital adequacy and stronger governmental efficiency for the operators.

In addition, there was a further evaluation, originated upon the impulse of the internal works of the Basel Committee for Banking Supervision<sup>6</sup>, which proposed a change in the calculation system of the weightings of the banking assets, recognizing, among the types of grantors, the enterprises provided with rating. The capital strength and the reputation linked to the status of "financial intermediary", indeed, would have enabled Confidi to gain more favorable consideration from the rating agencies and the banks, through a weighted risk evaluation mitigated by such factors<sup>7</sup>. In light of this, the Law issued a rationalized set of rules of the Confidi with Law No. 269 of 30 September 2003, converted with amendments in Law No. 326 of 24 November 2003.

In brief, the Law Decree of 2003, converted with amendments, pinpointed three types of Confidi:

1) Confidi registered in the section of the general list included in Article 106 of TUB, which solely conducted collective guarantee and related services activities. The inclusion in the section did not enable the conduction of other operations that were reserved for financial intermediaries. Indeed, Title V of the TUB did not apply to them.

2) Confidi is registered in the special list as per Article 107 of TUB, undergoing a prudential supervision process essentially equivalent to that of banks depending on the quantity of financial activity and the available capital means. These subjects were allowed a higher operational capacity compared to other types of Confidi;

3) Credit guarantee banks constituted in the form of limited cooperatives, are subject to the TUB's regulations and the secondary regulation of the Bank of Italy<sup>8</sup> (Capriglione, 2012).

<sup>4</sup> Legislative Decree No. 385 dated 1 September 1993. <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:1993-09-01;385!vig=>

<sup>5</sup> The reference is to the formulation of the text of Article 155, of the Legislative Decree No. 385/1993, before the amendments made by Legislative Decree No. 269/2003 (converted with amendments in Law No. 326, 24 November 2003). In particular, Article 155 c. 4, rules: "*i consorzi di garanzia collettiva fidi, di primo e di secondo grado, anche costituiti sotto forma di società cooperativa o consortile, ed esercenti le attività indicate nell'articolo 29, comma 1, della legge 5 ottobre 1991, n. 317, sono iscritti in un'apposita sezione dell'elenco previsto dall'articolo 106, comma 1. A essi non si applicano il titolo V del presente decreto legislativo e gli articoli 2, 3 e 4 del decreto-legge 3 maggio 1991, n. 143, convertito, con modificazioni, dalla legge 5 luglio 1991, n. 197. L'iscrizione nella sezione non abilita a effettuare le altre operazioni riservate agli intermediari finanziari*".

<sup>6</sup> Upon reviewing the Agreement on Capital of 1988. In the Basel Committee for Credit Supervision, attention is placed on the effects of the new regulatory frame work for small and medium sized enterprises, see Associazione Bancaria Italiana (ABI, 2003). In January 2001, the Basel Committee on Banking Supervision (BCBS) published the document "The New Basel Capital Accord": a consultation document meant to define the new regulation on the matter of capital requirements of the banks (BCBS, 2001). After a long debate phase with the supervisory authorities of several countries and a series of quantitative investigations, the final text was produced in June 2004, while the implementation of the agreement was expected by the end of 2006.

<sup>7</sup> This according to whether the credit risk weight is the rating given to the enterprise by dedicated agencies (standardized method) or through risk evaluation criteria processed within the single intermediaries (internal rating methods); with regards to this, see the consultation document of 2001 of the Basel Committee with reviews the Basel Agreement of 1988.

<sup>8</sup> Particularly, with reference to the secondary regulation on the matter of "Credit Guarantee Banks", see the provision of the Bank of Italy dated 28 February 2008 "*Disposizioni di vigilanza Banche di garanzia collettiva dei fidi*" (to be read, today, paying attention to the amendments made by Memorandum 285/2013 to Memorandum 229/1999 and Memorandum 263/2006).

With the reform of Title V of TUB, introduced by Legislative Decree No. 141 of 13 August 2010, a new season of changes in the sector of Confidi started, and it will mostly involve the smaller ones.

First of all, it is important to highlight that the new Article 112 of the TUB has generated many changes to the regulation of the Confidi themselves.

In it, it is clear that there is a distinction between the list of minor Confidi (as per Article 112 para. 1 of the TUB), which also includes the second-degree Confidi<sup>9</sup>, and the registry of financial intermediaries as per Article 106 of the TUB, in which converge the so-called greater Confidi, characterized by a more complex functioning compared to the first ones.

On the matter of distinction between greater and minor Confidi, rules Decree No. 53/2015 of the Ministry of Economy and Finance, which provides that the operators with a financial activity volume equal to or greater than 150 million euros<sup>10</sup> are required to ask for the authorization of the Bank of Italy to be enrolled in the registry as per Article 106 of the TUB.

For minor Confidi having a financial activity volume equal to or greater than 150 million euros, they are to be registered in the list kept by the Body provided for by Article 112-bis of the TUB. Before the reform of Title V of the TUB, minor Confidi lacked an actual form of control of the dedicated authority. Today, instead, such subjects undergo the control procedures of the Body provided for by Article 112-bis of TUB, which manages the list set out by Article 112, para. 1, and is provided with autonomous verification and intervention powers. The “greater” Confidi, obliged to be enrolled in the register as provided by Article 106 of TUB, remains subject to the supervisory informational, regulatory, and inspectional activity of the Bank of Italy. For these subjects, there is no obligation to be registered in the list kept by the Body provided for by Article 112-bis.

Among the main purposes of the reform, there is, first and foremost, the will to realize a Confidi structure that is able to concretely support the economic system. What is required of the supervised Confidi is the ability to stay on the market in an efficient manner, with a correct allocation of public and private resources assigned to them (Zeloni, 2015).

It is in reference to public resources that the Supervisory Authority has highlighted how the sustainability of the present model of Confidi is still strongly linked to the support of public financing (deriving from contributions allocated by Local Entities, Chambers of Commerce, etc.), which, however, appears to be progressively reducing and subject to more restrictions.

It has, therefore, been observed how, in a phase or limitation of public financial incentives such as the present one, the choice of the Legislator has been that of orientating toward Confidi which shows the ability to distribute public resources to enterprises that effectively deserve being supported. This higher selectivity should, therefore, push the Confidi toward the research of better operational and allocation efficiency, to the purpose of being deemed to be worthy of public aid (Zeloni, 2015).

A further objective pursued with the reform under exam may be identified in the will to obtain higher quality, professionalism, and strength of the financial intermediaries, so as to have a financial mediation market ready to face the needs of the productive system. In other words, the objective is to grant access to the new single register to the sole adequate capitalized subjects, which have proper organizational and control systems and ensure the sustainability of the market in the long term. To this purpose, the level of attention of the Confidi to the administrative organization and to the control systems, which are no longer to be perceived as cost components, but rather as essential elements in order to ensure the sound and careful management of the intermediary, must be increased (Marangoni, 2015).

It is important to specify that Legislative Decree No. 241 dated 13 August 2010, for the implementation of the reform of Title V of the TUB, does not abrogate the previous reform operated by Law Decree No. 269/2003. The latter continues to be one of the regulatory sources of the discipline of Confidi (Conso & Varani, 2015, p. 7).

The regulatory framework of the reform of Title V of the TUB is completed with the implementation of the so-called implementation disciplinary constituted by the Decree of

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<sup>9</sup> To this purpose, it is important to note that, for the provisions set out by para. 1 of Article 13 of Legislative Decree 269/2003, “second degree Confidi” are the consortia with external activity, the cooperatives, the limited liability consortia, the joint stock consortia, established by the Confidi and possibly by the affiliated enterprises or their partners or by other enterprises.

<sup>10</sup> It is to be specified that, before the reform, the dimensional threshold of the volume of the financial activity was set at 75 million euros.

the Ministry of Economy and Finance No. 53 of 2 April 2015 and by the Memorandum of the Bank of Italy No. 288 of 2 April 2015. More specifically, on 8 May 2015 the Decree of the Ministry of Economy and Finance No. 53 dated 2 April 2015 was published, and it redefined the content of the activities reserved for financial intermediaries. With the above-mentioned Memorandum No. 288 of 3 April 2015 of the Bank of Italy, the regulatory framework for financial intermediaries to be enrolled in the register provided for by Article 106 of the TUB., as amended by Legislative Decree No. 141/2010 was completed (Banca D'Italia, 2015, p. 1).

From the date of the publication of the Memorandum of the Bank of Italy No. 288/2015, the transitional period of twelve months meant to ensure the transition from the old to the new regulatory regime ending on 12 May 2016, has begun and ended for the financial intermediaries enrolled in the general and special lists provided for by Articles 106 and 107 of the old TUB (Banca D'Italia, 2015, p. 2).

As regulated by Legislative Decree No. 141/2010, during this transitional period, all the subjects already enrolled in the general<sup>11</sup> and special<sup>12</sup> lists, that intended to continue conducting the activities reserved for financial intermediaries, have had to file an application with the Bank of Italy to be authorized to enroll in the register provided for by Article 106 of the new TUB.

On 18 March 2016, the Ministerial Decree dated 23 December 2015, No. 228, containing the disciplinary on the functioning of the new Body for the keeping of the list of the minor Confidi was published in the Official Gazette<sup>13</sup>. The above-mentioned decree entrusts the Bank of Italy with the task of suggesting to the Ministry of Economy and Finance the members of the Management Body of the Entity, selected based on predetermined criteria, among the candidates owning the requirements of professionalism, independence, and honorability as provided by Articles 3 and 4 of the Ministerial Decree No. 228/2015.

#### **4. The legal structure of the guarantee granted by the Confidi**

The Confidi favors the access to credit of SMEs or of self-employed professionals affiliated through the conduction of activities aimed at the issue of collective guarantees and their annexed or instrumental services while respecting the reserve of activities provided for by Law.

Even though the activity that is typical of the Confidi consists of ensuring that members are able to enjoy guarantees that they would have never been able to autonomously find on the market, due to their contractual weakness and the undercapitalization typical of the SMEs, the Confidi do not have any obligation to issue a guarantee to the associate who requests it, whom, therefore, cannot lay any subjective claim toward obtaining such guarantee (Vittoria, 1981, p. 114; Costi, 1982, p. 47): this can be done, after all, in compliance with the non-configurability of a subjective right to the mutual service in the more general system of cooperatives (Bassi, 1976; Buonocore, 1997; Tatarano, 2002; Casale, 2005).

The legally protected position of the associate consists, rather, in the normal demand that the Confidi orientates its own activity toward the provision of mutual guarantees through the provided corporate remedies, such as the entitlement to legally contest the resolutions of the corporate bodies, and the entitlement to activate responsibility against the administrators, in such a way that it is all compatible with the efficiency needs of the corporate management and with the application of the principle of equal treatment, which entails the duty, for the administrator, to grant mutual guarantees in order to satisfy the needs of all the cooperative members of the Confidi (Petrelli, 2005). For the disbursement of guarantees, the Confidi usually use a consortium's fund, constituted by the share capital, formed by the payments made by the single enterprises that compose the credit consortium and by the contributions granted by local Entities, Chambers of Commerce, trade associations, etc. (Lembo, 2014, p. 38).

Such payments and contributions flow in a dedicated account bound in favor of the single bank affiliated with the credit consortium. The purpose of this account is to face the insolvencies suffered by the financing credit institution, in relation to its own risk percentage. Furthermore, it is important

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<sup>11</sup> Ex-Article 106 of the old TUB.

<sup>12</sup> Ex-Article 107 of the old TUB.

<sup>13</sup> Gazzetta Ufficiale del 18/03/2016 — Serie Generale — n. 65.

to specify that the risk fund is not usually related to one or more specific operations, being it constituted as a general protection of the totality of the risks taken by the Confidi.

It is therefore possible to affirm that the financing credit institutions recover their credit, in case of insolvency of the enterprises that have been granted credit, on the risk fund (Vittoria, 1981, p. 130). With regards to the legal structure of the guarantee provided by the Confidi, and given that such operators are liable for the obligations taken on with their capital it is possible to identify its main characteristics as follows:

- It is a guarantee, usually of financial type, originating from a specific agreement entered into with the bank and granted through the employment of a specific document (the so-called guarantee granting letter) based on the single credit disbursed by the bank;
- It is an atypical guarantee;
- It is a guarantee of collective and mutual nature (between affiliated companies and associates);
- It is subject to the disbursement of the loan from the bank and, in case the loan is to be paid in installments, the value of the guarantee is reduced in relation to the installments regularly paid by the company that has been granted credit;
- It has an efficacy subordinated to the compliance with certain regulations, on the bank's part, which has been established within the agreement entered into with the latter;
- Usually, it is subsidiary, that is, it is characterized by the circumstance in which the enforcement of the guarantee only happens subsequently to the (unsuccessful) attempt to recover the credit, on the bank's part, directly from the main debtor (the enterprise that was granted the credit) and, therefore, on the real and personal guarantees which assist the financing (Lembo, 2014, pp. 39–40).

With respect to this last characteristic, it is important to specify that the Confidi supervised by the Bank of Italy can release, alternatively to subsidiary guarantees, “first request” guarantees. In case of a first request guarantee, the Confidi is liable for the obligations taken on at the moment the default of the company occurs and it is enforced after a simple request of the guaranteed bank. The recovery actions against the main obligated subject and the counter-guarantor are at the expense of the Confidi itself.

The Law, in trying to identify the nature and the type of guarantee given by the Confidi, deals with the legal problem, generally, if the guarantee assumed by the Confidi for the credit granted to the affiliated subject by a bank as provided by a specific affiliation subscribed by the consortium with the bank itself, can have a value and explain effectiveness only against the latter and not also in the relationships with possible personal guarantors: this to the purpose of verifying if the guarantee may configure or not a co-guarantee of the Confidi together with other guarantees possibly granted by other subjects in favor of the same enterprise (Siclari, 2018).

Should the latter be the case, the third co-guarantor, that has satisfied the creditor, would gain the right to be reimbursed the sums owed by the other co-grantors, the Confidi being some of them, although through recourse, as per Article 1954 c.c., that is, by virtue of the subrogation as provided by Articles 1203 and 1204 c.c.

To this purpose, it is observed how, as per Article 1936 c.c. the grantor is defined exclusively as the one that, by personally committing himself toward the creditor, grants the fulfillment of the other's obligation, so that, should there not be a valid contract or any other agreement between the claimed grantor and the creditor, there can never be a guarantee constraint, nor can any guarantee be configured, unless the grantor personally commits himself, though taking on a responsibility such as to allow the main creditor to be satisfied, through the mechanism of self-protection, on the sum allocated as a guarantee.

Furthermore, it is to be highlighted how it is not possible to consider a grantor someone who communicates to the debtor a simple intention to grant its debt against a third party, as it is not possible to originate a guarantee restraint based on the mere resolution of the administrative body of a subject, being it necessary to have a proper agreement proposal of the grantor officially accepted by the grantor, for a valid credit guarantee to exist.

For the constitution of the guarantee, it is, therefore, necessary to have an external manifestation of the will of the entity itself, excluding the legal relevance of the mere resolution of the Confidi to

grant a collateral guarantee, since, such crediting does not appear worthy of any legal protection. The Confidi has to pass from the mere resolution to its concrete and subsequent manifestation to the creditor, to allow the creation of a surety relationship. Only the manifestation has an external character and a contractual nature, while the resolution of the administrative body has only an internal character, which is not authorized to obligate the Confidi against third parties<sup>14</sup>.

## 5. The current framework of the Confidi

In the last few years, there has been a strong downsizing of the role of the guarantee of the Confidi (Banca D'Italia, 2017).

The reasons are many: some Confidi have not submitted the authorization request to be enrolled in the new register as per Article 106 of the TUB, because they had already scheduled concentration operations, or because they have preferred to stay within the scope of minor Confidi, taking advantage of the rising of the minimum level of financial activities expected for the mandatory subjection to prudential.

Other Confidi has submitted the application but has not been transferred to the new register because they have not received the authorization, or because they have renounced to pursue the authorization procedure, deciding to merge or put themselves into liquidation, or continue their activity as minor Confidi. In one case, following a supervisory inspection, the gravity of the situation of the newly enrolled Confidi emerged, and the latter had to terminate its activity. It was the first case a Confidi was canceled from the new register.

Further cases of corporate crisis have been dealt with both through merging, and proposals, to the banking system of "liquidation of assets" transactions on the deteriorated guarantees or with the introduction of "haircut" on those, which are not deteriorated. If, on one hand, such initiatives have limited the effects of the crisis of the single intermediary, on the other hand, they have influenced the reputation of the Confidi industry on the market.

The reduction in number of the Confidi is not, in itself, a negative element if it leads to a consolidation in the sector and to stronger subjects able to offer a better service. However, the offer of guarantees to enterprises that apply for bank credit is also diminishing.

The relaunch action must base itself on the analysis of the causes of the difficulties. Some are external, ascribable to the context of reference, and some others are internal, ascribable to deficiencies in the strategic choices, or technical weaknesses, to malfunctioning of the external and internal control mechanisms.

The three main external factors are about:

1) The contained profitability of the Confidi business, characterized by both the mutual nature of the operators themselves, which may align, though only partly, with the commission policy and the capital raising to the related risk components, and by the regulatory limitations, which restrain the possibility to open to share ownership and to the diversification of the activity;

2) The financial crisis, exceptionally long and deep, which has hit the SMEs in particular, highlighting the limitation of the guarantee systems<sup>15</sup>;

3) The increased role of the Guarantee Fund for SMEs, which has become, during the crisis, the main public tool to support credit access for SMEs. The fund has operated mostly in the form of direct guarantee, contributing to making the intermediation of the Confidi less appealing to banks. The contributions from the local Entities, Chambers of Commerce, and the Central State Administration itself, meant for the single Confidi, and that were very widespread in the past; seem to always find more limitations in the difficulties of public financing and the Community Regulations when it comes to Government aid.

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<sup>14</sup> Indeed according to the legal theory (Fragali, 1968, p. 185) the will to grant surety must be expressed, so that the implicit or indirect manifestations are not sufficient to the purpose.

<sup>15</sup> Indeed, the mutual support system for accessing credit, based on the share of the losses among the members of a certain economic category in a certain territory, can effectively ensure the idiosyncratic risk of enterprises, as well as they can lose efficacy during the long and deep recession phases. Other aspects of the crisis have circumscribed the role of the Confidi: the decrease in the structure of interest rates has aggravated the incidence of the guarantee commission on the total cost of the credit for the enterprise. Furthermore, the downgrading of the credit worthiness of the Republic of Italy has led the rise of the weighing factor to be applied to bank exposures toward the supervised intermediaries, to the purpose of calculating the capital requirements. The guarantees of the Confidi have, therefore, lost their attractiveness with both enterprises and banks.

The way out of these difficulties cannot just depend on regulatory interventions aimed at systematizing the public support to the Confidi; at favoring the diversification of the business, at creating, for the Confidi, preferential arrangements for access to the resources of the Fund. The relaunch of the Confidi system will occur if the single operators manage to occupy the market space that is offered to them, convincing the enterprises of the usefulness of sustaining the cost of the guarantees, and the banks of the efficiency of the informative content of the issued guarantee and the financial solidity of the grantor.

In order to do this, it is necessary to intervene on the three main internal causes of the difficulty: the strategic choices, the cost level and the weakness of the profitability, and the control mechanisms.

## 6. Conclusion

Banks, public financing entities, the Guarantee Fund, and the Control Authority itself, are more selective toward the Confidi. The strategic risk, linked to the inability to convince the different counterparts of their solidity and their abilities to select the clients, can represent, for the Confidi, a risk no less than the one linked to the deterioration of a credit portfolio.

It would be optimistic to ensure that such instability instances that have characterized the past will not occur again. The Confidi that will not be able to redefine their business, review their accounts, or enhance their net worth remain at risk.

The reorganization of the system will pass through a new cycle of concentrations. The recent experience has highlighted the fact that a merger represents an added value only if it is designed around a clear industrial project, aimed at identifying specific business objectives, containing structure duplications, to intensify cost savings, and to identify strong governance.

Many aspects are to be evaluated before coming to a concentration. It is important, indeed, to research the best combination between the advantages of the small dimension, which allows the closeness with the local productive fabric and helps the Confidi to conduct evaluation and risk control activities, and the advantages of the large dimension, which allows the utilization of economies of scale, to adopt standardized client selection systems.

Even the choice between the delimitation of the operability of the Confidi to one single financial sector, and the sector-based diversification, underlines a trade-off between informative, specialty, and risk diversification economies. Furthermore, the latter results to be more efficient in the presence of a low correlation among the different economic sectors of the same geographical area.

For the Confidi of the industrial sector, the portfolios of which are constituted by exposure of a unitary amount higher than the average of the other Confidi, the concentrations will be more useful to increase the granularity and the diversification of the risk.

In general, a sustainable asset can be obtained, partly, through forms of cooperation that are less radical than corporate aggregations, in which the trade associations, or the “second level” Confidi centralize functions on behalf of minor Confidi. The choices regarding this matter are forwarded to the autonomous corporate resolutions and the Bank of Italy will not decide *ex ante*.

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# MULTILINGUALISM AND MINORITY LANGUAGES IN CANADA: CONTEXTS, POLICIES, AND PEDAGOGICAL PRACTICES FOR A LINGUISTIC SUSTAINABILITY

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**Keywords:** Multilingualism, Linguistic Sustainability, Heritage Languages, Multilingual Education

## 1. Introduction

The present paper introduces the concept of linguistic sustainability, starting from the socio-economical origins, and discusses its application in terms of linguistic issues and pedagogical practices. It specifically focuses on the importance of linguistic sustainability as regards language maintenance and the consequences of language loss from a cultural and linguistic point of view. The paper addresses, in particular, the Canadian context for the heterogeneous linguistic background characterizing the country which struggles with the linguistic dualism of the language policies applied. Many sustainable and inclusive practices in education are discussed in order to propound practical educational tools to implement in real classrooms characterized by multilingualism and multiculturalism. The work concludes with a discussion of the new possible sustainable scenarios in language education.

Multilingualism in Canada is a well-known phenomenon addressed by several scholars in the field of sociolinguistics and language pedagogy. Nonetheless, it has been reported that approximately 20% of the total of just over 31 million Canadians speak neither English nor French as a mother tongue and are often referred to as “allophones” (Statistics Canada, 2007). It can be argued that learners belonging to the categories of minority and heritage language groups come to the process of language acquisition with a very diverse socio-cultural, educational, and linguistic background. They are also far from homogeneous concerning their educational needs and goals. The article examines the different contexts of the acquisition of heritage and minority languages in Canada to highlight the peculiar cognitive and linguistic profile of these learners of additional languages.

Besides, it propounds pedagogical approaches and school practices aiming at integrating minority and heritage languages with official languages to preserve linguistic diversity. Specifically, translanguaging has proven to be an effective pedagogical practice in a variety of educational contexts where the school language or the language of instruction is different from the learners' L1. It aims at empowering both learners and teachers, transforming power relations, and focusing the process of teaching and learning on making meaning, enhancing experience, and developing identities. Moreover, it deliberately breaks the artificial and ideological divides between indigenous versus immigrant, majority versus minority, and target versus mother tongue languages (García, 2009; Creese & Blackledge, 2015). Applying a translanguaging approach to research on multilingualism means going beyond the comparison between Second and Third (or additional) Language Acquisition (TLA), purely conceived in terms of level of attainment.

## 2. What is linguistic sustainability?

Generally speaking, the concept of sustainability was first introduced at the end of the 1980s and started to spread worldwide at the conference of the United Nations (UN) in Rio de Janeiro in 1992. The Brundtland report defines the term as “a form of sustainable development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Bastardas-Boada, 2014, p. 135). Nowadays, the term “sustainability” is employed in many domains by several social actors with different nuances of meaning. Overall, it can be argued that the sustainability perspective aims at integrating the development of human beings following

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a humanist approach that does not consider progress purely in terms of economic growth. This implies a rethinking of our society based on the paradigm of production and consumption. Most importantly, it involves the subversion of the standard values acknowledging the importance of cultural and identity values.

Sustainable development emphasizes the safeguarding of the natural environment, from an ecological perspective. This philosophy posits a way of overcoming the environmental crisis and safeguarding biodiversity. Accordingly, the sustainability approach can be transferred and applied to human language diversity and the detrimental effects of language loss can be discussed from a socio-cultural and linguistic perspective. According to Ramon Folch, linguistic sustainability should be a process of gradual transformation from the current model of the linguistic organization of the human species, a transformation whose objective would be to avoid that collective bilingualism or polyglottism of human beings must require the abandonment by different cultural groups of their languages (Reales, 1999).

The 2030 Agenda, adopted by the UN in 2015, has become a universal action plan in the pursuit of sustainable development. Nonetheless, the document does not explicitly mention languages and the way it deals with culture is very limited even though both can be considered key components of sustainable development. Languages are not even given a mention in the fourth goal, which focuses on inclusiveness and quality in education. However, a quality education also depends on the way we use languages in our education systems. In particular, it depends on the way we deal with minority and heritage languages to ensure equal opportunity and inclusiveness in a multilingual classroom.

Multilingualism represents a *de facto* reality in most countries of the world and the pedagogical practices employed to value linguistic diversity can be considered one of the crucial aspects affecting the quality of education. It can be argued that languages are a driving force behind the development, a key element in achieving peace and social cohesion and, most importantly, a human rights issue. As Marinotti (2017) points out, languages, particularly minority languages, are a decisive factor in giving the most vulnerable groups in society (including migrants, indigenous, and stateless communities) access to sustainable development.

The field of education is a target that is ever-present in the Cooperation for Development programs as well as in the Agenda 2030 Sustainable Development Goals. In particular, Goal 4, Quality Education, declares that “Obtaining a quality education is the foundation for improving our lives and creating sustainable development. In addition to improving quality of life, access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world’s greatest problems”. The authors of this agenda have undoubtedly considered it to be obvious that quality education entails learning and developing one’s native languages, whether they be unofficial or hegemonic. However, as already mentioned, languages are not cited as a factor at any stage, neither explicitly nor implicitly. Traditionally, and especially since UNESCO started to defend it in 1953, we have had the right to be educated in “vernacular language”. This was the name given at that time to native or indigenous languages which were generally unofficial. For the majority of these languages, this right has not been upheld. Hence, UNESCO has been reminding us of the need not only to use our mother tongues in our education systems but also to ensure a multilingual education, one that, on top of maintaining and revitalizing native languages, guarantees knowledge of official or national languages, as well as foreign languages. UNESCO defines bilingual or multilingual education as “the use of two or more languages as mediums of instruction”. The organization adopted the term ‘multilingual education’ in 1999 to refer to the use of at least three languages in the school environment: the mother tongue; a regional or national language and an international language (UNESCO, 2014).

Following this line, the challenges of sustainable development, as applied to multilingualism, deal with theories and reflections that provide information and suggestions for action to take that are relevant and applicable to any situation where there is a decline in or a threat to linguistic diversity. In this context, it is worth recalling the distinction between two different types of bilingualism: *i.e.*, subtractive and additive bilingualism. Additive bilingualism occurs when students’ first language continues to be developed while they are learning their second language. It is an approach to second language teaching in which the second language is seen as an addition to the learner’s first language rather than as a replacement for it. In additive bilingualism, educational support is offered for the first

language in tandem with second language instruction. Conversely, for Lambert, subtractive bilingualism is characterised by the loss or erosion of a home or first language and culture (1980, in Baker 1993, p. 57). In the North American and European contexts, this typically happens when a minority language learner “enters a school where a high prestige, socially powerful, dominant language like English is introduced as the exclusive language of instruction”, resulting in “a steam-roller effect of the powerful dominant language [that] can make foreign home languages and cultures seem homely in contrast, ghosts in the closet to be eradicated and suppressed” (Lambert, 1983, p. 100). In other words, subtractive bilingualism develops when the two languages are competing rather than complementary (Liddicoat, 1991, p 6).

### **3. Heritage and minority languages ostracism: Identity and culture loss**

The effects of subtractive bilingualism are detrimental for all those minority, indigenous, or heritage languages that, from a sociolinguistic point of view, are considered less prestigious languages or sub-varieties. Whereas earlier pedagogical programs had made reference to language education for “bilinguals” or “native speakers” the establishment of heritage language (HL) education as a field has brought the emergence of a new label and category: i.e., “heritage language learner”. However, there is no universal understanding of just what the terms “heritage language” and “heritage language learner” mean. Definitions differ on whether the primary focus is on the languages, their societal status, or individuals’ linguistic proficiency.

Researchers adapting the original Canadian usage by defining heritage languages as “languages other than the national language(s)” (Duff & Li, 2009) are generally more attuned to the socio-political status of a given language or to the collective rights and needs of the speakers of that language as a group. It is in this research and policy context where there are also ongoing debates about whether terms such as “ancestral language”, “minority language” or “community language” are equivalent or preferable to “heritage language”. On the other hand, researchers focusing more specifically on educational policy and curricular design tend to give greater weight to linguistic proficiency and cultural connections in their discussions of who should be classified as a heritage language speaker: either all individuals with an ancestral or family tie to the language — even if they have extremely limited or no proficiency in the language — or just those who have some productive and/or receptive ability. Implicit in the construct of heritage language speaker is the notion that the individual’s heritage language proficiency developed before her/his exposure to the national language, although this is not always technically the case. Thus, while the emphasis is on the individual speaker, language status generally is also implicated in proficiency-based definitions.

The definition of HL learners propounded by Hornberger and Wang (2008) refers to individuals who “have familial or ancestral ties to a particular language and who exert their agency in determining whether or not they are HL Learners of that HL and Heritage Culture” (p. 27). It is particularly interesting since it focuses on the centrality of affective issues, particularly those surrounding identity, belonging, and connections to the HL and heritage culture. Indeed, according to He (2006), identity is “the centrepiece rather than the background of HL development” (p. 7). On the other hand, definitions of HL learners such as Hornberger and Wang’s (2008), dealing with affiliation and identity, contrast with so-called narrow definitions of HL learners, which hinge on linguistic knowledge. Speaking to the latter type of definition, Valdés (2001) notes: “Foreign language educators use the term to refer to a language student who is raised in a home where a non-English language is spoken, who speaks or at least understands the language, and who is to some degree bilingual in that language and English” (p. 38).

In recent years, the term “heritage language” has been used broadly to refer to non-societal and non-majority languages spoken by groups often known as linguistic minorities. Those members of linguistic minorities who are concerned about the study, maintenance, and revitalization of their minority languages have been referred to as heritage language students. Such minorities include populations who are either indigenous to a particular region of a present-day nation-state (e.g., Aborigines in Australia, speakers of Breton in France, Kurds in Turkey, Iran, and Iraq) or populations that have migrated to areas other than their own regions or nations of origin (e.g., Mexicans in the United States, Turks in Germany, Moroccans in Spain, Pakistanis in England).

Minority languages or heritage languages include indigenous languages that are often endangered and in danger of disappearing (e.g., Scots Gaelic, Maori, Romani) and world languages commonly spoken in many other regions of the world (e.g., Spanish in the United States, Arabic in France). Since these speakers may acquire and use two or more languages to meet their everyday communicative needs in such settings, they have been referred to as circumstantial bilinguals/multilinguals (Valdes & Figueroa, 1994) and contrasted with elite or elective bilinguals/multilinguals who learn an L2 in classroom settings and have few opportunities to use the language for genuine communication. Circumstantial bilingualism/multilingualism is generally characteristic of populations who occupy subaltern positions in particular settings, whether they are indigenous minorities in established nation-states (e.g., Bretons, Samis, Kurds) or other border crossers such as migrants, refugees, nomads, and exiles.

The expansion of research on identity in language education contexts to include heritage language education reflects a recognition of the heterogeneity of learners' linguistic backgrounds and identities, as well as the types of investment that learners bring to language study. On the other hand, studies of heritage language education and learners have incorporated some of the theoretical perspectives and contributions from outside the field of heritage language pedagogy. As a result, it has been acknowledged that heritage language learners seek to (re)claim an ethnonational identity embodied in the heritage language, while also revealing that this ideology remains strong among students and teachers in many heritage language educational contexts.

#### **4. A focus on the Canadian context**

Debates about languages have been the object of controversy and struggles for decades in Canadian society. While some have questioned the relevance of the state policy of bilingualism since its inception, the focus of the discussion is the coexistence of official languages within the context of rising multilingualism in education. It is worth presenting a brief overview of the changing demographic context to situate the discussion of research perspectives on Canadian policy concerning multilingual and multicultural education. Then, recent research that concentrates more specifically on multilingual learners is reviewed, followed by an examination of innovations in multilingual education implemented in different areas of the country. Specifically, they belong to two different pedagogical approaches, namely, cross-linguistic transfer and translanguaging.

The central role of languages in Canadian society can be better understood with the following quote by Canada's Official Languages Commissioner, the federal government official charged with monitoring the two languages: "In the same way that race is at the core of what it means to be American and at the core of an American experience and class is at the core of British experience, I think that language is at the core of Canadian experience". Besides, to assist more accurately in the monitoring of the two official languages, Canada's census collects a number of demolinguistic descriptors not enumerated in the censuses of most other countries, including home language, mother tongue, first official language, and language of work.

As already mentioned, a multitude of languages is used in Canada. According to the 2016 census, English and French are the mother tongues of 56.0% and 21.4% of Canadians, respectively. In total 86.2% of Canadians have a working knowledge of English while 29.8% have a working knowledge of French (Statistics Canada, 2016). Under the Official Languages Act of 1969, both English and French started to have official federal status throughout Canada, with respect to all government services, including the courts, and all federal legislation is enacted bilingually. French and English were declared official languages, federal institutions were expected to offer services in both official languages, and provisions were made for all children to learn an official language at school. It is important to highlight that the rights of official language communities were already entrenched in the constitution with the Canadian Charter of Rights and Freedoms of 1982 while the Multiculturalism Act of 1988 recognized cultural and racial diversity in Canadian society. One of the objectives of the Multiculturalism Act was to preserve and enhance the use of non-official languages while strengthening the status and use of French and English in the country.

Nonetheless, statistics reveal an ambiguous portrait where a disjunction emerges between linguistic diversity on one hand and a federal policy still based on a linguistic duality on the other.

Indeed, Canada's linguistic diversity extends far beyond the two official languages. In Canada, 4.7 million people (14.2% of the population) reported speaking a language other than English or French most often at home and 1.9 million people (5.8%) reported speaking such a language on a regular basis as a second language (in addition to their main home language, English or French). Overall, 20.0% of Canada's population reported speaking a language other than English or French at home. More specifically, for roughly 6.4 million people, the other language was an immigrant language, spoken most often or regularly at home, alone or together with English or French whereas for more than 213,000 people, the other language was an Aboriginal language.

## **5. Rethinking multilingual education research: Sustainable educational practices**

Despite the research supporting the advantages of multilingual education, many Canadian schools continue to privilege the languages of instruction excluding other languages. Overlooking the presence of all the minority languages mentioned translates into a general marginalization of speakers of languages other than English and French from educational programs. Instead, educational approaches aimed at valuing the presence of minority languages at school see identity practices and multimodal literacies as central to teaching. They reject monolingual policies that marginalize students who speak non-official languages and, most importantly, they acknowledge the role of students' home languages in their lives and explore options that build on their multilingual skills. All students learn how to work across their differences and gain appreciation for different languages and cultures.

Several teachers and researchers have started exploring alternative pedagogies to encourage the coexistence and mixing of modes of expression to support learners in language diversity in Canadian society. The term "multilingual" has been increasingly used by educators to describe students from immigrant backgrounds who are in the process of learning the language of instruction at school. This is a positive affirmation that identifies multilingual students as "haves" (speakers of many languages) rather than "have-nots" (lacking proficiency in the school language) (Cummins, 2014). Researchers have discovered that by encouraging multilingual students to use their home languages alongside the language of the classroom, they come to view themselves as talented and accomplished speakers of multiple languages who are more likely to engage academically, rather than feeling limited by their current abilities in the school language. In recent years, Canadian teachers have been exploring a wide variety of inclusive learning strategies and programs that leverage students' multiple languages as enrichment opportunities for all students.

A valuable outcome of recent research is a rejection of the binary between native speakers and non-native speakers. Indeed, it is important to recognize that a heritage language speaker is also a constructed identity, one that is alternately contrasted to native speakers and non-native speakers, and which can run the risk of being seen as a bounded category, mutually exclusive with, as well as inherently subordinated to, the primary categories of native and non-native. The rejection of the monolingual approach to language teaching is a crucial aspect characterizing these innovative pedagogical practices. Indeed, as Grosjean (1985) has argued, L1/L2 users are not two monolinguals in one, but rather specific speakers/hearers who have acquired their two languages in particular contexts and for particular reasons. Viewed from a bilingualist rather than a monolingualist perspective, L1/L2 users have acquired two knowledge systems that they use to carry out their particular communicative needs that may be quite unlike those of monolingual native speakers who use a single language in all communicative interactions.

Among the most interesting and challenging cross-linguistic and identity text projects implemented in multilingual classrooms, Cummins (2014) reports:

1. Simple everyday practices to make students' languages visible and audible within the school;
2. Encouraging students to use their home languages for typical school activities such as reading, research, and note-taking;
3. Using technology in creative ways to build awareness of languages, geography, and intercultural realities;
4. Dual language project work.

Examples of Cross-Linguistic Instruction in Canada include the Dual Language Showcase (Chow & Cummins, 2003; Schecter & Cummins, 2003); linking languages through a Bilingual Read Aloud Project (Lyster et al., 2009); listening to dual language books (Naqvi et al., 2012). In particular, the Dual Language Showcase was created by educators at Thornwood Public School in the Peel District School Board to demonstrate the feasibility of enabling elementary-grade students who were learning English as an additional language to write stories in both English and their home languages. In particular, the authors reported that “students’ knowledge of additional languages was a resource to be shared rather than an impediment to overcome” (Chow & Cummins, 2003, p. 52).

The project exerted a significant impact on both the Ontario Ministry of Education and school district policymakers and educators in demonstrating that teachers could expand the instructional space beyond simply an English-only zone. The most interesting aspect of the project is that teachers aimed to include students’ and parents’ multilingual repertoires even when they did not speak the multiple languages represented in the classrooms. It opened up pedagogical possibilities for many subsequent multilingual pedagogy projects in Canada.

The vast majority of Canadian teachers agree that we should connect instruction to students’ lives, build on their background knowledge, and maximize their intellectual and aesthetic talents in an emotionally safe learning environment. Indeed, as Cummins (2021) points out in a recent work: “Imaginative innovation is neither costly, complex, nor radical. For example, it is hardly a radical proposal to suggest that educators should encourage students to use the full range of their intellectual and linguistic talents in carrying out projects or learning tasks” (p. 322).

Another innovative pedagogical practice that is worth reporting is translanguaging, which originated in Wales, where the languages of instruction were English and Welsh, and is currently implemented in multilingual school contexts. Generally speaking, translanguaging has proven to be an effective pedagogical practice in a variety of educational contexts where the school language or the language of instruction is different from the learners’ L1. Over the last few years, it has been advocated as a language theory and a pedagogical practice that empowers both learners and teachers, transforms power relations, and focuses the process of teaching and learning on making meaning, enhancing experience, and developing identities. It deliberately breaks the artificial and ideological divides between indigenous versus immigrant, majority versus minority, and target versus mother tongue languages (García, 2009; Creese & Blackledge, 2015).

A translanguaging approach, applied to research on multilingualism and minority languages, challenges the monolingual bias which conceives languages purely in terms of the level of attainment. Instead, it is advisable to switch the focus from the target language(s) to the multilingual learner as: “Someone who is aware of the existence of the political entities of named languages, has acquired some of their structural features, and has a Translanguaging instinct that enables a resolution of the differences, discrepancies, inconsistencies, and ambiguities and manipulates them for strategic gains” (Wei, 2018, p. 19).

Among the examples of Translanguaging Instruction in Canada, it is worth recalling the Linguistically Appropriate Practice (LAP) by Chumak-Horbatsch (2012). It implemented a range of multilingual instructional practices at the preschool and primary grade level drawing on the dynamic bilingualism framework proposed by García (2009). In particular, LAP is described as a new classroom practice that extends current inclusive practices and reflects the principles of dynamic bilingualism. “LAP views immigrant children as emergent bilinguals acknowledges their unique language and literacy needs, focuses on the social and communicative aspects of language, encourages translanguaging, promotes bilingualism, and builds partnerships with families” (Chumak-Horbatsch, 2012, p. 57).

Besides, many other linguistically sustainable activities have been developed by teachers in linguistically and culturally diverse school contexts. For instance, “Charting home languages” employs a color-coded chart including the home languages spoken. It allows a concrete visualization of children’s mother tongue in the classroom making them feel valued and appreciated. Another language practice is based on the use of material such as picture books, with objects to name in different languages asking the question “What do you see?”. Moreover, reading activities in the home languages involving parents/grandparents and translation provided by the teacher have been reported to be an efficient way to connect the home language with the classroom. Finally, sharing books and

newspapers with the children, for example asking them to describe the features of books and newspapers in multiple languages, visiting the public library, and creating multilingual newspapers and dual language or multilingual books can be considered translanguaging practices aiming at making feel minority language students unique with their own linguistic and cultural background.

## 6. Conclusion

Many considerations can be drawn from the discussion developed on the concept of linguistic sustainability applied to the Canadian multilingual context. While multilingualism is increasing in some sectors of the Canadian population, not everyone is benefiting from additional language learning. This speaks to a pressing need for further research and education about multilingualism in Canada to stimulate informed discussions about its complexity and reveal under what conditions it may benefit individuals and society. On the other hand, the innovations in multilingual education reviewed suggest that a transformation in language teaching is taking place in Canada. That is, teachers and educators are negotiating space for the inclusion of more languages in the classrooms, although policy measures do not support such inclusion.

Indeed, despite Canadian policy providing minimal guidance for the institutional recognition of multilingualism research conducted in applied linguistics reveals that many people are moving beyond French and English to include a broader range of languages in local initiatives, which are more reflective of multilingualism in society. Hence, if practices are changing on the ground, then policy needs to be revisited and adapted to suit the recorded change. Specifically, in educational contexts, it is crucial to look at how students in multilingual classes deploy various aspects of their multilingual and translanguaging repertoires to construct and index multifaceted identities, including locally meaningful identities that are not defined. The broader and fluid linguistic repertoire, and the type of resources needed, available, and exploited during the whole acquisition process need to be analyzed and included. The learning strategies combined and used by multilingual learners, for specific linguistic tasks, need to be considered to thoroughly understand the peculiar nature of multilingual learning. Rather than focusing on restrictive policies and seeing educators as small players constrained by policy, it would be more productive to consider how they serve as key agents who engage with others to find alternative solutions to problems posed by policy (Ramanathan & Morgan, 2007).

Thus, making a language sustainable in a socio-cultural ecosystem will mean balancing a complex organization in the different social domains where schooling plays a central role. Several actions and interventions in favor of linguistic sustainability can be identified. First, it is advisable to stop the abusive use of large interlanguages to extend the ideology of linguistic equality and solidarity. Second, the self-image of subordinated, non-majority language groups should be dignified. Third, these linguistic groups should be allowed to be able to control their own communicative space, autonomously regulating their public linguistic uses. Finally, it is crucial to create awareness in governments, commercial firms, and societies in general, on the importance of attaining linguistic sustainability, urging them to habitually incorporate necessary studies on sociolinguistic impact in their decision-making processes (Bastardas-Boada, 2002, 2014).

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# ECOLOGY OF THE PSYCHE: THE CONTRIBUTION OF PSYCHOANALYSIS AND CULTURAL PSYCHOLOGY FOR REFORMULATING THE SENSEMAKING PROCESSES OF ECOLOGICAL SUSTAINABILITY

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**Keywords:** Integral Ecology, Psychoanalysis, Psychoecology, Culture, Affection, Future, Harmony

## 1. Introduction

From a psychoanalytic and cultural psychology perspective, the urgency of the question of ecological sustainability brings to the fore the concept of the mind as a system of relationships between individuals and contexts, which is aimed at giving meaning over time at all levels of subjective and collective experience. Every psychic process is therefore ecological by its nature. It is now impossible to persist in the idea of an individual mind as a predefined system (genetically or computationally) of information processing and computing, rational and fully conscious decision-making. The cognitive sciences themselves are imbued with the notions of the extended mind, diffuse mind, enactivism, and embodied mind. Several classic contributions by Bateson (1972, 1979), Ingold (1987, 2015), Fuchs (2017) and Descola (2013) are crucial because they highlight the ecological nature of the sensemaking of human relationships with contexts and environments. The epistemological reflection of these authors allows us to focus on two possible fallacies of the current notion of ecology:

1) Ecology as an ideological perspective that supports the return to a primitive state in harmony with nature.

2) Ecology as an economic model for quantifying losses, and costs and calculating the renewability/non-renewability of natural resources.

Is it possible to return to a state of harmony with nature? Is a happy degrowth possible? Given that one might even hazard to speculate that a state of perfect equilibrium has never existed; ecology cannot be based on the idealised fantasy of a return to a mythical state of nature based on the purity, integrity, harmony and goodness of man. Indeed, man is an “unbalanced being” whose instincts are not sufficient to survive, live and dream his life into the future (neither in subjective nor in collective/species terms).

Tackling the theme of ecology in the third millennium means dealing with the fallacy of some of our epistemological assumptions at the basis of our research, decision-making, and behavior: the idea of separation, localization, and representation. The human and social sciences, but also the so-called hard science, are largely based on these three assumptions, which do not allow us to keep in mind the complexity of the phenomena of the living world. They imply a naturalistic and evolutionary reductionism. The strict ideas of an inside and an outside, of a depth and a surface, of ancient/original and modern/innovative are misleading in addressing the issue of sustainability and ecology.

Homo sapiens sapiens is experiencing exponential growth in its system of drawing, use, waste, and abandonment of resources (Chelazzi, 2013).

Is the Anthropocene really a process that has taken place in the last few generations? As shown, beyond the specific historical-cultural and anthropological forms, the spread modality of homo sapiens is to consume resources, accumulate waste and move from one territory to another following the exhaustion of its resources.

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There is a subtle line of continuity between the industrial revolution and the first forms of homo sapiens: the exploitation of resources. It would therefore be a question of gradient, of quantity, and not just of quality.

Therefore, a purely cognitive, informational and measurable approach alone does not seem to offer the key to solve the ecological urgency.

Ecological intelligence is not a question of computational literacy in the calculation of the ecological one's own footprint. The quantification of the ecological impact in terms of consumption and use of available resources *pro capite* and the formal knowledge of one's ecological impact (the so-called ecological footprint) risks evacuating the ethical, civil, and cultural dimensions of the issue.

Sustainability since the origin of this notion has meant ensuring a liveable future for the new generations. It is a form of social bond based on the re-appropriation of the future within a re-foundation of the inter-generational pact. Sustainability needs to be discussed taking into account the emotional, relational, and cultural dimensions of human beings.

Reflecting on ecology in psychoanalytic and psychological terms does not only mean considering the impact of human action on the ecosystem, the intertwining of environmental and climatic collapse with the associated uncontrollable global health, economic and migratory consequences. But it also implies the consideration of the distressing, persecutory, and depressive experience together with the possible defensive mechanisms of splitting, denial, and mania enacted on an individual and collective level (Schinaia, 2019, 2022).

The ecological question reveals that at the heart of survival is no longer the system of means, on which rationality directed towards a purpose is based, but the problem of ends, that is, of the cultural models that guide action. Culture, as the ability to give meaning to objects and relationships, is the insurmountable horizon for asking questions about the fate of mankind. The effectiveness of situations increasingly depends on the ability to act on the symbolic codes that organize daily life, such as political systems, forms of production, and consumption.

Today more than ever there is an intertwining of freedom, growth, and rights, which also implies considering the duties of "conscious citizenship" to rebuild a new balance between human societies and the natural environment. A balance now threatened by a growth model that looks more to profits than to needs (Morin & Kern, 1993).

For centuries Western man has kept the Baconian idea that nature should be fought, exploited, and subdued. Starting from a reductive and presumptuously anthropocentric biblical reading, man would be the absolute master of nature. This approach has in fact been maintained by the most recent ecological theories, for which nature should, yes, be exploited, but in a "sustainable" way.

In psychoanalytic terms, it then becomes necessary to be able to think of the Earth no longer as a mere supplier of resources of all kinds — that is, as a partial object, typical of the schizo-paranoid position of Kleinian memory (Klein, 1963) — but as something with which to have an "equal" relationship — by accessing the manic-depressive position and then treating it as a whole object, to be cared for as well.

The first implication of this passage is that man would no longer place himself at the top of the hierarchy of the living, but would, on the contrary, enter the ecosphere; man is a part of the Whole.

The French philosopher and psychoanalyst Guattari (1989) speaks, in this sense, of "ecosophy" and theorizes three kinds of ecologies:

- environmental ecology, in relation to nature and the environment;
- social ecology, in relation to economic and social realities;
- mental ecology, in relation to the psyche, the problem of the production of human subjectivity.

The environmental crisis implies the awareness of the common destiny of all living beings on our planet. It can be an extraordinary opportunity, both to correctly reset the relationship between man and nature, in particular by overcoming the mechanistic mentality and the unbridled anthropocentrism (dominant in recent centuries); and to redesign the relationship between men and between states. We need a change in our daily behavior of each of us, which also implies a change in social praxis as a whole.

Ecologists, politicians, and journalists discuss almost only technical aspects such as the ozone hole, deforestation, and the extinction of the species, but the psychological aspects are not mentioned

and are often ignored. The relationship between man and the environment has been analyzed only from the point of view of the consequences and in a completely terrifying way (Fisher & Abram, 2013). Currently, we can speak of an “ascriptiveness of the risk civilisation” (Beck, 1996): the new problem is the distribution of risk, understood as a systematic way of dealing with the insecurities and losses associated with modernity itself. It is a problem deriving from the very nature of modern production techniques; therefore, it is difficult to recognise and solve. Moreover, by the time the alarm is raised and spread, it is often too late — as in the case of global warming — and there seems to be little or nothing man can do.

## 2. From necrophilic hybris to ecological intelligence

If we deal with the question of limits capable of containing the excesses of a development that appears to be limitless, but we consider these only as a series of technical problems in which to invest occasionally — for example: super-production and pollution — we will always arrive too late. Why do humans, especially W.E.I.R.D. (Western, Educated, Industrialized, Rich, and Democratic) are no longer able to set limits on needs?

Citizens are no longer considered to be people carrying ideas and values, but only “consumers”, thus making it clear that at a social level, one counts only according to its level of consumption (Galbraith, 1958).

If we discuss the limits of development, we should ask ourselves why we want development without limits. We will then realize that this trend is relatively recent and historically conditioned. Until the fairly recent past, the world was agricultural, it only tried to reproduce the cycles of the year and its seasonal fruits. The history of the West is the history of overcoming that way of life, replaced by limitless expansion; from the metastasis of production, which is a consequence of the metastasis of needs. It is a question of being able to go beyond the vision of Homo Oeconomicus (Tversky & Kahneman, 1975), the rational, perfect man, who thinks only in terms of wins and losses.

Globalization brings with it westernization and the myth of development based on the idea of infinite growth. It is a myth that takes us right up against a wall. We are the heirs of economic liberalism without sufficient rules, all aimed at producing and consuming more and more, with disastrous consequences for the biosphere and natural resources: but another globalization is possible (Morin, 2011; Latouche, 2018).

The ecological question is, above all, a systemic problem, that reveals global interdependence, expanding the boundaries of human consciousness and action.

We are at an unprecedented crisis point of the epistemology of linear causality, of the mono-causal explanation justified by scientific processes, of the deterministic approach par excellence (Simon, 1962). We are part of systems in which the circularity of causes requires a restructuring of our cognitive models and our expectations of reality. First of all, it requires a redefinition of the objective vision of the world, including in the field of observation elements ignored in the past such as goals, sensations, and fragility of the observer. All that, until modern times, was considered a subjective deformation extraneous to the core of the hard sciences (Bateson, 1972).

The ecological question brings to the fore the cultural dimension of the human condition. Industrial society has organized its experience around the fatality of economic laws and the power of techniques. Culture, as the ability to give meaning to objects and relationships, is the insurmountable horizon in which questions about the destiny of mankind can be asked. The reality in which we live is a cultural construct and our representations organize our relationship with the world (Kant, 1787; Moscovici, 1961; Geertz, 1999).

The race towards the limitlessness of the modern West, like the belief in unlimited economic development and the very idea of unrestrained progress, are modern perversions: they are harmful on a psychological level before being so in terms of their material consequences. Their roots, however, are much older: we find them in the myths of ancient Greece. The arrogance of our contemporaries reflects the hubris — arrogance — of the ancients (MacDowell, 1976).

If it is true that a culture can only superficially deny its origins, that ancient divinities vanish but their myths are reborn in modern forms (Levy-Strauss, 2017; Bourdieu, 1979), then our anxiety about the limits of development does not concern just a technical problem, but it brings to light an infinitely

older torment and guilt. In this sense, the failure to respect limits is first and foremost an ancient and unconscious reflex: a perversion that has been deeply rooted in the collective unconscious of the West ever since the minds of the ancient Greeks, struck by the intuition of their own possibilities, turned from modesty to arrogance. The fact is that the intellectual functions have become charged with hubris to the point of exaggeratedly inhibiting the emotional ones, with sensitivity: the male components of the psyche seem to predominate to the point of overpowering the female aspects, accentuating a lack of sensitivity for the inner biodiversity. To evolve instead we should reintegrate all the components of the personality, in a harmonic combination of conscious and unconscious, logos and eros, masculine and feminine, regression and evolution, introflexion and extroversion.

The drastic removal of a component leads to splitting and the conscience is thus dissociated from a part of its contents.

In our social fabric, the arrogant hypertrophy of the left cerebral hemisphere — rational, logical, mathematical, practical-economic, of the propositional word — of procedural rationality rages: there is no longer room for creativity, there is no time, nor space for a 'not-doing' that is not directly linked to acquiring further information, notions, skills.

The tendency towards excess, the rough and self-defeating overcoming of limits, is so deeply inscribed in our daily behavior that it feeds it in a completely unconscious way.

### 3. Necrophilia vs ecological intelligence

We define the necrophilic attitude as that psychic configuration characterized by:

- the attraction towards everything that is lifeless, which tends towards the dissolution and destruction of vital bonds;
- the cold and distant approach in human relationships;
- the more or less manifest desire to bring back or reduce the living to the non-living;
- the preference for the mechanical, for the past, for control and power, compared to what expresses movement, life, and desire to live.

The fear of the future and uncertainty, typical of the necrophile, lead him to pursue immobility almost as the only possible certainty of existence. Going beyond the concepts of life impulse and death impulse (Landis, 1975) for Fromm (1973), necrophilia can be the result of an un-lived life, of one's unfulfilled possibilities and frustrated abilities; ultimately, of one's inability to live a meaningful existence (Steiner, 2008). Every human act demonstrates the primary tendency to take possession of something; this possession contains two elements: one positive, tending to survival, and the other negative, tending to the destructiveness of the object possessed.

From the clinical psychological point of view, for example, the person affected by neurosis never manages to own a good entirely, because she is afraid of losing it. From the dynamic point of view, it could be observed that she wishes and fears, at the same time, to destroy it. Human life would be managed more easily if it did not have to deal with these "feelings", meaning with them above all irrational conditions and pressures that lead to behaviors and operational choices.

That is why it is easier to deny them, becoming necrophiliacs if necessary. Necrophilia tends to deny feelings, sacrificing them on the altar of a company name or reason of state.

Modern man is freed from the minimum conditions for subsistence but tends substantially to unhappiness. Unhappiness represents a growth block. This arrest entails the renunciation of the possibility of affirmation with the consequent intensification of the delegation processes. Man renounces being god and flattens himself into positions of waiting and renunciation. However, in doing so, he often develops a depression that embodies the anxiety to avoid death, that death that is given by his acting like a robot, like a regression to the inorganic and shapeless. Psychic life is expressed in a dialectical process made up of dying and being born, of separating and binding, of winning and succumbing. It therefore happens that the deprivation of one of the two horns of the dilemma (ability to be born, ability to die) unilaterally develops a sadistic-violent and destructive necrophilic attitude. This is the reality of the great cities of the modern era: they affirm and keep themselves, control and mortify.

The emergence and the open manifestation of necrophilic tendencies are certainly favored by a socio-economic system that leads to considering oneself and others as goods, which evaluates

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people according to their “saleability” — with reference to the laws of demand and offer — where it is not the individualities, but the salable parts of them that enter into a relationship (Fromm, 1973). Dominating nature to emancipate man from need, but then find him a slave to his own emancipatory movement, a slave to new needs: this is the paradox of homo oeconomicus and the bed of the current crisis of the system and the whole of humanity.

Our sense of identity is therefore undermined by the acknowledgment of climate crisis, by connection or disconnection with the world of nature. Among the unconscious obstacles to taking care of our planet, there is certainly apathy. Some authors have tried to investigate to what extent and why people do not respond and do not take action in the face of phenomena of serious criticality and danger, and from what profound psychic resistances does this problematic and harmful immobility originate (Darley & Latané, 1968). Even more central to these obstacles, however, is the refusal to deal with the need to transform the relationship with “nature” as an internal object.

It is probable that the difficulty of confronting and tolerating the truth, not only about oneself but in any sphere, will always remain difficult for human beings because it requires complex and painful psychic work. We do not want to see the dark side of our social well-being and our lifestyle by protecting ourselves from the sense of guilt that would result from recognizing our complicity or connivance with the blind exploitation of natural resources, costs, and the consequent destructive consequences. In addition, since human beings do not seem so willing to consider limits, individual well-being is pursued at the expense of the object or with cold indifference, and in this configuration, any object is used instrumentally, in a request for “normality” that pretends consent, complicity or collusion.

It is possible to conjecture a mythical state characterized by the primordial unity of Man and Nature wrapped in the unconscious. With the progressive emergence of conscience, a man was painfully torn from the all-encompassing fusion, exposed to the danger of inflation, and overwhelmed by the hybrid of conscience and reason. One of the questions of paleoanthropology concerns the birth of human self-awareness. Our conscious psychology derives from a state of unconsciousness and therefore of indifferentiation (Jung, 1958): in the evolutionary path of human beings this event therefore marks a detachment, an expulsion from the oceanic unconscious in which the species and the individual were immersed.

This state is mythologically characterized as the expulsion from heaven on earth, the loss of Eldorado: the echo of that expulsion resounds full of Edenic nostalgia in the myths and stories of human beings.

Mind-Environment-Society is, therefore, interdependent and interacting “three ecologies”. Hence the idea of an ecological mind (Dodds, 2011) is understood as the ability to consider man and nature as a complex and interacting environment. Yet the recovery of the subjective dimension allows nature itself to become a subject, therefore something, or someone, with whom to enter into a relationship, to whom to ask questions and from which to await answers.

Other noteworthy contributions in this regard are the Gaia hypothesis (Lovelock, 2016), according to which all living organisms do not just adapt to the environment, but actively participate in its organization. The concept of “terrestrial citizenship” (Morin & Kern, 1993) considers the development of the means of communication and transport as the factors that have elevated the sense of national identity to planetary.

The expression “ecological intelligence” was recently coined by Goleman (2010) to define the emerging human capacity to grasp interconnections and think in processes. In this sense, we also speak of “affective ecology” as a branch of ecology that deals with our contact with nature (Barbiero, 2014). Its theoretical foundations are interdisciplinary and based on two scientific hypotheses: the biophilic hypothesis and the theory of multiple intelligences, which illuminate naturalistic intelligence, the ability to recognize living organisms and natural objects, to take care of them, and to interact with them in subtle ways. Biophilia and naturalistic intelligence can be considered as the two poles of an educational path for the environment (Barbiero, 2014). Biophilia represents the mental energy that nourishes our relationship with Nature. It is love for the living, for everything that grows, which is structured and not dismembered, which aspires to unity and the search for meaning. It is an expression of the development of human qualities, the circulation of thoughts and affections.

In this direction, individual awareness can allow a cultural metamorphosis in the consumer society, exhorting every single citizen to conscious consumption and social commitment without renouncing their own margin of action and influence on the evolution of life: from the general trend of markets and social processes, to condominium meetings, to the management of a company. The human being participates in the evolution of life on Earth: we are part of the same process from which we emerged and we are now co-responsible for it. It is a paradigm shift from economics to integral ecology.

It is the collective intelligence of humanity that enables us — if and when recognized and activated — to make the most appropriate choices to face current difficulties and future challenges. Ecological intelligence thus qualifies as a superior, progressive form of human evolution on a collective basis; a more conscious form of appropriation of nature, which contemplates the rational purpose of not destroying the human species and the ecosystem of man itself.

In this constellation, the pioneering momentum of companies that already systemically orient their production in this direction constitutes a bet on the development of collective intelligence.

Rarely do biophilia and necrophilia appear at opposite poles of a continuum, as extremes endowed with such strength as to cancel the opposite tendency; they are more often coalescing to varying degrees, resulting in an orientation that permeates the emotions, thoughts, gestures, and actions of the individual. Based on his clinical experiences, Fromm (1973) indicates a series of psychological and behavioral traits observable in a person with a predominantly necrophilic or biophilic tendency.

Human aggression and destructiveness are influenced by the environmental conditions in which the individual is born, grows, and matures and by the very structure of the social system. Hence, there are two potential answers: the first is the life syndrome. However, after all this is suppressed and alienated, the other response that man is able to give is of a destructive type, regressing to lower stages and turning to necrophilia, which inexorably leads to the life-hindering syndrome (Fromm, 1973).

The expression of our aspirations, within a social system capable of revealing man in his humanity, becomes fundamental so that our immanent biological reality and the ideal to which we intimately tend can open up and be definitively realized.

The dialectical impossibility of the psyche of modern man causes a collusion between the ego and the Super Ego which certainly makes it more difficult to become aware of the conflict and encourages renunciation and depressive impulses. Before witnessing an irreversible process of necrophilia and destructiveness, men should be able to experience the forces of healthy affirmation of their social being, first and foremost in terms of a sense of justice, their ability to dissent and rebel, their narcissistic desires and their benign aggressive drives. If this were the case, man can be able to pursue inner activities that lead to comprehension and prevention.

Morin (2011) hopes for a process of globalization tempered by a countermovement of de-globalization: “to develop, at the same time, the global and the local without one degrading the other” (Morin, 2011, p. 22). Therefore, it tries to renew proximity nutrition and crafts, and thus rediscover the vitality of a regional economy that can guarantee the autonomy of its community, without finding itself isolated from the rest of the world. This would also entail a deprivatization guaranteeing state control as democratic as possible. The same “necessary antagonism” can be applied to the other opposite benefits development/envelope, growth/decrease (Latouche, 2018), transformation/conservation. For example, it means increasing public transport, clean energy, for a city less polluted and chaotic, and decreasing disposable products and unbridled consumerism, developing the aptitude to understand the other, and enveloping the primacy of effectiveness — always struggling with the “poetic quality of life” (Morin, 2011, p. 23). It is necessary to respond to the need for autonomy of the individual and societies jealous of their cultural identity; without, however, disregarding the equally vital tendency towards the community (Esposito, 2008) — family or international. This implies the saving of the unity/diversity pair, the treasure of our land's cultural heritage, towards the triumph of a “planetary humanism”.

#### 4. Psycho-ecological resonances of nutrition and breastfeeding: Greed for Mother Earth

The relational and affective importance of nutrition from very early childhood absorbs the newborn in a totalizing way and his whole life revolves around this activity, as documented by over a century of clinical practice, observations, and research (Klein, 1932; Bick et al., 2018; Spitz, 1965): a fundamental period for building of basic trust and autonomy (Erikson, 1994). In the supply of energy from the planet for our activities, we can trace some transference elements starting from the experience relating to nutrition in the neonatal period.

On a clinical level, for example, through infant observation (Bick et al., 2018) we can observe different ways of eating, noting distortions and authentic pathologies of this function: from lack of appetite to greed and envy. Following the psychodynamic conception of the pathology, we will try to highlight how archaic and infantile behaviors may or may not evolve, both at the individual and collective level, in more adaptive forms also with regard to relations with the ecosystem.

The anti-ecological attitude, in this sense, is configured as pathological not only because it re-proposes archaic and maladaptive behavioral stereotypes, but also because it interferes with the fundamental search for personal evolution, the expression of which would be the development of empathy and concern for others living beings and the ecosystem as a whole.

The different results in each individual are, summarily, the product of the constant interaction, from birth to death, of two variable factors: the strength of the emotions of love and hate and the influence of the environment (Klein & Riviere, 1953). The first and fundamental object relationship of the child, founded on the conflict between love and hate, is the relationship with the maternal breast and with the mother herself, based on which the core of the Ego is formed and developed and subsequent relationships in the world are modeled by the internal (object) and the external (intersubjective). In a polarization between envy and gratitude (Klein, 1963), a whole range of emotions and effects develop in the first object relations. In extreme simplification, we recall the initial relationship with the “maternal breast” as described by Klein (1932): the maternal breast is introjected as an archetype of good, a source of nourishment, gratification, love, an authentic expression of life itself, placing the bases for the formation of that internal group that constitutes us.

It is invested with qualities that go far beyond mere nourishment, but will inevitably fail to fulfill these expectations, since this state of “perfection” is the result of a projection and not of reality. The early stages of the child’s emotional life seem to be characterized by a continuous alternation between losing and gaining the object. The conflict between original instincts such as love, biophilia, and hatred, necrophilia, leads to the configuration, in one’s internal world, of good and bad objects. Such conflict is a precondition for normal personality development and growth: conflict, and the need to resolve it, is seen as fundamental to human creativity.

Examining the way of relating to the world of nature, the “positions” as indicated by Klein (1932) come to mind. 1) A schizo-paranoid configuration, which assumes nature as an object of unlimited possession and conquest through the omnipotence of science and technology, with the consequent development of persecutory guilt and anxieties of annihilation and disintegration. 2) A manic-depressive configuration, which puts the previous one into question, accepting its tiring re-elaboration, with all the burden of depressive guilt and the hope of activating reparative and recreational processes.

Problems and blocks of ego development are generated by processes of splitting, idealization, persecutory anguish, frustration, fear of annihilation, and fear of something that destroys from the inside (but is perceived as external). The emotional experience of the child is characterized by this continuous process of loss and reconquest of the object (Klein & Riviere, 1958). The breast that feeds can in some cases be the first object of envy, as the child feels that the breast has everything he desires, has an unlimited quantity of milk and love, but which he keeps for his enjoyment (Klein & Riviere 1958). In this sense, envy shares with greed an imperious and insatiable desire that goes beyond the needs of the subject and what the object wants and can give. Since voraciousness in breastfeeding can arise from a combination of nutritional impulses and particularly strong aggressive drives, the aim of emptying, draining, and devouring the breast is enriched with a further objective: to



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project evil - as excrement and bad parts of the self — primarily into the breast with the aim of harm and destruction (Klein & Riviere, 1958).

Envy, greed, and destructive impulses mutually reinforce each other and increase to a greater or lesser extent the difficulties that the child may encounter in constructing his good object, and they can lead him to attack the breast with such intensity and duration as to damage the ability to enjoy, to feel gratitude, and to reciprocate the pleasure obtained (Klein, 1963). In such cases, for example, voracity characterizes the whole object relationship: the frenzy in latching on to the breast, the tendency to bite, or the ease of suffocating, but also the quality of satisfaction and the type of attachment to the mother. Very greedy children show early signs of interest in someone, but it is a need that mostly seems to involve concern rather than the person himself. The precocious onset of persecutory guilt derives from the envy of the breast it nourishes and from the feeling of having deteriorated its goodness with the attacks.

Later, those same children re-propose the original greed with similar manifestations, but in more refined forms, for example with the desire to collect, to accumulate objects and with the obsessive drive, opposite but equivalent, to get rid of it, to throw them away indiscriminately, to expel them. This behavior correlates on a mental and intellectual level, for example, in the desire to absorb everything that comes along, associated with the inability to distinguish between what is valuable and what is not. Placed in this perspective, breastfeeding constitutes an original model, a behavioral prototype on which subsequent research and energy supply behaviors are shaped, and understood in both literal and metaphorical meanings. Expressions such as “intellectual food” or “affective nourishment” testify to the conjunction that connects physical and emotional food, and material and spiritual food.

The portrait of oral greed that has emerged so far does not concern only the newborn, but also the adult, so much so that Klein (1963) speaks of “positions” and is not limited to the food sector alone. It extends to the relationship with all objects, intrapsychic and with the external world, society, species, and ecosystem. We all happen to throw ourselves greedily on things: think, for personal confirmation, of those authentic collective rituals, those celebrations of voracity such as the weekly shopping at the supermarket or Christmas shopping.

We have all amassed in our homes many more objects than we need (to the point that it is a widespread problem not to possess objects, but cabinets and containers sufficient to accommodate them). Many of us are also affected by that opposite, but equivalent, push of which Klein (1963) spoke: the push to dispose of these objects periodically and indiscriminately. The tendency to confiscate everything, associated with the inability to discern how much it has value and how much not, is evident in our greed for information on the web, which overflows with cultural waste.

The approach to natural resources is a paradigm of this inclination. A psychoanalytic interpretation of the symbolization of Nature in the human mind can help identify the widespread indices in our collective adult behavior, of “oral greed”, that is, distorted impulses to fuel the desire to acquire objects and resources without self-control. It is likely that in no moment of his phylogenetic development has man ever absorbed as much energy as he absorbs now.

In this collective panorama, it is not surprising the spread of eating disorders that are assuming epidemiological relevance (Keski-Rahkonen & Mustelin, 2016); among these, the most similar to the portrait outlined is bulimia. The clinical picture is characterized by a voracious and disproportionate intake of food, often accompanied by its imminent rejection (Agh et al., 2016). Bulimic behavior alternates moments of “food orgy” with moments of self-induced vomiting, periods of bingeing, and periods of abstinence with anorectic interventions such as diets, fasting, laxatives, diuretics, etc.

The presence of a distortion in the supply of energy transpires: these people absorb an excess of energy — food that they discharge as waste before even metabolizing it and therefore without using it. Therefore, the analogy with the widespread collective desire to grab objects that are not needed, or to buy, even a merchandise surplus is clear: whoever buys a detergent also takes a watch, and whoever wants a chocolate also brings home an amount of other material in the form of sheets, paints, tapes and plastics. In wanting to grab everything the market offers, the adult is identical to the child who, in the absence of an external brake, would not know how to set any limit to the tendency to take everything he sees for himself.

The energy supply of our society is in some ways similar to bulimic behavior: we are not sure that the energy we supply ourselves so abundantly with is always effectively converted into work in the noble sense of the term. The suspicion is that it is not adequately used and that an important share of it is dissipated without transferring into evolutionary forms.

Even the spread of heterotropic drugs (cocaine, amphetamines, ecstasy, etc.) seems to be in tune with the energy greed that runs through our culture: the perception of personal energies is enhanced by those substances, allowing us to break through biological rhythms.

There is an analogy between the adult behavior that believes it has eliminated waste by burying or exporting it and the belief of the very young child, according to which an object that is no longer visible, it no longer exists. The child considers the mother capable of cleansing him of all filth, and this unconscious fantasy is perpetuated in the adult's mind in relation to nature: he believes that she, in her immensity, is always able to cleanse and eliminate all filth.

## **5. The trajectory of energy supply: Confusions and symbolic equivalences of nuclear power**

In this context, the question arises about the energy sources of the future. Among these sources, the nuclear one seems to be a candidate with ever-increasing insistence, proposing itself as the currently most logical evolution of energy research.

Throughout history, man has oriented himself towards increasingly sophisticated, or rather, "subtle" energies; from the predominant use of dynamic energy it passed to that of thermal energy, then electricity, and now it faces nuclear power. The term "subtle energy", although it enjoys certain diffusion in common language, is more allusive than exhaustive. However, it has its own effectiveness, perhaps because it is concretely linked to sensation, which is to the associated visual impact: what is subtle escapes sight; what often imposes itself on our eyes.

Perceptually, a snorting and rattling locomotive flaunts a concreteness and greater materiality than the silence of a conveyor belt; the information once entrusted to voluminous packages, to vigorous couriers traveled along channels that are more evident than the optical fibers that today convey digital information. Similarly, oil is perceived as a pastier source of energy than intangible electricity. In this graduation, nuclear energy is proposed as the most subtle, at least for now, among the available forms of energy.

In the conception of "subtle" energy, the Cartesian philosophical contrast between the material and immaterial dimensions of reality, between immanence and transcendence, echoes. A physical, sensitive-perceptible, and also passive, inanimate character was unanimously ascribed to matter. Instead, an impalpable, imperceptible, abstract character and a dynamizing, vivifying property were ascribed to the immaterial reality. In this sense, Aristotle already placed energy among the categories of immaterial reality — in potential — and gave it a particular status: that of an element capable of transforming impalpable, virtual reality into a sensitive and effective reality.

Until this century, energy was opposed to matter; then Einstein (1916) discovered that energy "is" matter and that matter "is" energy:  $E = mc^2$ . It was a breakthrough discovery; however, the alchemists had already proclaimed for centuries that matter is the coarsest form of a single reality that also has a more ethereal aspect: for them matter is the thickest part of the spirit and the spirit is the thinnest part of matter.

The matter-energy dichotomy follows another, classic, dichotomy of the philosophical debate: that between matter and spirit. In fact, the spirit was given attributes similar to those we have seen attributed to energy. Jung summarizes that it is immaterial, abstract, impalpable, transcendent, dynamizing, and vivifying. All these characteristics are also attributed to energy, to the point that the idea of energy and its conservation must be an original image, latent in the collective unconscious (Jung, 1958).

We believe it is possible that nuclear energy lends itself specifically to being superimposed on the concept of spirit: so subtle and so powerful, universal and omnipresent in all matter, incorruptible and eternal. In the search for ever more subtle energies and in particular in nuclear research, the desire-need of man to draw on the "energies of the sky", - (which, according to Eastern energy medicine, he would absorb through the breath), - declines. The breath is one of the characterizing

symbols of the spirit. These observations lead us to reflect that in our time a collective acting-out is taking place, exchanging the symbol for reality, the energy for the spirit. The spirit is pursued in the infinitesimal structures of matter. By attributing to nuclear energy characteristics that closely recall those of the transcendent, the need for transcendence is not experienced in an introverted and introspective dimension, but is extraverted and paradoxically materialized, experienced in the projective dimension of physics.

However, this does not exempt us from the risks that have characterized every approach to the transcendent. Think of fire, an ancient symbol of energy and spirit, which is repeated in the complexity of its symbolic value. It still points to one of the most problematic aspects of energy supply today: approaching the essence of Nature, the core closest to the mystery of Life, and drawing from it without being burned or devastated. This has been the warning of Prometheus since immemorial time. It is possible that nuclear power will be used in the near future. The man certainly finds himself facing it from his characteristic post-maturation position, that is, as a subject who, from birth, possesses tools and faces tasks of greater scope than that for which he is psychically prepared.

## 6. Towards gratitude position

Weaned and able to tolerate frustrations and ambivalences, trained to the bonds of co-living in a common space, we will be able to shape our way of relating to Mother Earth following a “depressive” configuration (Klein, 1932), which allows us to evolve by developing ecological intelligence (Goleman, 2010). That is the intelligence through which we can evaluate the consequences of our spending habits on the world as a whole. The impact on the environment, in terms of pollution and consumption of resources, throughout the life cycle of a product, the social and working conditions of those who produce what we buy, the consequences on our health, and on that of the generations to come. All of us, as consumers, have the power to influence the market and make production chains virtuous, forcing companies to adapt to sustainable standards, asking for greater transparency, and not letting ourselves be ensnared by studied marketing strategies.

We need a reformulation of the traditional dualistic oppositions: nature-culture, mind-body, individual-society, me-you, etc.; to achieve an interactive dance of the relationship that feeds on the contribution of all its components, within unitary conceptual ecologies (Ceruti, 2004). With Bateson, we ask ourselves: “What structure connects the crab with the lobster, the orchid with the primrose, and all of them with me? And me with you? And all six with the amoeba on one side and with the schizophrenic on the other?” (Bateson, 1979, p. 25). The identity and psychic evolution of each individual refer to an otherness, understood as a set of relationships, of links that connect the various parts of a living system or organism with the whole. Those who live in the “depressive” position of Kleinian memory can do this (Klein, 1932).

Globalization carries within itself the myth of development based on the idea of infinite growth. It is a myth that takes us right up against a wall. We cannot continue to fill the planet with cars, power stations, and megacities. This development model — the son of economic liberalism without rules, all aimed at producing and consuming more and more — has disastrous consequences for the biosphere and natural resources. Morin notes how it is necessary to preserve all the positive aspects of globalization, avoiding the worst: it is necessary at the same time to globalize and de-globalize according to the areas, to favor growth but sometimes degrowth, to take into account development but also envelope, transformation as of conservation. A metamorphosis is needed, from a caterpillar to a butterfly, with the courage to sacrifice one’s way of being in the world and be reborn in a new form.

The world is expanding and all continents belong to all of humanity; we, denying reality, try to reduce it to national, and then regional realities.

In the third millennium, we need “cultural antibodies” against destruction. The task is demanding and requires that the human being faces it from a position of matured integration, with the support of the male side (which is expressed in scientific research of the highest level), but also with the contribution of the female side (which makes one sensitive to the effects of one’s own actions). Such integration makes it capable of interior research as well as empirical research, therefore inclined not only to act but also to wait. A cultural metamorphosis is needed that could be implemented through the school, which should carry out the task of facilitating, in pupils,

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the development of empathy for all forms of life, expanding their sense of compassion. So children and adolescents move from the dominant attitude, which considers mankind to be superior, towards the perspective of considering themselves as members of the web of existence in connection with other living beings and with the universe (Goleman, 2010). It is hoped that in this way students will broaden their care and concern, to see a more inclusive system of relationships with the ecosystem and with other human beings.

Eco-education has repercussions at the level of social actions, it is configured as a path through which educators and students train together to analyze and understand the ecological problems that need to be addressed and to identify creative solutions. In this way, school communities can represent training environments in which students are encouraged to translate their aspirations into actions and concrete commitment, making a contribution that goes to intervene in an active and responsible way in reality. It is important to underline that creating a balanced relationship with nature passes through the awareness of the fact that each of us has the possibility, through our actions, to have a negative or, on the contrary, extremely positive impact; in other words, we have the opportunity to actively intervene on the reality that surrounds us.

The idea of looking at the subject as not separate but deeply involved in a co-constructive relationship with the object, and the idea of man and nature as not segregated into two distinct but coexisting spheres, are two sides of the same medal. A new way of conceiving the environment can be achieved if the dualistic epistemology is replaced by a vision based on the interdependence and complementarity of the parts. This can also help rediscover a sense of unity and connection with the environment, not only by recognizing that the world is created in the mind of the observer but also that the mind of the observer is formed in the world in an infinite and dynamic process of definition and redefinition (Morin, 1986).

Human beings need to develop the ability to accept and assimilate the primary loved object without too much greed and envy interfering. The healthy ego integrates the first conflicts and, if envy is not excessive, then gratitude is the ideal solution to overcome and modify envy. A deep gratification in relation to the Breast is translated into the feeling of the child who has obtained from the loved object a unique gift that she wants to keep. This is the basis of gratitude, deeply linked with generosity. Such pleasure is the basis of all happiness experienced in subsequent moments, together with the feeling of oneness with the outside world and the perception of being fully understood by a significant other. Persistent gratification leads to more experiences of pleasure and gratitude and, consequently, there is no desire to “find pleasure”. This recurring experience makes gratitude possible on a deeper level and plays an important role in the ability to repair with the Mother.

The mind is always constructed in such a way that it is imbued with sensitivity and not just with reasonableness (Goldstein, 1999). Deep ecology (Capra, 2013) invites us to think of life as a network of interconnected phenomena and therefore of humans as part of the global ecosystem.

It is not a question of demonizing technological progress: what should be reformed is ontological reductionism and the metaphysical dualism at the basis of Westernized action. The most serious problem caused by the primacy of the quantifiable, of specialist scientific success, of effectiveness, of a certain type of economic development is the concealment of the “affective realities” of human beings (Morin, 2011). Moving around the world employing those “clear and distinct ideas” of Cartesian memory — with whom modernity has claimed to measure existence — does not allow us a careful look at the heterogeneity of life, to grasp the relationships, the interactions, and the reciprocal implications, the multidimensional phenomena, the solidarity, and conflictual realities at the same time (Morin, 2011, p. 135).

The tragedy of modern man can be depicted in his loss of the ability to experience a sense of belonging, something that religions have always presumed to guarantee. What is opposed to atheism is not the denial of divinity, but is the impossibility of connecting and reconnecting with all things. People are uprooted, disconnected from the Earth and from the soul, which is an expression of sensitivity and spirituality. Psychology should therefore be considered in a global sense, as the totality of life and as the universe perceived and articulated by the human being, as a psychoecology. The collective unconscious is common to all: it is the foundation of what the ancients called the *sympathy* of all things (Jung, 1989).

The specific contribution of the hermeneutics of dynamic psychology allows us to create new interconnections and to make epistemological progress and concrete actions starting from the consideration of the emotional-affective dimension, which is the basis of our thinking. Let us not forget that emotions are at the same time the architects, guides, and internal organizers of our minds and that without them, thought and action can neither be structured nor realized (Brazelton & Greenspan, 2000). If the problem arises at the cultural level, then culture will also be the modality of its resolution. Thus, psychoanalysis of ecology can be seen as necessary to shed light on the motivations of human behavior and to draw the guidelines for future development.

The challenge before us is to exist in the continuity and discontinuity that bind nature and culture, i.e. the paradox of consciously (culturally) becoming nature while maintaining science and poetry without anything in excess (Bateson, 1972). As a necessary, albeit not sufficient, remedy for the social drifts of our age, it seems to me that we need to give a voice back to the mind that connects, instead of separating and fragmenting.

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# A MODERN VISION OF INTERNATIONAL ENVIRONMENTAL PROTECTION AND THE INFLUENCE OF ENVIRONMENTAL IMPACT ASSESSMENT ON PUBLIC POLICIES FROM A COMPARATIVE PERSPECTIVE

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**Keywords:** Environment, Environmental Administrative Law, International Environmental Law, Environmental Impact Assessment, Environmental Damage, Agenda 2030 for Sustainable Development

## 1. Notion of environment

On 26 January, the International Seminar on Environmental Education was held in Belgrade on the occasion of World Environmental Education Day, which began in 1975. The event set out the principles of environmental education within the framework of United Nations programs. In addition, the Belgrade Charter was published, which embodies the fundamental objectives of environmental education at the global level.

Environmental education, in addition to generating awareness and relevant solutions to the current environmental problems caused by human activities and the effects of the relationship between man and the environment, is a pedagogical mechanism that also instills the interaction that exists within ecosystems. Physical, chemical, and biological processes and factors react, relate, and intervene with each other within the environment, all this in order to understand our environment and form a conservationist culture where man applies clean techniques in all his production processes (providing solutions to environmental problems), thus allowing sustainable development.

Environmental problems have already taken on a dimension that profoundly influences the development prospects themselves in global terms (sustainability). The difficulties associated with the strengthening of productive activities have had serious consequences in the geographical area, particularly in large population concentrations. In addition, environmental issues have acquired autonomy within the economic sciences, showing a strong interaction with the productive fabric present in the main developed and developing countries: More specifically, environmental problems affect the primary sector, the use of energy sources, and industrial production in general.

The unambiguous notion of “environment” is given several definitions in positive, supranational, and national law. According to the Royal Spanish Academy, the environment is a set of circumstances or conditions external to a living being, that influence its development and its activities such as temperature, sound, air, and atmosphere of a place. Chapter IX of the Venezuelan Constitution, Article 127<sup>1</sup>, establishes environmental rights, including the protection of the environment, its enjoyment, and the duty of the State to protect it, thus establishing a kind of programmatic declaration in favor of the conservation of the environment<sup>2</sup>, national parks, biological diversity and the non-pollution of national spaces (Constitution of the Bolivarian Republic of Venezuela, 1999).

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<sup>1</sup> Environmental Rights, Article 127: It is the right and the duty of each generation to protect and maintain the environment for the benefit of itself and the future world. Everyone has the individual and collective right to enjoy a safe, healthy and ecologically balanced life and environment. The State shall protect the environment, biological diversity, genetic resources, ecological processes, national parks and natural monuments and other areas of special ecological importance. The genome of living beings cannot be patented, and the law that refers to bioethical principles will regulate the matter. It is a fundamental obligation of the State, with the active participation of society, to ensure that the population develops in an environment free of pollution, where the air, water, soils, coasts, climate, ozone layer, living species, are especially protected, in accordance with the law.

<sup>2</sup> In the permits granted by the State that have to do with the exploitation of natural resources, the beneficiaries must take full account of Chapter IX in view of the fact that the obligation to preserve the ecological balance and restore the environment to its previous state is considered inherent in any contract. For example, the concessionaire of the mine will not be able to accumulate mineral waste but in a way that is acceptable to the authority.

European Union (EU) law, in particular, defines the environment by listing the factors to be taken into account in the environmental impact assessment: man, fauna, and flora; soil, water, air, climate, and landscape; tangible property and cultural heritage (Article 3, Directive 2011/92/EU of the European Parliament and of the Council of 13 December of 2011 on the assessment of the effects of certain public and private projects on the environment).

The Directive on public access to environmental information identifies air and air, water, soil, land, landscape, and natural sites, including wetlands, coastal and marine areas, biological diversity and their components, including genetically modified organisms, as elements of the environment (Article 2 (1) (a) of Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC).

At the same time, “the state of human health and safety, including contamination of the food chain, where appropriate, the state of human life, places and buildings of cultural interest in so far as they are or may be affected by the state of elements of the environment” (Article 2 (1) (f) of Directive 2003/4/EC) are recognized as being environmentally related, to the extent that they are considered to be the subject of information classified as environmental information.

## **2. The environment as an academic discipline**

Environmental law is described as a sectoral law, composed of special disciplines diversified and dedicated to particular problems, which affects different branches of law (administrative, criminal, civil, commercial, and fiscal) and transversal, whose rules are not found only in the declared environmental standards this is manifested in the delineation of competences and the protection of the territory.

In line with this cross-cutting approach, Article 11 of the Treaty on the Functioning of the European Union states that “environmental protection requirements must be integrated into the definition and implementation of Union policies and activities, in particular with a view to promoting sustainable development”. Environmental law must be recognized as an academic discipline because it is necessary to promote and promote school and university education by creating awareness from an early age of how to take care of our environment and the societies that make common life. To implement this objective, it is necessary to carry out a revolution of an informative nature and direct awareness to society so that this message reaches all the extracts of the population.

Therefore, the legal nature of environmental law could be considered a branch of public law that regulates environmental standards, which regulates the conduct of the State, individuals, and private entities in favor of the protection of ecology and the ecosystem in their usual practices and related procedures.

## **3. Environmental administrative law**

Environmental law is a set of legal norms that regulate human behaviour that can directly or indirectly alter the environment and that aim to prevent and remedy disorders that alter its balance. Environmental law is characterized by its multidisciplinary nature, with a high-tech component, its preventive character, its universal vocation and its transversality with respect to the rest of the legal system. It is based on the principles of precaution, prevention, environmental responsibility, access to information, participation, cooperation and, at the international level, common but differentiated responsibilities.

The Environmental Administrative Law of the s. XXI is a consolidated sector, in which, finally, new techniques of environmental protection emerged, In the last decade, they have been established as benchmarks for a strategy for the protection of the environmental legal good of an essentially dynamic nature. In this sense, one of the characteristics of Environmental Administrative Law will be the compatibility between a line of continuity in terms of consolidated strategies of environmental protection and another of renewal as a result, mainly from the range of techniques established since the Fifth Environmental Action Programme, Towards Sustainable Development, which are constantly



updated, through the incessant appearance of norms or resolutions that complete the legal regime of these techniques. From this perspective, environmental administrative law remains a complex order due to the multiplicity of applicable criteria and rules and the difficulty of its exhaustive knowledge.

#### 4. International environmental law

Environmental protection has only recently been regulated by international law. The relevant sources of legislation are declarations of principles and treaties aimed at preventing, reducing, or repairing environmental damage caused by a State to the territory of other States or spaces and resources of international importance, such as the sea, the atmosphere, biological resources, etc. Declarations of principles adopted by international bodies and conferences are not sources of legally binding norms, but, as manifestations of the *opinio iuris* of States, combining similar elements of international practice, have contributed to the elaboration of general norms in this field.

The first step towards the consolidation of international environmental law was the Stockholm Conference (convened by the United Nations from 5 to 16 June 1972), which concluded with the adoption of the Declaration on the Human Environment, which contains some fundamental principles: the shaping of the environment as a legal asset, the protection of which is not conditional on respect for other State interests; the extension of environmental protection also to areas outside State sovereignty, such as the high seas, outer space, Antarctica; international cooperation for the protection of the environment. Major outcomes of the Conference included the establishment of the United Nations Environment Programme (UNEP) as a subsidiary body of the General Assembly.

In addition, since the Stockholm Conference, extensive conventional legislation has been developed, consisting of universal and regional agreements that have been mainly sectoral in nature, that is, for the protection of certain environmental goods (air, water, soil, wildlife).

In 1992, the Rio de Janeiro Conference on Environment and Development (UNCED) introduced a remarkable evolution with the concept of sustainable development. It expresses the need to reconcile the economic and social development imperatives of most of the world's population with those of environmental protection, as indicated in the report of the 1987 World Commission on Environment and Development (Brundtland Commission) and confirmed by countless subsequent documents.

Particularly relevant is the Rio Declaration, composed of 27 principles on the integration of environment and development, according to which "environmental protection must be an integral part of the development process and cannot be considered in isolation from it" (principle 4), and Agenda 21<sup>3</sup>, a 40-chapter action program, which identifies the objectives of sustainable development and the measures needed to achieve them. In Rio, the Convention on Climate Change and the Convention on Biological Diversity, the first examples of so-called global environmental treaties concluded over the past decade, have also been opened for signature to regulate environmental issues considered to be of general interest to the international community.

#### 5. International environmental treaties

##### 5.1. Stockholm Declaration

The United Nations Conference on the Human Environment, which was attended by 113 states, was held in Stockholm, Sweden, on 5 and 6 June 1972. This Conference resulted in Resolution 2398 (XXIII) adopted by the General Assembly of the United Nations on 3 December 1968, in which the first concern on the protection of the environment in general was expressed in the international arena, and the urgency of an action "to limit and, where possible, eliminate damage to the human environment" was pointed out.

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<sup>3</sup> Agenda 21 is a comprehensive plan of action to be adopted universally, nationally and locally by organizations of the United Nations system, Governments and Major Groups in each area in which human beings influence the environment. Agenda 21, the Rio Declaration on Environment and Development and the Declaration of Principles for Sustainable Forest Management were signed by more than 178 countries at the UNCED, held in Rio de Janeiro, Brazil, from 3 to 14 June 1992.

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The Stockholm Conference resulted in agreements by the participating states in four specific areas, which are as follows:

- An environmental policy action plan containing 106 recommendations, the most important of which is the establishment of Earthwatch, an international monitoring agency whose objective is to inform any state or organization interested in knowing the Earth's environmental conditions.
- An environment fund constituted with voluntary contributions from states.
- The establishment of the United Nations Environment Programme — better known as UNEP — based in Nairobi, Kenya, on the African continent. This program is considered an agency responsible for the protection, preservation, and planning of natural resources, as well as organizing and executing seminars, conferences, and regulatory codification projects to protect the environment.

## *5.2. Earth Summit*

The United Nations Conference on Environment and Development was held in Rio de Janeiro, Brazil, from 3 to 14 June 1992, with the participation of 176 states (including Mexico), the magnitude of which is unprecedented in the history of mankind. Twenty years after the Stockholm Declaration, a man acknowledged that, despite the efforts made to solve the planet's environmental problems, the continuing serious global ecological imbalance required concrete and effective actions to protect the environment and thus avoid only declarations.

The Earth Summit, as the United Nations Conference on Environment and Development is also known, had a very important achievement by including in the priority agenda of the attending countries the topic of environmental protection as part of their development schemes, so that environment and development formed an inseparable binomial, conceptually reduced to two words: sustainable development.

The Earth Summit also led to the proclamation of a set of non-binding principles — soft law — the basis of which is found in the Stockholm Declaration. However, unlike the Rio Conference, three important documents on the protection of the environment and its components were issued, two of which were genuine international environmental treaties binding on their signatories. They are:

- The Agenda of the 21st Century;
- The Convention on Climate Change;
- The Convention on Biological Diversity.

## *5.3. Johannesburg Summit*

Ten years after the United Nations Conference on Environment and Development, and thirty years after the United Nations Conference on the Human Environment, the World Summit on Sustainable Development — also known as the Johannesburg Summit — was held in Johannesburg, South Africa, from 26 August to 4 September 2002.

At that summit, the participating countries had accepted that the goals set at the Earth Summit had not been achieved and that progress towards sustainable development was slower than expected: the environment continued to deteriorate as well as biodiversity loss, fish stocks were declining, desertification was advancing on fertile land, the effects of climate change were evident, natural disasters occurred more frequently and devastation and developing countries were more vulnerable because air, water and sea pollution prevented millions of people from living a decent life.

Another problem highlighted at the Johannesburg Summit was the increase in poverty in the world: the countries that comprised it agreed that the inequality between rich and poor was growing deeper, both in the societies of peoples and in the developed or developing nations, which posed a serious threat to global prosperity, security, and stability.

In response to the above, and based on the bases established at the Earth Summit and in Agenda 21 — or Agenda of the 21st century — the participating countries set out a series of commitments and actions to be carried out in two basic documents that are still in the process of being approved:

1) The political declaration entitled “The Johannesburg Commitment to Sustainable Development”, which emphasizes that the Johannesburg Commitment focuses on the basic needs of

human dignity: access to clean water and sanitation, energy, health care, food security, and biodiversity; also recognizing the essential importance of technology, education, training and job creation.

2) A plan of implementation of the World Summit on Sustainable Development with the main objectives of eradicating poverty, changing unsustainable forms of consumption and production, and protecting and managing natural resources in economic and social development.

Other treaties on the conservation and protection of natural resources in particular: According to some scholars of public international law, the origins of international environmental law date back to the dawn of the twentieth century; for example, in 1902 the Convention for the Protection of Birds Useful for Agriculture was concluded; in 1909 the United States and Canada signed the treaty to protect border waters against pollution; in 1911 the United States, Great Britain, Japan and Russia concluded the Convention for the Preservation and Protection of Fur Seals.

In the 1930s, treaties were made for the protection of flora and fauna that went beyond the utilitarian perspective of the first texts on the subject, as well as the agreements on border waters were intensified. Sea pollution began to be a subject of concern to the international community in the 1950s when the London Convention for the Prevention of Marine Pollution by Hydrocarbons (1954) was concluded, and in the early 1960s studies began to address the problems arising from the use of nuclear energy, beginning with the Moscow Treaty of 5 August 1963, which, *inter alia*, banned nuclear testing in the atmosphere.

However, for other jurists, the true origins of international environmental law begin at the end of the 1960s, when post-war global economic development reached dimensions never before seen, affecting the fundamental balances of the biosphere, which generated a series of conferences and treaties by the United Nations, the Council of Europe and the Organization of African Unity (an example we have at the Stockholm Conference on the Human Environment in 1972), which have evolved spectacularly; we currently have multiple documents aimed at protecting, directly or indirectly, the environment and its components.

The most significant international treaties on the protection of the elements and natural resources that make up the environment include the following:

- Agreement for the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the conservation and management of straddling stocks and highly migratory fish stocks.
- Protocol on Environmental Protection to the Antarctic Treaty.
- Convention for the Protection of the Ozone Layer.
- Montreal Protocol on Substances that Deplete the Ozone Layer 1987.
- Convention for the Protection of the Flora, Fauna and Natural Beauties of the Countries of the Americas 1940.
- Convention on Fishing and Conservation of the Living Resources of the High Seas 1958.
- Convention on Wetlands of International Importance especially as Waterfowl Habitat.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973, among others.

## 6. Environmental impact assessment of national regulations

On 27 June 1985, the Council of the European Community adopted Directive 337/85/EEC on Environmental Impact Assessment for public and private projects. According to the same, before the issuance of the authorization, projects for which it can be considered that they have a significant environmental impact in terms of nature, location, and size, must be subject to a prior evaluation of their possible effects. This is in order to determine *ex-ante* what are the possible environmental and health impacts generated by the productive and anthropic system but also to involve citizens in the works that public administrations intend to carry out. The regulatory framework provided for two different categories of projects:

- 1) Projects subject to mandatory evaluation (Annex I);
- 2) Projects subject to environmental impact assessment (EIA) only when Member States consider it necessary because of the specific characteristics of the project itself (Annex II).

The introduction of this legislation represented a procedural revolution oriented towards a concept of “sustainable development” not yet formalized at that time. In particular, Article 3 of the Directive states that the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each particular case (...) the direct and indirect effects of a project on the following factors: - human beings, fauna and flora; - soil, water, air, climate and the landscape; - material assets and cultural heritage; - the interaction of the above factors; and in the cases included in Annex II, and therefore not necessarily included in the EIA procedure, the discretionary choice regarding the types of works and the definition of thresholds/criteria to determine which projects to submit or not for assessment was left to the Member.

Ten years after the publication of the directive, the European Commission has adopted a new directive amending and updating the previous one: Directive 97/11/EC. In fact, improvements were considered necessary to harmonize the fundamental principles of the EIA, to introduce operational provisions to clarify the rules on authorization and application procedures, and to promote their use. Indeed, the Directive reaffirms the commitment given to Member States to determine the feasibility or otherwise of the EIA for a given project, but modifies the terms of implementation of the decision, in particular by Article 4 paragraph 2 shows that: “For projects listed in Annex II, Member States shall determine whether the project shall be made subject to an assessment through: a) a case-by-case examination; b) thresholds or criteria set by the Member State...”. Ultimately, the discretion to assess the environmental compatibility of Annex II projects is limited to the Member States.

Among the innovations introduced by the 1997 Directive, it is also important to note the precise reference to the European Directive 96/61/EC on integrated pollution prevention and control (IPPC), with the introduction for the Member States of a single procedure for its compliance. In fact, the IPPC foresees the need to use an integrated approach to grant authorization to a new plant subject to EIA: this requires Member States to take appropriate measures to coordinate and streamline authorization procedures.

Regulations at the EU level:

- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment.
- Council Decision 2008/871/EC of 20 October 2008 on the approval, on behalf of the European Community, of the Protocol on Strategic Environmental Assessment to the 1991 UN/ECE Espoo Convention on Environmental Impact Assessment in a Transboundary Context.
- Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC.
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

## **7. Environmental impact assessment in public policies: Latin American perspective**

The first legal instrument that provides for the requirement to carry out an environmental impact assessment (EIA) to authorize the construction of major projects was the National Environmental Policy Act (NEPA) enacted by the United States government in 1970.

At present, all Latin American countries have had institutional and regulatory systems for implementing the EIA since the 1970s. At the beginning of 1995, environmental protection was mentioned in the constitutions of nine countries, as well as in the sphere of government and society.

## ***7.1. Analysis of EIA systems in Latin America***

Caribbean countries indicated that 96 per cent included environmental criteria in development, review and approval of development projects. From the moment when the general standards of the countries have to be supplemented with standards and improvement procedures, based on the practice of the EIA.

The basic principles of EIA can be used in a wide range of practices and proposals, but it is now mainly applied to development projects. However, they can also be used at other levels of decision, specifically policies, plans, and programs. Although this text will focus on the EIA of projects, it also mentions the evolution that this management tool has presented and how the other decision-making levels should be addressed.

In Venezuela, environmental rights are established in the National Constitution; all mining activities comply with environmental and cultural impact studies. Article 129 of the Constitution of the Bolivarian Republic of Venezuela: All activities likely to cause damage to ecosystems must be previously accompanied by environmental and socio-cultural impact studies. The State prevented the entry into the country of hazardous waste, as well as the manufacture and use of nuclear, chemical and biological weapons

The first studies of EIA in Venezuela coincide with those carried out in the United States; The promulgation of the Organic Law of the Environment and the creation of the aforementioned Ministry in 1977 should be considered from the beginning in the Latin American context. Even many of the countries in the region do not yet have similar instruments.

In addition, Decree No. 1257 of 13 March 1996 on standards for the environmental assessment of activities, which permits environmental degradation, lays down the procedures for carrying out the environmental impact assessment. This decree places mining and hydrocarbon activities under a separate heading. In this sense, an environmental impact study is a planning tool that establishes the planned control actions, to prevent and evaluate the effects of the minimum activity on the social and environmental components, and also proposes preventive measures, and establishes a monitoring and supervision program to verify the established parameters.

## ***7.2. Types of environmental impact study***

Each environmental impact study, is specific and must comply with the provisions of each country, for example in the Venezuelan case of the Ministry (*Ministerio del Poder Popular para Ecosocialismo* [Minec]) in the areas of reference, must include: physical, natural and socio-cultural characterization of the affected area, description of the project to be executed, identification of the impacts associated with each activity, methodology used to evaluate the impacts and scope of the study.

Also, the preventive, mitigating and corrective measures of the environmental impact plans, monitoring and control associated with the (reforestation plan, and management plan for hazardous and non-hazardous substances, materials and wastes, among others) should be submitted, work plan and work team.

Governments can use different types of instruments. For example, whether they have legal instruments at local, regional, national and international levels, including administrative instruments such as assessments (e.g., EIA), monitoring and control, authorisations (licences) economic instruments that seek to promote more favourable forms of production and consumption, with different forms, such as tax incentives, subsidies, etc.; and social instruments related to information, citizen participation, environmental education, etc., trying to raise awareness in society through environmental education, public information and the integration of environmental projects.

## 8. Modern vision of international environmental protection: 2030 Agenda for Sustainable Development

The world has advanced by leaps and bounds over the past forty years, as never before, with changes occurring at breakneck speed, generating great political, cultural, scientific, technological, economic, social, and environmental transformations. Since the 1990s, major changes in the international agenda have begun, especially since the United Nations Conference on Environment and Development (also known as the Earth Summit and the Rio Summit), held in Rio de Janeiro, Brazil, in 1992. This conference created the basis for a new global vision of sustainable development and global conventions on emerging issues such as biodiversity and climate change<sup>4</sup>. As part of this process, awareness of the environmental aspects of development gradually penetrated the public and political spheres.

Today, the EU's sustainable development agenda for people, planet and prosperity was defined in September 2015 by the governments of the 193 UN member countries.

The Development Goals track the results of previous Millennium Development Goals and represent common goals on a number of important development issues: the fight against poverty, the eradication of hunger and the fight against climate change. The official departure from the Sustainable Development Goals coincided with the start of 2016, guiding the world along the road to development at 15 years: countries, in fact, pledged to reach them by 2030.

Latin America, in particular, is a region where there is a great need to promote the process of sustainable development, mainly due to its high levels of poverty and heavy dependence on existing natural resources. But what types of development are sustainable? Ultimately and in a very rigid conception, many developers would have trouble identifying an economic activity, based on the exploitation of natural resources, for example, that actually protects or enhances the basic natural resource. This is the case for the exploitation of mineral resources, but it is also valid for living natural resources.

The EIA does not achieve sustainable development “per se” but it can help early to guide decision-makers in that direction. It incorporates the costs of environmental protection measures, provides creative and efficient alternatives, and makes actions compatible with requirements. More than ten years after the Rio Summit, many countries, such as Latin America and the Caribbean, have embarked on the path of sustainable development. While a number of measures have been taken to implement the Rio Declaration on Environment and Development, the results are still insufficient and the number of challenges to be faced is increasing every day. In many sectors, the principles of environmental protection and sustainable development are still seen as a constraint on economic and social development, which has limited public capacity to halt the growing environmental deterioration of critical ecosystems and control pollution.

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# NEW FRONTIERS FOR SUSTAINABILITY IN THE TOURISM INDUSTRY

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## 1. Introduction

In today's world, most of the social activities that anyone can experience on a daily basis seem to be characterized by a relatively predominant tendency to ensure an environmental impact as sustainable as possible. In fact, we can attest to the fact that today's consumers are showing to change their decisions towards a much more responsible attitude when purchasing any kind of good or service.

Equally like other sectors of economic activity, tourism is no exception in the consequences it may bring through its social and cultural implications. From resetting strategic methods to accommodate these prominent goals to nonetheless securing new market approaches, this research aims to design new model pathways to ensure tourism's ever-increasing progress and thus better match environmentally friendly forms of travel.

Environmental sustainability has become an unavoidable necessity to safeguard the planet. Leaders from the major countries on the planet gather quite often to convene on common measures to enhance sustainable environmental policies, although it seems no unilateral strategy has ever been close to being drafted to date. At least for what is feasible, everyone is called to responsibly care and ensure the smallest impact of all our actions in our daily lives.

In accordance with the ever-expanding need for less government-oriented approaches, as a first and main framework study, we will focus on the unique destination lifecycle concept offered by Professor Richard W. Butler and his unique innovation of the Tourism Area Life Cycle (TALC) model (Butler, 1980).

The creativity behind his ideas sets everyone involved in the tourism industry in motion to ensure that the overdevelopment (hence failure) of a destination is avoided and that revenue is invested in sustainable decisions.

It will be, indeed, analyze how the modern conception of sustainable tourism provides roots to define themes and objectives of the new form of traveling, the so-called ecotourism.

Without a doubt, the current globalization trends are putting cultural minorities and identities more and more at stake and there exists a relevant need to define a more balanced approach.

Tourism itself may therefore represent the highest if not the greatest opportunity for those most secluded areas in the world to keep up with their unique cultural aspects. It will be yet seen how a focus on sustainability only can help develop the sector in the face of the challenges capitalism is bringing up, due to its nature of making more and more products and services available at a large scale.

It is basically a deal between sustainability and economic growth that drives the study to examine how stakeholders and consumers alike may if not even should make the best use of environmental resources while all playing equally important roles. From the newly established form of the Ecotourism model to more comprehensive responsibilities built around individual and corporate philanthropic mindsets, diverse types of theories will be gathered all trying to stress the need for immediate intervention in order to prevent tourism's assets as well as destinations from declining. It is nonetheless relevant how companies are called to orient their operations to satisfy environment-based production policies, well despite the lack of common unilateral strategies.

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Clear enough, such a thorough examination of the intricacies of so many different uncoordinated practices will result in the absolute need for new strategic patterns.

All of the theories around this brand-new type of discussion bear the recurrent need for immediate intervention to prevent destination decline. Indeed, only a new system of evaluation of tourism's assets may provide the basis for investment in green destinations, with considerable benefits to come upon in renewable energy, as well as sustainable waste management, green land use or biodiversity conservation, and clean transportation.

The confrontation with today's post-modern challenges is the core start into a whole new consciousness that should drive providers and consumers alike to better distribute tourism revenues while measuring themselves on a widespread adaptable sustainability model for the best applicable yet to-date-unknown scenario.

## **2. Destination as a core element of tourism development**

Tourism may be considered as a new form of imperialism. In fact, from a broad economic perspective, tourism might appear the best option for development in the future growth of a country or smaller region, yet the social, cultural, and environmental consequences of such a decision must be carefully accounted for. Therefore, a focus on the management of socio-economic and socio-cultural impacts is necessary, that way minded with the exploration of possible strategies for future planning and management. However, the frontiers of tourism are clearly experiencing an increasing push to its limits, such that a few areas in the world may escape its inexorable reach.

What appears to be a constantly changing scenario in the field of tourism has turned out to make it a fast-changing as well as one of the most dynamic industries in the world, besides it being one of the biggest for sure. Tourist attractions on their end may easily and fast become quite fragile and quickly creating the need for more careful management compared to what it may have been at an earlier stage. The way that newly-conceived tourism opportunities are constantly created by the means of pushing through the field's traditional boundaries is a challenge for the near future in remodeling the usual paths of tourism management, and that is particularly true when thinking of how a destination may change its potentials and mere identity as a result.

The concept of destination is itself a very broad one although it is generally subject to a definition depending on the needs of the specific locale seeking to manage it. In order to give it a meaning to be as general as possible, picking the definition offered by the United Nations World Tourism Organization (UNWTO) seems to portray features destinations should ideally be always defined around, as they are nothing but physical spaces in which a visitor spends a least one overnight.

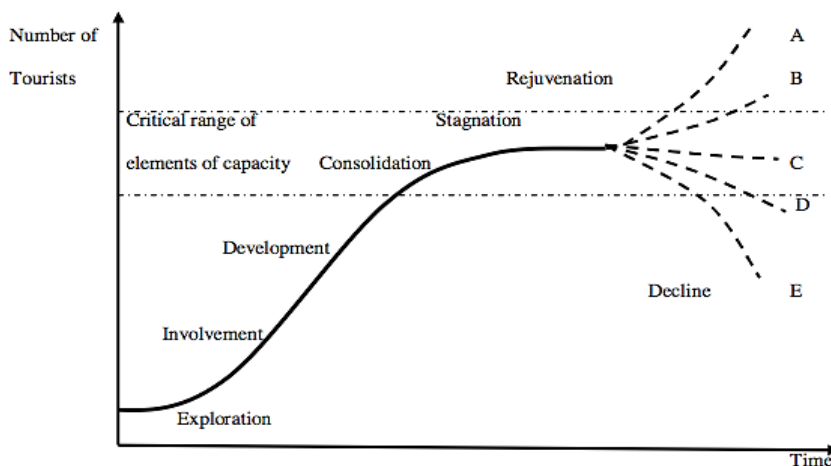
In most cases, destinations are broadly managed by entities mainly aiming at providing them with an extensive promotion — these usually being known as destination management organizations (DMOs) which may be operational at multiple levels, be them multinational, national, state/provincial, and town/locale-based. Such organizations may be often funded through public and public-private sources working in tandem with each other all along with using tourism revenues to ensure the right marketing strategy for those specific destinations. This model has proved to work out successfully in maintaining a competitive marketing advantage for those destinations, all amidst the changes occurring in such an increasingly crowded tourism marketplace.

Nevertheless, primary attention shall always be devoted to ensuring that global destinations may not be focused on marketing exclusively while trying to guarantee as solid as possible protection from overuse and/or insufficient planning. Whatever strategic methods are adopted, these would have to be purposely put in place to focus on the reallocation of such funds as one of the most important goals to be ensured in the process. To such an extent, there is a clear justification for the idea of reinvesting a portion of tourism revenues into local destination management. After all, this is all grounded in the idea that a destination should and indeed may be more than just a location attracting overnight visitors. A place that a tourist is set to visit mostly has unique features to make it a one-of-a-kind type of destination, where local residents may play a key role in giving the whole travel experience a taste of its own kind. Therefore, a dedicated strategic plan is needed to be defined where local authorities would have to undertake a specific role to attain certain results they wish for the community.

In this context, every destination will need to prepare and develop participatory plans, such that local governments are able to properly prepare for tourism growth while paying for the related management costs and burdens. Sure enough, destinations are also subject to many diverse economic, social, and environmental changes such that indicators recording how the destination is being transformed can be introduced in consistent tracking systems. It is clear how global tourism is on the rise as long as the opportunity to learn of new destinations is made more possible than ever due to today's social media influence, and this is causing legitimate concerns about the future of a destination as opposed to a growth which may be too quick to keep under control. However, a good understanding of the implications of the occurring changes is offered by a free market approach assuming very little government involvement and it helps to understand the theory around the phases of a destination life cycle.

A substantial number of writers have put up quite a few conversations concerning the analysis of how attractions may be sustainable over the years. Among many, Professor Richard W. Butler, a geographer, and professor of tourism, is considered the pioneer in offering the most prominent approach of all times. In 1980, he came up with a totally new model for the evolution of tourist destinations which was later known as the Tourism Area Life Cycle (TALC) which is mainly based on a product life cycle concept.

**Figure 1.** Tourism Area Life Cycle model



Source: Authors' reworking, resumed from Butler (1980).

As symbolized, the S-curved model begins with a low-level equilibrium exploration stage, which is when the impacts of the beginning tourist flow are not so relevant, regardless of it being either positive or negative. It is only when local responses to the initiating tourist traffic eventually give ground to a transitional involvement stage, which is quite soon in turn overcome by a timeframe of quick tourism development with the destination flexibly responding to a demand increasing at an accelerated rate. It is obvious that this stage of mass tourism onset offers the opportunity for some of the above-mentioned problems to become significant, such that critical environmental, sociocultural, and economic carrying capacities of the destination risk being breached. Consolidation and stagnation stages follow right after, and they just precede what may turn out into a decline if the local government does not care enough about undertaking remedial intervention. Alternatively, a rejuvenation outcome is possible if such measures are properly implemented.

The assumptions of such a destination life cycle model do not implicitly encumber tourism, yet they clearly show how unregulated tourism may feed the seeds of its own destruction. Hence, it is finally assumed that a high level of public sector intervention is necessary to ensure that deterioration does not occur.

It is evident that the best a destination can wish for itself is to flourish all along its continuous development such as institutionalizing investments with the management of local people and

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governments. The more an area is overdeveloped, the sooner the value of that destination will fall. Stakeholders have to work very hard to protect the value of their places and to preserve their culture and environment in a win-win relationship to undertake with future investors. It is the global industry's responsibility to invest in the value of destinations by securing a portion of the resulting revenue to be invested in historic preservation, as well as environmental conservation and specific training and education at the local level. The capacity to run a positive cycle of destination management is not found in most policy manuals. But there is still room for creative thinking and innovation.

### **3. The globalization process in the context of tourism development**

While the process of globalization has been giving more people the opportunity to travel on a wider basis, it has also been shaped as an unequal process, so that debates about global tourism or global culture, in general, have progressively become politicized. It is quite a fact that the colonial legacy of the Western world has left an impact such as bringing about an increasing rate of multiculturalism and ethnic diversity, and it is with specific regard to the culture and identity of minorities in the national context that many political debates have eventually arisen.

This framework makes for the majority of developing countries to be given a little opportunity to play their role in the global economy, although it is probably with tourism that a chance for representation presents itself. With an ever-rising interest in travel to off-the-beaten-path destinations around the globe, some form of cultural protectionism has quite increased in response to globalization, especially in those regional, rural, and remote areas of the world, right where so many indigenous minorities need to protect their interests in front of such a powerful phenomenon.

Contrarily, a realistic danger exists that a whole area of the world will become too dependent on tourism. Whereas, indeed, poorly represented developing countries may experience a genuine opportunity for poor countries to progress, dangers are out there to bear in mind. Small countries' economies may struggle as compared to an always more challenging global competition, even more so in a field like tourism that has been unexpectedly taking center stage in the global economy.

As mentioned, tourism may mostly represent the sole growing source of hard money that comes across poorer countries' borders, always tending to find the right firms that are needed to attract more tourism businesses. Despite that, as soon as tourism starts rising it may account for more than 25% of their export economy, these states are going to be on the road to dependency with much less room left for self-controlled development.

### **4. Economic impacts of tourism**

The tourism sector is one to benefit an ever-increasing number of people around the globe. With an approximate number of 100 million people working in any of the industry-related fields worldwide, it is obvious that job growth prospects are excellent with projections of steady growth for the foreseeable future.

If economic growth is made possible by an increasing interest in tourism, this scenario is even more favorable in developing countries. Travel and tourism alike do represent a terrific opportunity for any country around the globe to take part in the world economy, especially so for those areas out of the packed urban centers where globalism had earlier impacted.

In such a sense, tourism has the ability to bring prosperity to those remote rural areas in poor countries. It may be true that no other sector distributes any higher level of wealth and jobs in developing countries in the same way as tourism does, where 1 in 11 jobs related to travel and tourism is carried out worldwide.

However, citizens in both developing and developed countries are aware of the need to be proactive in the field, despite possible difficulties along the way. As a matter of fact, the demand for more funding for tourism planning generally meets with little interest until it is probably too late.

Some relevant topics, for example, the concept of ecotourism, or sustainable tourism likewise, were born and keep on giving the tourism industry an equally valuable direction worldwide. With regard to the ultimate progress recently made in the field, the United Nations Environment

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Programme (UNEP) has launched important guidelines and projects to provide a framework of operation for the sustainable consumption and production of tourism. However, reality soon eluded positive steps, as more recognition is required as opposed to insufficient resources to pursue sustainability goals on a larger scale.

## 5. The tourism industry as part of the transformation of the global economy

What future stands for the tourism industry as part of the transformation of the global economy? This question may represent the need to define how the development of tourism is going to face the challenges of an ever-changing scenario, where new perspectives will surely need to be implemented. Tourism is a vital part of the circulatory system for the modern global economy, and just like business is growing at such a fast pace unseen in the past, destinations are likewise growing at a rate that does not help to foresee how the impact of tourism can be managed.

The capitalist approach is nothing but a tool to make sure that the ability of large-scale producing and consuming of goods is reached, this makes for the implicit costs to be completely overlooked, yet to the detriment of natural resources and the spreading of poverty emergency. Hence, the need to find new models of development that will allow the environment to be managed correctly while taking account of social and economic aspects in a long-term sustainability approach to play its role in a competitive fashion on European and global markets.

Indeed, the global effort to find out how to manage tourism sustainably while promoting economic growth is very new. A homogeneous concept of sustainable tourism was officially introduced only after the 1992 United Nations Earth Summit in Rio de Janeiro, where 117 heads of state discussed how nature conservation and economic development could be put on the same page for reconciliation. It is fair to say that the Summit was the most ambitious and highest-level environmental conference ever held, and at the time it was the largest gathering of world leaders in history. It was such a high opportunity for the protection of biodiversity to be finally meant as the most important goal of all, and it was as a fact listed as a binding term of the treaty obliging nations to put up enforceable interventions. For the first time with this convention climate change was death with as a global issue. A declaration on the importance of environmental development was drafted to contribute to the creation of a global strategy known as Agenda 21. While the Earth Summit is generally recognized as the starting point for the field of sustainable tourism, the idea of linking tourism management to the principles of Agenda 21 arose only several years after the event.

Indeed, Agenda 21 worked as an input to increase awareness of how sustainable tourism may be used as an economic development tool. This was especially so in Europe where local authorities were given the mandate to apply environmental regulations and licensing beyond others to achieve sustainable tourism development as part of the Agenda 21 process.

The important foundations laid by the Earth Summit and Agenda 21 were later acknowledged by the Cape Town Declaration in 2002, where integration of sustainable tourism measures into organizations' programming efforts was promoted, with a special focus on achieving enhancement in economic responsibility, that is:

- vouching for those forms of development to benefit local communities and minimize negative impacts on local livelihoods;
- maximizing local economic benefits by reducing leaks while ensuring that communities benefit from tourism in its entirety;
- adopting business practices on the cheap side and demand for fair prices;
- providing adequate support to small, medium-sized, and micro-enterprises to ensure that tourism-related businesses flourish and are sustainable.

Subsequently, some established organizations like the United Kingdom's Department for International Development, the Netherlands' Development Organization, and the UNWTO, to name a few, all began to focus on sustainable tourism as a tool for economic prosperity over the mere prospect of it directly serving to alleviate poverty. This idealization of sustainability has also been linked to the concept of responsible tourism, particularly in Europe.

In the context of how tourism should be imprinted in the most feasible framework to favor choices of high sustainability, the concept of sustainable tourism arose, not to mistakenly assume it as a separate type of tourism, but as an overarching approach to tourism development and management.

Any segment of tourism can be directly affected by its underlying principles which should be applied to all human activities, just as well as tourism in all its forms must be integrated into an extensive sustainable development of territories and nations.

According to the conceptual definition established by the WTO, sustainable tourism should bear the following features:

- making the best use of environmental resources, which is key to the whole tourism development;
- respecting the socio-cultural authenticity of host communities, all along with ensuring the preservation of their built-in cultural heritage and traditional values;
- ensuring that viable long-term economic operations result in socio-economic benefits to all stakeholders, with the most important focus on alleviating poverty rates;
- maintaining a high level of satisfaction with the provision of a meaningful experience for the tourists, which would be made aware of sustainability issues such that these would serve to promote sustainable tourism practices.

With no exception, all actors in the tourism sector are equally relevant and play complementary roles. The way they all interact with each other in this framework allows the implementation of the three equally important ecological, socio-cultural, and economic dimensions of sustainability models, to ensure the quality of the tourist experience. However, the common responsibility all the stakeholders share is differentiated and each one should assume it at their specific degree so as to establish the appropriate partnership with the other actors.

One main debate goes around the question as to how far sustainability should apply to the natural environment only, keeping its effects on the human population aside. Indeed, early definitions of ecotourism tended to focus exclusively on the former, while newer definitions explicitly favor social, cultural, and economic sustainability as overlapping goals.

Such endorsement is clear evidence of the widely adopted “community” approach as first articulated in the 1980s as a reaction to the perceived negative sociocultural impacts of mass tourism (Krippendorf, 1987). Namely, such an approach essentially assumes that socio-cultural sustainability can be facilitated if local residents are made able to keep significant control over tourism development in their area and benefit the most from it. After all, this is a clear reference to how ecotourism must be financially sustainable to survive in the long term as a sustainable activity.

## 6. Ecotourism: Themes and objectives

Nowadays, ecotourism is no longer what most would interpret as a vague and confusing concept or even worse a marginal tourism segment. In 2002, its titling as the International Year of Ecotourism gave the opportunity to open a wide debate among all of the involved stakeholders which reached its highlight at the World Ecotourism Summit in Québec (Canada), where the leading role of ecotourism was acknowledged in playing the terms of the sustainability of tourism activities.

The resulting Declaration on Ecotourism issued in Quebec gives a sharp definition to the concept of ecotourism and is now a broadly recognized benchmark in all publications and conferences in the field. In many ways, one could assert that ecotourism is a universe of its kind bearing all the issues of sustainable tourism, yet also focusing in a more concentrated way on specific ecosystems. Consequentially, ecotourism could function as the leading segment to open up new windows in future research on tourism and its relation with major human challenges worldwide. As the Millennium Development Goals (MDGs) era comes to a conclusion at the end of the year, 2016 ushers in the official launch of the bold and transformative 2030 Agenda for Sustainable Development adopted by world leaders last September at the United Nations.

With the ultimate scope to provide a comprehensive model of ecotourism to better encompass all the features of its vast complexity, four main themes are taken into account as cornerstones of the ecotourism approach. Since delicate interconnected issues are taken into account, these theories should enable decision-makers to generate and use information helpful to the management of the protected area and the ecotourism network in general.

- *Research and education*: both of the above are essential aspects in a fully established ecotourism project, along with the involvement of several stakeholders ranging from community

individuals to international non-governmental agencies — these providing all the required experienced administrative, promotional, and lobbying-based assistance. Ecotourists and stakeholders and the conventional tourism industry are counted as key actors in this framework, but not as actors of negative impacts (Berkers et al., 2000).

It is worth noting how ecotourists could also support ongoing research in the protected area through donations together with any other financial support, in such a way as helping collect data for scientists. Organizations such as Earthwatch allow the tourists to interact with a peculiar experience while taking part in activities like road maintenance, and tree planting, not the least while linking with park staff and locals who are also involved in this ecotourism project.

- *Ecological health*: amongst a varied panorama of goals to be considered as relevant to attain such so to address many of the most important ecological issues within protected areas, biodiversity conservation and its various components are at the center of any debate in the field, as well as the rehabilitation of land and water (Wilson, 2000).

- *Communities' participation and development*: as mentioned in many other instances, the involvement of local people in economic activities such as tourism could be considered a resource to help with management, research, and decision-making within the area. In this regard, ecotourism has gradually acquired the meaning of a symbol with a relevant social function taking place within a broader socio-ecological community. This psychology of the management of the protected area could also bring up a number of people contributing to achieving the social and environmental objectives in the broad ecotourism strategy. The development of items underlying those goals would get to a higher level if allowing the ability of people to work together for common purposes within groups and organizations (Coleman, 1988).

- *Partnership*: the success of ecotourism also depends on the development of a variety of partnerships at different levels. Cooperation with local communities is at times crucial although this should imply a certain degree of partnership to be established with park agencies, non-governmental organizations (NGOs), and any other interested parties (Goodwin, 2000). The increasing international collaboration for the benefit of enhanced park planning and management appears to be a major trend today, such that support providing all of the promotional, administrative, and financial assistance shall be pursued with international agencies, for example, the World Wildlife Fund (WWF), the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme (UNEP), the World Tourism Organization (WTO), Conservation International, The Nature Conservancy, the Pan Parks initiative in Europe, the United Nations Educational, Scientific and Cultural Organization (UNESCO), Green Globe 21, and The World Bank.

Back in the times, the first establishment was made on ecotourism and its broadly recognized conception, in 1990, it was clarified how tourism should contribute to the preservation of the ecosystem and the well-being of local people. Whatever the ecotourism role may be based on, it is acknowledged that the unique set of social, economic, and political forces influencing decision-making must be taken into account without compromising any of its principles.

## 7. The green consumer

As people's purchasing attitudes are constantly changing, more attention is being devoted to sustainability while ensuring that products are eco-friendly. Tourism is no exception and the needs underlying consumers' perceptions are directly related to the different market approach strategies companies have to adopt every time, throughout various historical phases.

If one had to explain how the switch to a more consumer-oriented policy has been taking over, a significant example stands with how companies have contributed to the development of customer satisfaction as a new parameter in supplying their goods and services. Today, consumers play an active role rather than a passive one, and they are responsible for making their own choices along the lines of keeping themselves increasingly informed on the environmental impacts their choices of purchase may ever have — in other words, they are no longer manipulable subjects (Fabris, 2010).

As a result, something that could be called a paradigm shift is taking place, where it is no longer the consumer to keep up with the market, yet the latter is orienting its mechanisms to meet the consumer's ever-changing needs and demands. Hence consumers have become more attentive in

making the most out of their critical and judgemental skills. As such, an implementation of certain irrational items is made when making purchase decisions based on the underlining of their feelings and emotions. The emotions that a product may arouse as well as all the components that revolve around the action of the purchase are evaluated in a different light.

As consumers change, companies on their end need to add emotional content to what they offer to become part of this new relational and symbolic frontier. Not to mention, the consumer's ambition is no longer to maximize his or her own interest (economic subject), but to reach better life conditions while surrounding himself or herself with products that can improve the quality of life (social subject), so that he or she may also perceive himself or herself as a less selfish consumer (Paltrinieri & Parmiggiani, 2008).

Therefore, sustainability is nonetheless an essential factor when companies need to find new market strategies to satisfy an ever-increasing demand for environment-oriented goods and services. That is to say, businesses are asked to anticipate the "social maturity" level of consumers, which may in turn favor them with a certain degree of competitive advantage. After all, it is since the early 1990s that this growing awareness of environmental problems has been manifested, at times when globalization was literally booming. The focus on environmental disasters, combined with the related risks to the health and life of individuals have made consumers progressively concerned about the existing threat to the eco-system. In addition, the common perception that only little control is in the hands of governments has increased everyone's sense of responsibility towards the environment. The search for safer products for themselves and the environment comes as a consequence, mainly symbolizing the adherence to a sustainable lifestyle (Dahrendorf, 2003).

Given this scenario, a high degree of responsibility must be taken by all the actors involved — both on an institutional and individual level — in the sense of vouching for sustainable activities to encourage the civic engagement necessary for change (Paltrinieri, 2010). In the framework of consumers always more inclined to make a concrete commitment, businesses are to become socially responsible through what has been defined as a corporate social responsibility (CSR) guideline. Not only this allows them not to lose the trust of their consumers at this time, but it involves companies in the ongoing mission which is to pay greater attention to the ethical and moral demands of consumers (Paltrinieri & Parmiggiani, 2008).

## **8. Corporate social responsibility: A key tool for businesses**

Doing business has sometimes to do with the capacity to adapt to the ever-changing flow of events, and that's even more true for those companies working in direct contact with consumers buying their products. Today's attitudes have changed toward a more philanthropic and less capitalistic mindset, and entrepreneurs are no longer conceived as "dangerous subjects" ready to only care for their own interests, yet they are acknowledged as contributing to the creation of a better world.

Alongside the concept of sustainability and that of enterprise, the strategy of corporate social responsibility (CSR) comes into play. That is, a model where the ethical implications of an enterprise's decisions are involved, and those will serve to measure how their actions effectively deal with challenges of social and ethical impact. The European Union defined CSR as a voluntary action; however, we can assert that the voluntary character has been overcome today by reducing the weight of a subjective approach of companies. To be a little more explicit, we will refer to the European Commission Communication of 25 October 2011 (n. 681) which states that corporate social responsibility is the responsibility of companies for their impact on society (European Commission, 2011). This new statement requires businesses to comply with the laws and collective agreements between social partners, while also implementing a process to involve social, environmental, ethical, and human rights interests in current strategies and operations.

The concept of CSR develops in a cultural as well as an academic context in which a company is asked to follow a socially responsible practice, which is derived from caring attitudes to the economic, environmental, and social expectations of all parties and stakeholders involved. The main goal here is to achieve a competitive advantage with a focus on maximizing long-term profits. Therefore, it is essential to maintain relations with the outside world as companies are not separate entities but they all live and act within a social fabric made up of different subjects who care about entrepreneurial work (Zappa, 1956).

Above all implications this process will result upon companies, reputation has a specifically important meaning. The overall judgment on an organization given by the stakeholders may recap the expectations on the future behavior of the organization itself. Reputation is indeed a critical success factor for business owners, as opposed to a series of negative events that companies may have found themselves facing such as environmental disasters, financial scandals, child labor, and exploitation of labor. Social reporting for all industrialized countries was hence seen as necessary, and this has led companies to take new paths consistent with “sustainable development” for the community.

Following the academic evolution on the topic, in November 2010, the ISO 26000 Guideline for Organizational Social Responsibility of Organizations was published and it aimed at guiding to encourage the adoption of best possible practices on social responsibility, following applicable laws. It is important to emphasize that this is not a standard but a guideline, which means that a company that wants to adopt the principles contained in it does not have to deal with an external company but with its stakeholders.

Confronted with processing the inner meaning of ISO’s definition of social responsibility, businesses must try to combine economic and social orientation. In this regard, companies have not only economic and legal obligations but also ethical and discretionary responsibilities (Carroll, 1979). Last but not least, the ISO 26000 document addresses four types of social responsibility that are subtended to the CSR, i.e., economic, legal, ethical, and philanthropic responsibility. These remind the three mentioned pillars of sustainable development, although they are not independent and they contribute to achieving the mix of economic and social aspects that each organization should always feature.

Another international standard of quality leads the way that public or private organizations may show voluntary attention to respecting the environment in the exercise of their activities: ISO 14001, which details the requirements of an environmental management system. In addition to demonstrating the organization's responsibility towards the environment while achieving a competitive advantage, possessing such certification would help to significantly reduce the risk of violation of environmental regulations. With a reduction in costs achieved, an improvement of their reputation and greater competitiveness is reached as an excellent result, such that both personal and collective interests are granted.

## 9. Conclusion

New strategic patterns should be followed in tourism which is one of the fastest-growing sectors driving economic development. On a global level, the sector directly contributes 10.3% of gross domestic product (GDP), with 330 million jobs accounted for. Due to COVID-19, the UNWTO has instead estimated a loss of 100–120 million jobs on average. The same scenario seems to look pretty shocking in Italy also, among any other economy hit in the Old Continent. Before the pandemic, the industry constituted about 13.3% of the Italian GDP, while a drop of 66 billion euros in revenues is expected past the end of the crisis (Chang et al., 2020).

On an environmental perspective instead, the COVID-19 pandemic provides substantial challenges to the socio-ecological systems, yet lockdowns, quarantines, and border closures have progressively led to reductions in air pollution. Although temporary, these positive environmental effects may serve as an example that changes in our way of life can have prompt positive effects on the environment while enhancing sustainability to its broadest extent.

Tourism is, therefore, a post-modern phenomenon, which today is confronted with an industrialized, technological, commercial, and globalized world, in which the debate is always rising on issues relating to environmental catastrophes, such as the waste of natural resources, global warming, the scarcity of raw materials, the toxicity of products, air and water pollution and waste management. As a consequence, destinations travelers choose to visit are largely influenced by these side effects, which go in line with how destinations experience life cycles over time.

In defense of this theory, different steps are required to manage sustainability, depending on which phase of development the destination finds itself in. Indeed, the destination lifecycle is a tool that can help managers in raising the level of sustainability in their activities. Moreover, it allows them to learn about the different sustainability challenges facing the tourism industry, and it sheds light on how to redress current sustainable operations and how to make working plants more



sustainable for the purpose of developing new tourism infrastructures that guarantee long-term, sustainable operations.

All stakeholders are and must be responsible for managing destination cycles and arresting decline. After all, since the 1990s industries have operated in a context dominated by an industrialized society driven by capitalism, this way developing a competitive attitude in a dynamic and complex environment.

On a positive note, today's business models have changed and they show a more philanthropic and less capitalistic attitude. Entrepreneurs are no longer conceived as "dangerous subjects" devoted to their interests exclusively, whereas they show a deep desire to contribute to the creation of a better world. Each company is first and foremost immersed in the society in which it operates, within which it should tend to meet the fundamental objective for a harmonious development of society. One of the main questions in this respect involves how nations distribute their revenues from tourism and how the impact of tourism will be measured in the future to ensure that natural, cultural, and social capital is fully protected.

In order for this sector to realize its potential as a credible actor in an environmental, economic, and socio-cultural sustainability context, establishing a global network of ecotourism is a means of enabling the system to be adaptable and inclusive. Among all types of tourism sectors, luxury is conceived in such a sharp way that often travelers go where no one else can go with all the bells and whistles of a five-star property. This poses a challenge for operators who must balance their customers' lavish expectations while protecting their sensitive ecosystem. Nevertheless, most recently consumers in this niche market have progressively been getting more conscious about environmental issues, which has finally got to become an integral component of business strategy with companies looking towards the future with regard to the impacts and associated challenges of climate change and demand for transparency around sustainability-related topics.

In the times we are in, sustainable luxury has become an absolute need granting which is a sign of higher social responsibility. As the world slowly reopens its borders, the best and most applicable scenario is yet clearly unknown. There is a strong case to be made for governments to intervene and cooperate at an international level to protect livelihoods around the world, and the remarkable experience of eco-fashion may be the right parameter to do so.

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# HYDROGEN ADOPTION FOR A SUSTAINABLE ACCEPTANCE IN TRANSPORTATION

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## 1. Introduction

Renewable energy sources are alternatives to fossil fuels that help to reduce greenhouse gas emissions, diversify energy supplies, and decrease dependence on volatile and unreliable fossil fuel markets, particularly oil and gases. Nowadays, we have arrived at a situation where the fossil fuel era is about to end in the next few decades and a new solution, offered by hydrogen usage, arises.

Growing concerns about global warming, air pollution, depletion of fossil fuels, and geopolitical uncertainties regarding their future availability are driving massive investment in the search to meet the future energy needs of the world economy in a sustainable and environmentally friendly way. Along these lines, hydrogen-based technologies have been identified by many countries, multinational companies, and institutions as major “energy carrier” in their multi-strand future energy scenarios.

Hydrogen is not something new; however, the organizational model and the creation of entire regions into a “green” hydrogen ecosystem covering the whole hydrogen value chain, does classify as something new. A region where several hydrogen applications can be merged into an integrated hydrogen ecosystem, this region is called “hydrogen valley”. This is about the integration of large-scale production. It should cover the value of the entire hydrogen chain, we are talking about storage, distribution, production, and final use.

Hydrogen is the result of this valley representing the cleanest method to transform water into hydrogen and then power engines or supply heating systems, emitting only vapor. It is widely known that hydrogen is abundant in nature, but storage is the real issue afflicting this type of fuel: it is bulky and cumbersome to manage and store (Chen & Zhu, 2008).

Hydrogen, in fact, is enjoying unprecedented worldwide impetus and may finally be on a path to realize its long-term potential as a clean energy solution. To seize this opportunity, governments and companies need to take ambitious and real actions now, because, usually, when a new technology comes in the existing infrastructure and habits in handling processes would be an issue of acceptance by public opinion.

## 2. Hydrogen as a basis for clean transport fuels

Hydrogen is not an energy source but a chemical energy carrier, also known as an energy vector. Hydrogen gas has long been heralded as a potential transport fuel. It is seen as offering a low-carbon alternative to refined oil products and natural gas and complementing other alternatives like electricity and advanced biofuels.

Hydrogen fuel cell electric vehicles (FCEVs) would reduce local air pollution because — like battery electric vehicles (BEVs) — they have zero tailpipe emissions. Hydrogen can be converted to hydrogen-based fuels, including synthetic methane, methanol, and ammonia, and synthetic liquid fuels, which have a range of potential transport uses.

The transport sector is the second largest source of CO<sub>2</sub> emissions, after electricity and heating generation, accounting for 25% of global emissions. However, it is also one of the sectors where decarbonization poses the most challenges, due to its ubiquity and the advantages of using fossil fuels

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in terms of energy density and ease of storage and transport. In addition, the difficulty of the decarbonization process varies greatly by sub-sector, which makes the challenge even greater. To date, emission reduction strategies have focused on vehicle and system efficiencies, transportation mode changes, and electrification (simple for smaller vehicles that travel short distances and do not carry heavy loads). However, achieving decarbonization pathways across the entire transport sector will require the promotion of a true transition to low-carbon fuels and the deployment of the necessary infrastructure to support large-scale innovation (Knie et al., 2017).

We can state that hydrogen from renewable sources looks promising in sustainable mobility applications, since hydrogen vehicles offer key advantages, such as shorter refueling times, greater range on a full tank, and a much smaller carbon impact than traditional electric vehicles with lithium batteries. However, higher fixed costs and a lack of enabling infrastructure are major challenges.

Hydrogen can complement initiatives to electrify road and rail transportation and provide a scalable option to decarbonize naval transport and aviation. The advantage of using hydrogen, rather than electricity, is also in its ease of storage: it can be stored, both in liquid and gaseous form and used as needed. Electricity, in fact, cannot be stored, except with the use of batteries that involve high costs and environmental impacts. Hydrogen thus appears to be more flexible than electricity, giving the possibility of decarbonizing sectors that are difficult to electrify and also possessing a lower transportation cost than electricity and can be easily transported using existing natural gas infrastructures.

### 3. Hydrogen acceptability and risk perception

Creating sources of renewable energy production is an up-to-date discussion about where to locate them, reminiscent of past movements, NIMBY, an acronym for the phrase “not in my back yard”. It exhibits a characterization of opposition by residents to proposed developments in their local area, as well as support for strict land use regulations. It carries the connotation that such residents are only opposing the development because it is close to them and that they would tolerate or support it if it were built farther away. What happened in the 1980s seems to be happening again now, and is partly hindering the environmentally and economically competitive production of energies that could also be applied to the transport system (Sun et al., 2016).

Hydrogen is an energy carrier with great potential for clean, efficient power in stationary, portable, and transport applications. It is envisaged as a significant element of the future fuel mix for transport, enhancing energy security, and reducing oil dependency, greenhouse gas emissions, and air pollution. Hydrogen, in fact, is easy to transport long-distance and can be transported in different formats. Today, the transport of compressed gaseous or liquid hydrogen by lorries and of compressed gaseous hydrogen by pipeline to selected locations are the main transport options used. The most common hydrogen transportation means, covering the needs of the different hydrogen markets, are compressed gas cylinders or cryogenic liquid tankers, pipelines, and blending with natural gas. Hydrogen represents a resource that can be used to fuel vehicles as fast as conventional fuels and provide the same long driving range.

Hydrogen is also a dangerous substance and some commentators express the view that this highly flammable gas is too hazardous to form a significant element of our future energy policy. In common with other technological systems, those based on hydrogen will inevitably involve risks associated with possible hazardous situations posing threats to safety, public health, and/or the environment. It follows, with regard to social acceptability creating sources of renewable energy production still represents, such as in the case of implementing hydrogen use, an up-to-date discussion about where to locate them, reminding the past movements and requiring, in this case, the promotion of a hydrogen culture, in order to encourage its social acceptance.

Regarding social acceptance of technologies, in fact, previous studies show that there are often negative attitudes towards sustainable technologies. It seems therefore necessary to deepen the concept of risk in order to be able to determine how to operate on the public acceptability of the hydrogen application that, as seen, is useful but appears to be potentially risky. The term risk defines the potential chosen action or activity, including the choice of not acting, that can lead to a loss or to an unwanted event, namely the possibility of undergoing damage, associated with a condition more or less predictable (Adams, 1976).

Risk can then be defined as the product between the consequences of a specific event, represented by their level of severity, and the probability of occurrence of that event. This determination, although easily obtainable with a simple calculation is however subject to the value given to the risk by the individuals who are potentially involved. Individuals are exposed, in fact, to different information, able to change their perception of the risk, coming for example from the senses, from the memory, from interpersonal relationships, from the age, and from social contexts.

Through the cognitive process, each individual processes this information, constructing a representation of reality and, consequently of the risk, changing also the acceptability of a potential risk. We can therefore say that although objective measuring instruments, as stated exist, the way in which risks are perceived — which is a prerequisite for their acceptability — is influenced by a plurality of psychological, ethical, and cultural factors.

The psychometric approach, in particular, has measured the influence of the various cognitive factors that are used to make judgments on risk, thus discovering that the acceptability of a risk does not depend only on the seriousness of the threat but also on other elements that can influence the perception of hazards (Slovic et al., 1986). The perception of risk therefore takes on the characteristics of a cognitive process involved in various activities that orient behaviors and opinions in the presence of decisions that presuppose potential risks, including different dimensions such as, for example, both immediate and future consequences and their implications, both on a rational and objective level, as well as on a more emotional and subjective level. Research has shown that in many cases there is a discrepancy between the subjective perception of risk and the objective assessment. In other words, it happens that sometimes people could fear activities that are not actually dangerous and they do not fear, instead, activities that could have very dramatic consequences (Slovic et al., 2005).

The studies have focused on the difference between real (objective) risk and perceived (subjective) risk. In order to understand the reason why it is important to work on the acceptability of hydrogen, we must consider that the perception of risk, i.e. the subjective risk, can differ from the objective quantifiable risk, i.e. as analyzed above, the risk that is calculated using mathematical-statistical calculations and not from perceptive abilities. Therefore, this scientific calculation is given, as seen, by the seriousness of the damage and the possibility of occurrence. In this case therefore the objective risk becomes quantifiable, calculating the objective possibility of happening and the entity, that is the impact of the consequences.

On the contrary, risk becomes subjective when there are events, things, or situations that are not only classified by objective probability but are instead linked to subjective probability, in the form of individual “degree of belief” (Huber, 2009). In this case, therefore, the risk expresses a perception, since individuals do not have access to complete information and they should develop hypotheses and associate each of them with a possibility of occurrence, using the theory of probability. Subjective risk coincides with the perception of a possible danger, which does not correspond to something mathematically calculable, but is based on other parameters, linked to the characteristics, experiences, and environment of individuals. Subjective risk is therefore different, in fact, different individuals could perceive the same risk as negligible, acceptable, tolerable, or completely unacceptable.

The perception and acceptability of risk are thus influenced by various aggravating or mitigating factors which, although differing from those used in quantitative expert assessments, do not often appear at all unreasonable. For example, in the case of potentially serious and irreversible consequences, it is not at all unreasonable, based on a sane precautionary principle, to give importance to the risk even when the probability of its occurrence is low. In fact, we can say that a risk can be accepted or rejected depending on several factors. The unintentional exposure to a risk, the inability to keep it under control, the unfamiliarity with the situation or environment, or a similar recent experience, amplify the perception of a given risk while the confidence with the environment, the idea that exposure to the risk is voluntary, an advantage that may occur, or the idea that the risk can be controlled, reduce this perception.

These characteristics therefore represent the main factors on which risk assessment should focus, highlighting the importance of all those aspects related to the subjective perception of risk, which must be considered as the starting point of any intervention of, communication, prevention, management, and mitigation of actions. When we move to the subjective level of the risk, we arrive at a state of “uncertainty”, when there are events that are not only classified by the objective probability but are instead related to subjective probability.

Consequently, considering this perspective, the concept of uncertainty is to be understood as a fundamental dimension of the human perception of risks that is linked to these and must be considered as in a sense radically distinct from the familiar notion of risk, from which it is never properly separated. Uncertainty therefore takes on the meaning of lack of certainty, i.e., a state of limited knowledge in which it is impossible to describe exactly the existing state, future results, or more than one possible result and therefore the consequence of a lack of knowledge of the obtainable facts (Knight, 1921).

Thus, while hydrogen can be considered useful, site location remains a more complex issue. This problem can be associated with the NIMBY phenomenon, which identifies local protests against the construction of major works and facilities of public interest. These phenomena, which revolve around a conflict of location, are increasingly widespread involving a moral evaluation of local communities and studying the construction of the social problem “location conflicts” of those who are against and who are in favor.

Why then can we classify the hydrogen problem as afferent to NIMBY movements? The NIMBY syndrome is certainly one of the main nodes of social-political conflict in relation to ecological issues and was coined in the '80s by the American Nuclear Society, probably with a derogatory and derisive meaning, to identify the concern and opposition of members of a given local community, manifested through political movements or protest, to host works of general interest, of public importance or economic profit on their territory, for fear, well-founded or not, of negative effects on their residence.

From this premise and the considerations made above, it is clear that for the localization of the hydrogen valley, there is much work to be done on perception (Schönauer & Glanz, 2022).

#### **4. Possible innovative uses**

As stated, hydrogen applications are not new. However, the organizational model, and the creation of an entire region into a “green” hydrogen ecosystem covering the entire hydrogen value chain, does classify as something new.

In the North of the Netherlands, The Fuel Cells and Hydrogen Joint Undertaking, one of the first places to create the hydrogen valley, can be found. The region is the innovation, not hydrogen itself, and it has already developed many projects, developing new knowledge, and becoming a leader and pioneer in the field of the hydrogen value chain.

The expression hydrogen valley is used to define those ecosystems that include both production and consumption of this fuel, combining research, civil and industrial uses, and sustainable mobility. Hydrogen valley can be considered a social challenge; in fact, the location of storage areas makes it difficult to be accepted.

In the Netherlands, in the past years, the province of Groningen had to deal with several earthquakes due to gas extraction. Many houses were severely damaged and many of the residents of the affected areas became frightened and angry. Due to long-awaited and insufficient action and the help of the government, feelings of helplessness and resistance arose constantly.

The location of hydrogen valley is a location where earthquakes happen often and dealing with local resistance is the only possible scenario. Also, hydrogen gas is nontoxic and futile but it has, related to storage, some major safety issues, because it is highly flammable, with an ignition energy that is twenty times smaller than that of natural gas or gasoline. It can be ignited by cell phones or by electrical storms located miles away influencing public opinion and perception of risks, benefits, and costs.

Environmental sustainability requires action in other to find alternative resources and hydrogen valley projects globally have been fully implemented, with renewable hydrogen produced from wind energy, which could represent a perfect balance between transport, industry, and sustainability (Frassinetti, 2017). According to the industry, more is needed from policymakers to enable projects such as this. Using hydrogen, as already mentioned, is not something new to this generation. Hydrogen is not something new that has been discovered, nonetheless, new applications have been found. The real innovation is not in an innovative invention but in a new way of reusing the same resource. We have already tackled how the production of hydrogen has been conducted by the use of

carbon fossil fuels, reducing the “green impact” that hydrogen might have. In warehouses the use of hydrogen-powered forklifts allowed companies to reduce their footprint, hydrogen is cumbersome, and storage might create issues. However, the “refueling station” can be safely built in the back of the warehouse and therefore, easily stored close to the area of use.

The common pattern with hydrogen is the close location between production and use, transporting hydrogen is dangerous. The hydrogen valley would find a solution to that and many similar projects are spreading around the world. One of the examples is South Africa with three different hydrogen areas close to its major cities. Italy also has in plan to build one hydrogen valley in the north, typically known for its factories. What is in common with all of them is the possibility of having a manufacturing area, densely populated by factories and providing them with green energy.

## 5. Conclusion

Nowadays, we have arrived at a situation where it is necessary to find alternatives to fossil fuels. A solution is proposed in this research, i.e., creating several regions where numerous hydrogen applications can be merged into an integrated hydrogen ecosystem. This innovation is about the integration of large-scale production, it should cover the value of the entire hydrogen chain, i.e., storage, distribution, production, and final use.

The hydrogen valley concept does not upset the actual distribution system, and it is supposed to use already existing infrastructures. Furthermore, hydrogen from renewable sources looks promising in sustainable mobility applications, both for fuel cell electric vehicles such as cars, trucks, and trains and as a source material for synthetic fuels for ships and aircraft.

Also, hydrogen vehicles offer key advantages, such as shorter refueling times, greater range on a full tank, and a much smaller carbon impact than traditional electric vehicles with lithium batteries, even if higher fixed costs and a lack of enabling infrastructure are major challenges. Finally, hydrogen can complement initiatives to electrify road and rail transportation and provide a scalable option to decarbonize naval transport and aviation.

Notwithstanding the positivity of the use of hydrogen which, as analyzed, is more flexible than electricity and would allow decarbonizing sectors difficult to electrify, such as the steel industry, in addition to being able to be used in transport and heating, as well as in “cogeneration” (sector coupling) plants that combine the use of different energy sources to improve their efficiency, it also has a lower cost of transport than electricity and can be easily transported using the existing infrastructure for natural gas.

However, there are several challenges, not only the social one, that need to be addressed, such as the lack of production: hydrogen represents less than 1% of Europe’s energy consumption and is predominantly produced by highly emissive processes; the absence of fully compatible transport infrastructures for long distances: gas networks can accommodate different quantities of hydrogen for each state, due to the different characteristics and equipment of the end-users; the absence of uniform standards and policies to support production and demand and, finally, low efficiency and high costs: conversion of renewable electricity to hydrogen is not as efficient as direct electricity consumption due to conversion losses.

In order to support the development, production, and market of green hydrogen, a series of proposals should be made, such as research support, demand support, production support, and, as seen, the most important one, the promotion of a hydrogen culture, to avoid possible problems in the location of possible and future hydrogen valleys.

Communities, societies, and individuals must therefore understand the possible acceptability that as seen must move on to the subjective aspects of risk perception and uncertainty, values that only knowledge can support. Researchers might be interested in finding further improvements rather than in techniques of producing hydrogen in a greener way, studying applications in which a green hydrogen valley can shine at its best. Based on the hydrogen valley main core lesson to take away, it is possible to notice that towards any new technology, skepticism is very common. Towards large-scale hydrogen projects, it is important to foster the following aspects: inform people to create awareness, involve local communities, market hydrogen and, finally, change people’s perception.

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# ASSESSING ENVIRONMENTAL SUSTAINABILITY WITH COMPOSITE TOURISM INDEXES

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**Keywords:** Aggregation, Adjusted Mazziotta–Pareto Index (AMPI), Decoupling, Latent Markov, Normalization

## 1. Introduction

Tourism has an obvious effect on the environment. Touristic flows are attracted by the cultural and landscaped heritage and undoubtedly bring economic wellness to the destination. Nevertheless, they also negatively affect it in terms of environmental pressure, for instance, what concerns electricity consumption or harmful emissions such as oxides nitrogen (NO<sub>x</sub>), and carbon dioxide (CO<sub>2</sub>) (Betta et al., 2021; Finocchiaro et al., 2017). Then, a trade-off between tourism and environmental sustainability is needed, to control the balance between positive and negative effects. The awareness that tourism may heavily affect the surrounding environment was already reached many years ago (United Nations Environment Programme [UNEP] & World Trade Organization [WTO], 2005; United Nations World Tourism Organization [UNWTO], 2013), becoming one of the main topics in the growing green economy.

Tourism is generally seen as a productive sector dedicated to income generation, and available tourism statistics are essentially designed to measure the economic role of tourism, while its effects on the environment are not measured in a systematic way, despite the increasing attention in the general framework of the Sustainable Development Goals (SDGs) and the 2030 Agenda (Giulietti et al., 2019). Tourism contributes directly or indirectly to all SDGs, but three, in particular, are of particular concern. In Goal 8, *Decent Work and Economic Growth*, tourism is considered one of the driving forces behind global economic growth, which creates jobs and promotes local culture and products. In Goal 12, *Responsible Consumption and Production*, it is acknowledged that the tourism sector can play a significant role in accelerating the global shift towards sustainability by adopting sustainable consumption and production practices. Then, in Goal 14, *Life Below Water*, tourism is expected to increase the economic benefits to small island developing states and least developed countries from the sustainable use of marine resources, including through the sustainable management of fisheries, aquaculture, and tourism.

Official statistics on the environmental impact of tourism still provide only partial information, and almost always with an accounting scheme approach, such as occasional and experimental experiences on integrated economic and environmental accounts of tourism, that are based on the System of Environmental-Economic Accounting (SEEA) and a satellite account for tourism. The SEEA guarantees a common and shared language at an international level, consistently with the National Accounting System (NAS), also using data from specific environmental monitoring activities and statistics. Therefore, there is room to expand the portfolio of indicators for tourism and the environment, not necessarily from an accounting perspective. We strongly believe that it is necessary to enrich the activity of monitoring and measuring the impact of tourism on the environment.

This chapter seeks to exploit the institutional experience in analyzing the tourism-environment trade-off in terms of indicator-based reporting. To this aim, we use the environmental indicators from the Environmental Data Yearbook of the Italian Institute for Environment Protection and Research

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(Istituto Superiore per la Protezione e la Ricerca Ambientale [ISPRA]), but in a new integrated fashion. The objective is to build a monitoring strategy of the pattern of environmental pressure caused by tourism, in order to support new policies inspired to a higher environmental sustainability in the tourism sector.

The monitoring over time of the trade-off between tourism and environmental sustainability is carried out through some composite indexes that provide a comprehensive description of their association (Monda et al., 2021). The construction of a composite indicator requires a wise aggregation of a set of elementary indicators of different aspects of the same multi-dimensional phenomenon.

Once the indicators have been aggregated, they provide an information basis that could steer possible political governance actions and monitor their results in terms of effectiveness. Composite indexes are obtained both at the national and regional levels according to the Adjusted Mazziotta–Pareto index, AMPI (Mazziotta & Pareto, 2016). This methodology has been already used at the national and institutional levels by ISPRA to monitor the VII European Environmental Action Program and the Italian National Institute of Statistics (*Istituto Nazionale di Statistica* [ISTAT]) in the Equitable and Sustainable Wellbeing (*Benessere Equo e Sostenibile* [BES]) and the Italian Alliance for Sustainable Development (*Alleanza Italiana per lo Sviluppo Sostenibile* [ASviS]) report, to offer an integrated picture of the situation on the SDGs in our country (Alaimo & Maggino, 2020).

In summary, composite indexes allow us to describe the pattern of environmental sustainability under the stress caused by tourism, hence providing a synthetic measure. In these respects, they provide comparisons among different years and different regions, in order to assess the relationship between environmental stress and tourist flows, environmental sustainability, and economic growth.

In this chapter, we first obtain a pair of composite tourism indexes and, then, we validate their reliability in explaining the pattern of the related economic aggregates and discriminating between more and less suffering regions over time. The rest of the chapter is organized as follows: data are briefly presented in Section 2. Some necessary background on composite indicators and the AMPI is given in Section 3. In Section 4, the new composite indicators are developed and the methodology is applied to the Italian regions over the period 2015–2019. Decoupling is introduced in Section 5. The capability of the proposed indexes is verified in Section 6. Some conclusions are presented in Section 7.

## 2. Data

Data consist of a number of elementary features extracted from the Environmental Data Yearbook of ISPRA (2019), mainly among those relating to the Tourism theme. We take into account several environmental aspects of different kinds, with the aim to build some measures of overall environmental pressure caused by tourism activity in Italy. Annual measures for all the considered indicators between 2015 and 2019 have been considered, both at the national and regional levels.

In the following, we give more details about the eight features listed above:

1) E1, *Tourism intensity* is related to the tourist demographic pressure on the territory and is measured as the ratio between touristic arrivals (counted as the number of bed-nights) and the resident population on the territory;

2) E2, *Blue Flags for beaches and tourist landings* is an indicator related to sustainable tourism in sea and lake locations (beaches and marinas) and accounts for the number of Blue Flags awarded to beaches and tourist landings;

3) E3, *Electricity consumption in the tourism sector* concerns the rate of electricity consumption due to the touristic economic activity and is measured according to the electricity consumption for the ATECO sector (hotels, restaurants, and cafes);

4) E4, *Incidence of tourism on waste* is measured as the rate of municipal waste per capita due to tourism

5) E5, *Tourist infrastructure and accommodation capacity* is an indicator of the accommodation capacity of hotels and their level of net utilization, it is defined as the ratio of recorded bed-nights over the overall accommodation capacity, that is the product between the number of opening days and the number of available beds;

6) E6, *Tourist ports* is an indicator meant to account for the impact of tourist marinas on the marine and coastal environment and is measured as the number of berths per km of coastline;

7) E7, *Coastal soil consumption* gives soil consumption due to artificial cover in coastal areas and is measured as hectares of consumption soil within 300 meters of the coastline;

8) E8, *Road transport harmful emissions* concerns nocive air emissions from road transport driven by tourism activity and is measured as tons of nitrogen oxides produced by road travel by Italian residents for tourism purposes. We point out that harmful emissions are attributed entirely to the region of destination.

The elementary indicators all have negative polarity except for E2 and E5. A negative polarity means that their increase is associated to a worsening in terms of environmental stress, whereas, on the opposite, a positive polarity is related to improvements.

### 3. Composite indicators: The Adjusted Mazziotta–Pareto index

The construction of composite indicators has been carried out according to the Adjusted Mazziotta–Pareto index (AMPI) methodology (Mazziotta & Pareto, 2016). The technique is based on the assumption that the elementary indicators cannot be replaced with others (they are assumed to be not fully substitutable) and that they all have the same relevance (non-compensatory approach). The method requires data normalization, based on a Min-Max approach, and equal weighting among elementary indicators. Then, the aggregation of normalized data is based on the evaluation of a penalized mean that is the mean evaluated over the elementary indicators is corrected according to a penalty term. The penalty term is a function of the variability among elementary indicators (the higher the variability showed by the selected indicators, the larger the penalty).

Let  $i$  denote the statistical units,  $j$  — the elementary indicators, and  $t$  — time. The AMPI can be obtained according to the following steps:

1) *Normalization:*

$$y_{ij}^t = \frac{x_{ij}^t - m_j}{M_j - m_j} 60 + 70 \quad (1)$$

for the indicator  $j$  having positive polarity, otherwise:

$$y_{ij}^t = 200 - \left[ \frac{x_{ij}^t - m_j}{M_j - m_j} 60 + 70 \right] \quad (2)$$

when the indicator  $j$  has negative polarity.

2) *Aggregation:*

$$AMPI_i^t = (\bar{y})_i^t - \frac{(s^2)_i^t}{(\bar{y})_i^t} \quad (3)$$

In the first step,  $M_j, m_j$  are the goalposts for the indicator  $j$ . The range of the normalized values is (70 to 130). The goalposts can be selected so that the AMPI takes the reference value of 100 for a given unit in a given year. In the second step, we need to evaluate the sample mean  $(\bar{y})_i^t$  and variance  $(s^2)_i^t$  over the normalized data of the  $i$ th unit  $n$  every year. The resultant AMPI values can be compared across units in the same year but also across years for the same unit, hence allowing spatio-temporal comparisons.

## 4. Measures of environmental stress

In order to measure the effect of tourism on the surrounding environment, we focus on two composite indexes. The first index, which we call Tourism and Environment, stems from the aggregation of all the elementary indexes we have selected. It is meant to provide an overall measure of the state of the environment in relation to the pressures exerted by tourism activity. The second one, named Tourism Environmental Pressure, has been obtained with a more specific purpose, which is to aggregate all those features related to tourism environmental pressure only, namely E3, E4, E7, and E8. The two composite indexes have been considered both at the national and regional levels. In order to allow comparisons among regions and across different years, the average value of the index at the national level for the year 2015 has been chosen as a reference value and set equal to 100.

The proposed composite indexes are obtained based on a negative penalty term. Then, increasing values of the index Tourism and Environment correspond to positive variations of the trade-off between tourism and environmental sustainability; increasing values of the index Tourism Environmental Pressure are related to positive variations of environmental stress.

### 4.1. Tourism and Environment

The first composite indicator has been proposed in a couple of versions:

1. The first version includes all the regions, but it does not account for the elementary features E2, E6, and E7, since it is not possible to consider such features, that are based on marine and coastal elements, for regions not bordering the sea.

2. The second version is limited to coastal regions but uses all elementary indicators.

The entries in Table 1 give the AMPI for Tourism and Environment concerning all the regions stemming from the aggregation of the five elementary indicators E1, E3, E4, E5, and E8. Their year-wise spatial representation is given in Figure 1a and Figure 1b. It is not possible to distinguish any clear territorial pattern in any of the considered years. Let us focus our attention on the year 2019, for instance. Southern regions exhibit larger values but for Puglia, whereas in Northern Italy, Piemonte and Friuli-Venezia Giulia behave better than the other regions. Trentino-Alto Adige always shows the lowest AMPI value.

The AMPI values are the basis for ranking regions every year and monitoring the value of the composite index over the considered period. The national average is quite stable across the five years. On the opposite, we observe nonhomogeneous behaviors across regions, as also displayed in Figure 2. There are some regions whose ranking does not change very much: this is the case of Abruzzo, Basilicata, Molise, and Sardegna in the upper part of the leaderboard, characterized by better environmental performance, and Puglia, Toscana, Lombardia, Trentino-Alto Adige in the lower part, where there is evidence of a negative impact of tourism on the environment. On the other side, some regions show a progressive improvement, as in the case of Campania, Marche, and Umbria, or an exacerbation of the stress, with consequent degradation, due to tourism pressures suffered by the surrounding environment, for Liguria, Sicilia, and Piemonte, even if the latter region is still ranked high in 2019.

In Campania, the AMPI for Tourism and Environment increased by six from 2015 to 2019 and the ranking went from the 12th to the 5th place. On the opposite, Liguria suffered a reduction in the AMPI value by almost three in the same period, with a consequent relegation from the 5th to the 12th position.

It is worth noticing that the AMPI values in Table 1 do not exhibit a large variability every year, as shown in Figure 3. We observe that Trentino-Alto Adige always stands as a clear outlier since it has a very low AMPI value compared to the other regions. We also stress the fact that differences among regions increased in the last two years: the Interquartile range goes from 5.7 in 2015 to 9.4 in 2019. All the values are given in Table 1 and Table 2.

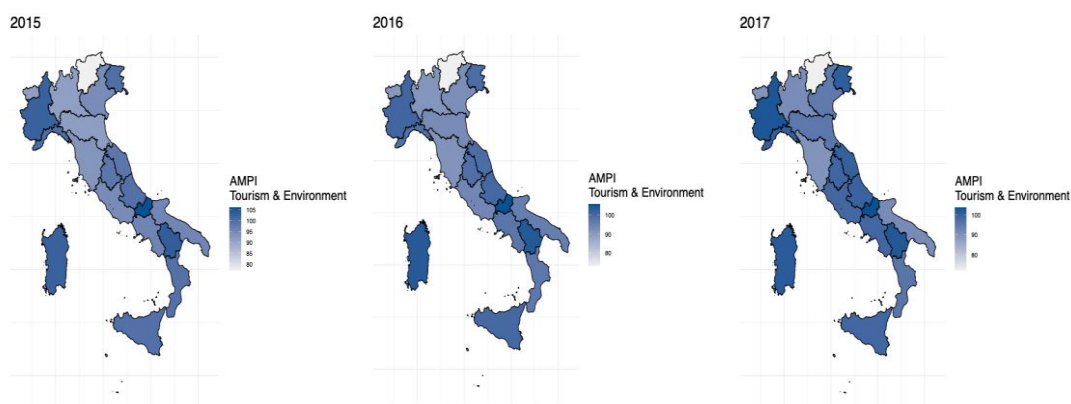
**Table 1.** The AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions with annual ranking

<i>Regions</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>
Abruzzo	99,529 (8)	100,105 (6)	99,820 (8)	100,807 (6)	101,771 (6)
Basilicata	103,430 (2)	103,789 (2)	102,174 (3)	104,781 (2)	104,831 (2)
Calabria	99,51 (9)	96,915 (12)	95,916 (13)	95,889 (13)	98,136 (11)
Campania	95,86 (12)	97,345 (11)	98,905 (11)	100,234 (9)	101,948 (5)
Emilia-Romagna	91,554 (17)	92,872 (15)	95,321 (14)	93,363 (14)	92,440 (14)
Friuli-Venezia Giulia	100,128 (6)	99,238 (8)	101,103 (5)	100,377 (7)	99,486 (9)
Lazio	94,702 (14)	93,811 (14)	98,610 (12)	96,913 (12)	96,323 (13)
Liguria	100,290 (5)	98,525 (10)	100,585 (6)	98,255 (11)	97,326 (12)
Lombardia	91,240 (18)	90,800 (18)	90,966 (17)	86,376 (19)	86,786 (19)
Marche	98,609 (10)	99,297 (7)	100,480 (7)	102,129 (4)	102,131 (4)
Molise	106,100 (1)	105,528 (1)	103,754 (1)	107,913 (1)	105,931 (1)
Piemonte	102,685 (3)	100,704 (4)	102,623 (2)	101,957 (5)	101,093 (7)
Puglia	95,565 (13)	95,446 (13)	91,232 (16)	85,039 (19)	92,400 (15)
Sardegna	102,573 (4)	103,594 (3)	101,672 (4)	102,233 (3)	102,154 (3)
Sicilia	99,676 (7)	100,134 (5)	98,911 (10)	99,661 (10)	98,585 (10)
Toscana	92,854 (16)	91,144 (17)	89,646 (18)	85,276 (18)	89,927 (17)
Trentino-Alto Adige	77,115 (20)	73,417 (20)	72,135 (20)	69,907 (20)	69,665 (20)
Umbria	98,546 (11)	98,583 (9)	99,126 (9)	100,328 (8)	100,426 (8)
Valle d'Aosta	91,202 (19)	90,321 (19)	89,397 (19)	88,531 (16)	87,075 (18)
Veneto	94,436 (15)	92,270 (16)	94,750 (15)	91,587 (15)	92,039 (16)
<b>Italy</b>	<b>100,000</b>	<b>99,704</b>	<b>100,554</b>	<b>99,714</b>	<b>100,130</b>

**Table 2.** Interquartile for the year-wise distribution of the AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions

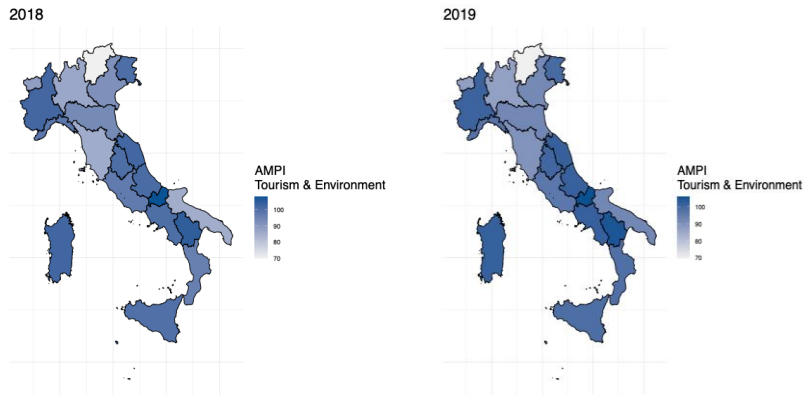
	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>
Interquartile	5,692	7,233	5,835	9,220	9,371

**Figure 1a.** Spatial representation of the AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions in the years 2015–2017



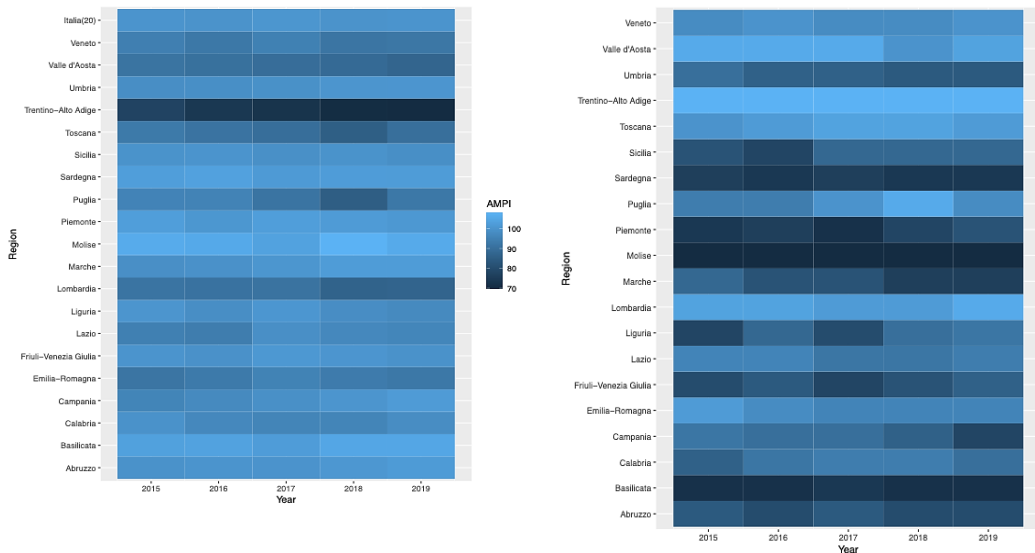
Source: Authors' elaboration.

**Figure 1b.** Spatial representation of the AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions in the years 2018–2019



Source: Authors' elaboration.

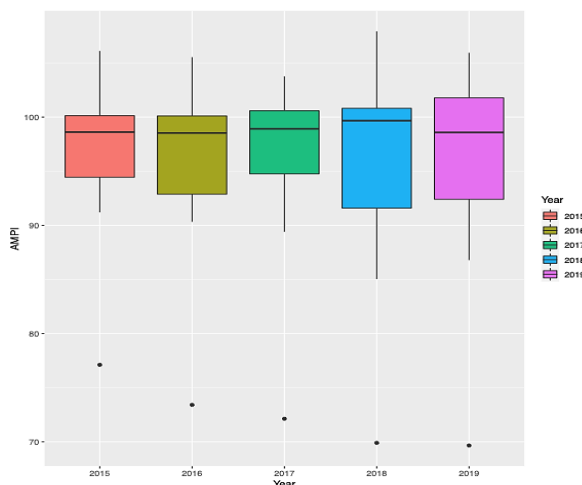
**Figure 2.** The AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions (left) with rankings (right) in the years 2015–2019



Source: Authors' elaboration.

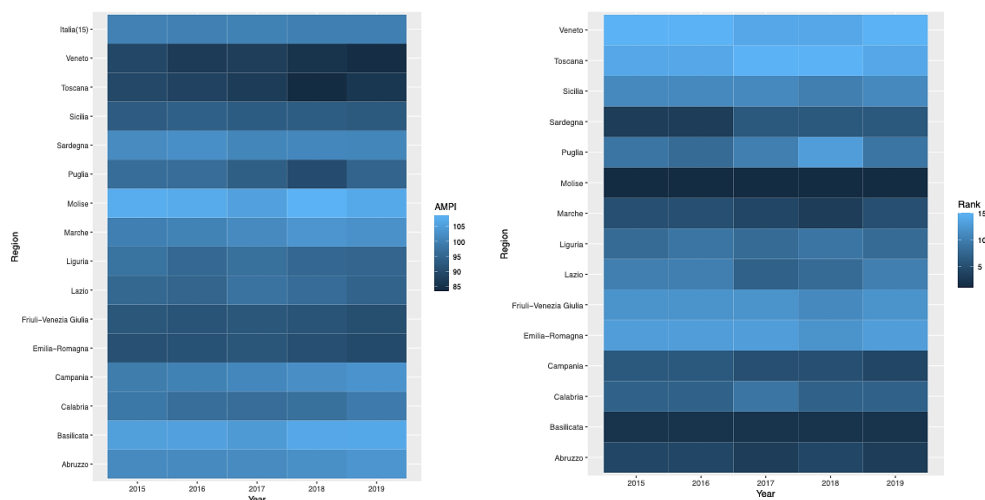
Now, we move our attention to the construction and analysis of the composite indicator Tourism and Environment for coastal regions. We only give here a brief overview of the results. Overall considered years, the first two ranked regions are still Molise and Basilicata. Sardegna from 3rd place in 2015 and 2016 moves to 6th in 2019, whereas in the 3rd place, we have Abruzzo. On the other side, Veneto, Toscana, and Emilia-Romagna are at the bottom of the coastal region's leaderboard. The largest improvements from 2015 to 2019 are in Campania and Marche, whereas Toscana and Sicilia show the largest worsening. A graphical display of the results is given in Figure 4.

**Figure 3.** Distribution of the AMPI for Tourism and Environment based on E1, E3, E4, E5, and E8 for the 20 Italian regions in the years 2015–2019



Source: Authors' elaboration.

**Figure 4.** The AMPI for Tourism and Environment for the Italian coastal regions (left) with rankings (right) in the years 2015–2019



Source: Authors' elaboration.

#### 4.2. Tourism Environmental Pressure

The second composite indicator is formed by the aggregation of the elementary indicators representing the main tourist stresses: electricity consumption (E3), waste (E4), soil consumption in coastal areas (E7), and NOx emissions (E8). This indicator is meant to measure any possible increase in consumption that can be attributable to tourism, with consequent harmful effects on the environment. As well as for the previous composite indicator, the analysis can be limited only to coastal regions or include all regions. In the latter scenario, the AMPI for Tourism Environmental Pressure is based on the indicators E3, E4, and E8. Table 3 gives the AMPI values for the years 2015–2019, along with annual rankings. The results are in agreement with those stemming from the previous AMPI. The top-ranking regions are Molise and Basilicata, followed by Umbria and Abruzzo. The largest environmental stress is attained in Trentino-Alto Adige, Lombardia, and

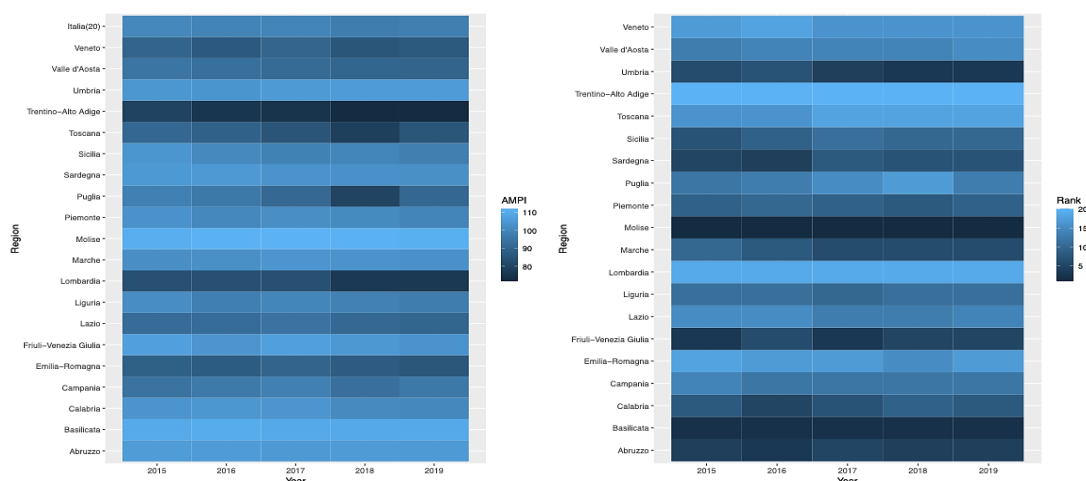
Toscana. We further notice that in these latter three regions, the AMPI decreased remarkably from 2015 to 2019, hence highlighting an increasing difficulty in reacting to tourist stresses over time. Figure 5 displays the variations in the AMPI for Tourism Environmental Pressure across regions and over time. The increasing environmental pressure is evident, especially for those regions at the bottom of the leaderboard. The year-wise spatial representation of the AMPI for Tourist Environmental Pressure is given in Figure 6a and Figure 6b. It is not possible to distinguish any clear territorial pattern in any of the considered years.

When we limited our analysis to coastal regions only, by taking into account the elementary indicator E7, we still found Molise, Basilicata, and Abruzzo on the top of the leaderboard whereas in the last standings, we have Emilia-Romagna, Toscana, and Veneto. In all these regions, the AMPI shows a decreasing trend.

**Table 3.** The AMPI for Tourist Environmental Pressure based on E3, E4, and E8 for the 20 Italian regions with annual ranking

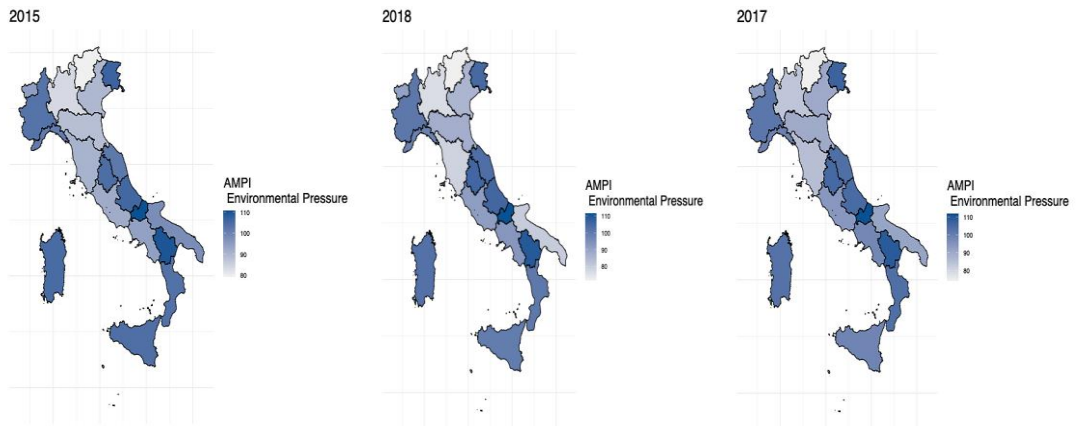
Regions	2015	2016	2017	2018	2019
Abruzzo	105,656 (4)	105,536 (3)	104,838 (5)	105,348 (4)	105,142 (4)
Basilicata	109,616 (2)	110,184 (2)	109,293 (2)	109,202 (2)	109,298 (2)
Calabria	103,573 (8)	104,355 (5)	103,765 (7)	100,559 (9)	100,082 (8)
Campania	94,007 (14)	96,012 (12)	97,789 (12)	92,991 (12)	95,715 (12)
Emilia-Romagna	88,278 (18)	87,226 (17)	89,598 (17)	86,823 (15)	85,695 (17)
Friuli-Venezia Giulia	106,578 (3)	103,862 (6)	106,683 (3)	104,739 (5)	103,290 (5)
Lazio	92,023 (15)	92,086 (15)	94,062 (13)	91,224 (13)	90,169 (14)
Liguria	101,607 (11)	97,609 (11)	99,454 (10)	98,169 (11)	97,014 (11)
Lombardia	83,438 (19)	83,507 (19)	83,403 (19)	76,149 (19)	76,083 (19)
Marche	102,126 (10)	102,293 (8)	103,833 (6)	103,190 (6)	102,558 (6)
Molise	110,624 (1)	111,602 (1)	111,747 (1)	111,562 (1)	111,112 (1)
Piemonte	103,064 (9)	100,085 (10)	102,059 (9)	100,838 (8)	99,370 (9)
Puglia	97,840 (12)	95,756 (13)	91,155 (15)	79,749 (17)	90,865 (13)
Sardegna	104,786 (5)	104,853 (4)	103,147 (8)	102,537 (7)	102,346 (7)
Sicilia	104,194 (7)	100,349 (9)	98,518 (11)	99,629 (10)	97,467 (10)
Toscana	90,621 (16)	88,653 (16)	84,966 (18)	78,450 (18)	85,414 (18)
Trentino-Alto Adige	79,263 (20)	75,218 (20)	74,327 (20)	71,728 (20)	71,734 (20)
Umbria	104,241 (6)	103,673 (7)	105,197 (4)	105,539 (3)	105,548 (3)
Valle d'Aosta	94,638 (13)	93,133 (14)	91,801 (14)	90,093 (14)	89,572 (15)
Veneto	89,683 (17)	86,286 (18)	89,839 (16)	85,339 (16)	86,137 (16)
<b>Italy</b>	<b>100,000</b>	<b>98,98</b>	<b>99,319</b>	<b>97,074</b>	<b>97,512</b>

**Figure 5.** The AMPI for Tourism Environmental Pressure based on E3, E4, and E8 for the 20 Italian regions (left) with rankings (right) in the years 2015–2019



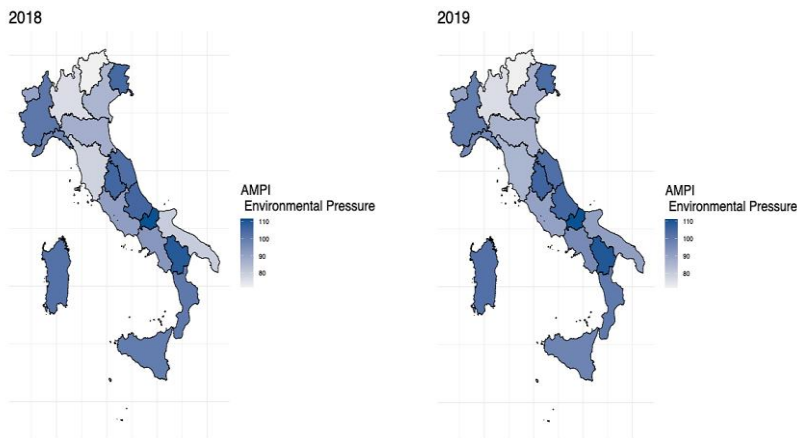
Source: Authors' elaboration.

**Figure 6a.** Spatial representation of the AMPI for Tourist Environmental Pressure based on E3, E4, and E8 for the 20 Italian regions in the years 2015–2017



Source: Authors' elaboration.

**Figure 6b.** Spatial representation of the AMPI for Tourist Environmental Pressure based on E3, E4, and E8 for the 20 Italian regions in the years 2018–2019



Source: Authors' elaboration.

## 5. Decoupling

The AMPI for Tourist Environmental Pressure can be used in the national decoupling analysis, according to the Organization for Economic Co-operation and Development (OECD) decoupling model (OECD, 2008). Decoupling concerns the study of a temporal gap between two variables linked by a cause-effect relationship and belonging one to the economic sector of tourism, the other to the environmental field. In particular, the environmental variable is expected to represent a negative externality that is generated by the economic activity under consideration. Then, in environmental policy, decoupling refers to the delinking of economic growth from environmental pressures, in other words, to break the link between environmental stresses and economic goods. Decoupling occurs when the growth rate of an environmental pressure is less than that of its economic driving force over a given period. Decoupling can be either absolute or relative. Absolute decoupling is said to occur when the environmentally relevant variable is stable or decreasing while the economic driving force is growing. Decoupling is said to be relative when the growth rate of the environmentally relevant variable is positive but less than the growth rate of the economic variable.

Here, it is suggested to use the AMPI for Tourist Environmental Pressure as the environmental variable and the national value added (VA) related to the branch “Accommodation and food services”



(ATECO I) available from ISTAT as the economic variable. In this respect, decoupling can be seen as a measure of sustainable development. It is well known that the decoupling between economic growth and the consequent negative externalities, for example, consumption and corruption of non-renewable resources, is a necessary condition to achieve and maintain sustainable environmental development over time. We point out that decoupling makes sense only when the economic variable has a positive growth rate. Otherwise, quite simply, there would be no development whose sustainability could be assessed. Decoupling occurs when the decoupling ratio is less than one that is economic development grows faster than the negative externalities it generates. The decoupling ratio is:

$$R_t = \frac{(\Delta AMPI^t)}{(\Delta VA^t)} = \frac{\frac{AMPI^t}{AMPI^{t-1}}}{\frac{VA^t}{VA^{t-1}}} \quad (4)$$

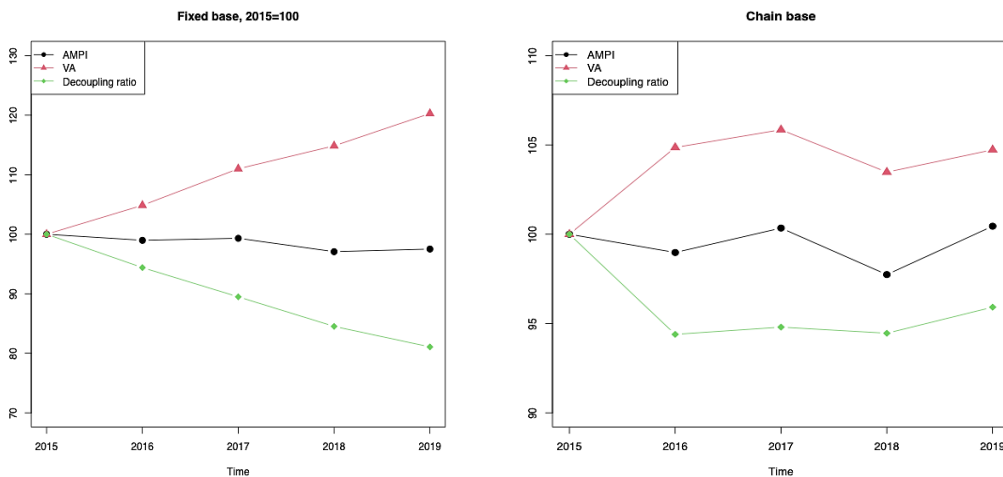
We also notice that the ratio can be expressed as the variation in the ratio between the environmental and economic determinants in different periods, that is:

$$R_t = \frac{\frac{AMPI^t}{VA^t}}{\frac{AMPI^{t-1}}{VA^{t-1}}} \quad (5)$$

The decoupling can be measured to a fixed reference year or with a chain base. In our example, the comparison between the added value of economic activities ATECO I and the composite indicator Tourist Environmental Pressure shows absolute decoupling in the long term all over the considered period 2015–2019 when 2015 is considered as a reference year. On the other hand, for what concerns annual variations, we have relative decoupling.

It is worth pointing out that an optimal decoupling indicator should take into account all the environmental variables involved and integrate all the pressure variables generated by an economic determinant, in such a way that one could use the composite indicator of the main tourism environmental pressures as a synthesis of the main negative environmental externalities attributable to the tourism economic sector. Therefore, the above decoupling analysis goes precisely in this direction of considering as many environmental pressures as possible generated by the economic driving force variable considered.

**Figure 7.** Value added of the economic activity “Accommodation and food services”, the AMPI for Tourist Environmental Pressure, decoupling ratio, according to fixed (left) and chain (right) base



Source: Authors' elaboration.

**Table 4.** The decoupling ratio between the value added of the economic activity “Accommodation and food services” and the AMPI for Tourist Environmental Pressure, according to fixed (left) and chain (right) base

<i>Base</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>
Fixed 2015 = 100	94,39	89,48	85,52	81,07
Chain	94,39	94,8	94,46	95,92

## 6. Assessing the Adjusted Mazziotta–Pareto index reliability

Both the AMPIs for Tourism and Environment and Tourist Environmental Pressure can be used to group regions showing similar values across every year. For instance, there could be considered three groups with low, medium, or high values, as in Monda et al. (2021). However, in general, there is no criterion to establish the optimal number of groups and even the cut-point delimitating every class. Here, we want to assess the discriminating ability of the proposed indexes according to a clustering approach based on the original elementary indicators that properly take into account the longitudinal nature of the data at hand. We consider the elementary indicators E1, E3, E4, E5, and E8. To this end, we fit a latent Markov model (Bartolucci et al., 2015) for a multivariate (five dimensions) continuous outcome. The number of groups has been selected according to a Bayesian information criterion (BIC). The fitted model confirms the fact that regions hardly change their state during the five years, with at least one exception, as the composition of the selected four groups suggests, which is given in Table 5, for the year 2019. We stress that we do not observe differences in the composition of groups in the five years. The entries in Table 5 give the group-wise profiles, evaluated by taking the average of each indicator. The methodology leads to highlight the peculiarity of Campania, as well as the large values of Lombardia and Trentino-Alto Adige. After comparing the clustering stemming from the latent Markov model and the rankings in the last column in Table 1, we can safely claim the capability of the proposed pair of composite indicators to discriminate between regions in terms of trade-off between touristic flows and pressure on the surrounding environment. Actually, in the first group, we find the first two groups are the first 12 ranked regions according to the Tourism and Environment AMPI with the addition of Puglia and the first 13 ranked regions according to the Tourist Environmental Pressure AMPI. The third cluster is composed of the regions ranked from 13 to 18, whereas the last in the last group there are the two regions at the bottom of the leaderboards. It is worth noting that the inclusion of the elementary indicators E1 and E5 slightly worsens the ranking of Puglia, but, on the opposite, Campania takes great advantage of them. Actually, in Campania, the growing tourism intensity has been well balanced and supported by a remarkably increasing accommodation capability of more than 50% from 2015 to 2019, whereas in Puglia the variation is only 9%, albeit a similar level of tourism intensity during the period.

**Table 5.** Groups from the latent Markov model with group-wise profiles

<i>Group</i>	<i>E1</i>	<i>E3</i>	<i>E4</i>	<i>E5</i>	<i>E8</i>	<i>Tourism and Environment</i>	<i>Tourism Environmental Pressure</i>
Abruzzo, Basilicata, Calabria, Friuli-Venezia Giulia, Liguria, Marche, Molise, Piemonte, Puglia, Sardegna, Sicilia, Umbria	4,79	177,97	5,81	34,47	75,07	100,36	102,01
Campania	5,55	537,64	7,31	41,72	168,52	101,95	95,72
Emilia-Romagna, Lazio, Toscana, Valle d’Aosta, Veneto	13,70	771,06	21,21	46,22	216,53	91,56	87,40
Lombardia, Trentino-Alto Adige	21,31	1239,10	25,76	54,30	250,28	71,22	73,91

*Note: The last two columns give group-wise average AMPI values.*

## 7. Conclusion

This work provides innovative, integrated, and synthetic readings of the main environmental-tourism indicators, available from the ISPRA Environmental Data Yearbook by means of composite indicators and the decoupling model. The main aim is to move the attention to the environmental aspects of tourism, which are still suffering. Actually, tourism and environmental statistics are not integrated, despite the international indications.

We proposed a pair of new composite indicators to measure the tourism-environment trade-off and environmental pressures due to tourism flows. These indicators can be used in a proper decoupling analysis according to the OECD model. Their reliability to discriminate among regions over time has been verified according to a latent Markov Model. The results state that the methodology is able to highlight suffering areas and possibly increasing difficulties in reacting to tourist stresses over time. Then, the proposed AMPIs can be the basis for new data-driven policies that do not only concern the economic role of tourism but also its environmental sustainability.

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# ENVIRONMENTAL SUSTAINABILITY, PROTECTION OF CREATION, AND POSSIBLE CONTRIBUTION OF CANON LAW

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**Keywords:** Environmental Protection, Religious Denominations, Catholic Church, Canon Law

## **1. Agenda 2030, environmental sustainability goals and religious denominations: The need for interaction**

The publication of the document “Transforming Our World: The 2030 Agenda for Sustainable Development” (United Nations, 2015) has strongly brought out the environmental issue (Chiussi, 2016). The purpose of the action program, signed in 2015 by 193 member countries of the United Nations, is “making the planet a welcoming, prosperous and peaceful home for man and other living beings” (United Nations, 2015).

The challenge of environmental sustainability is the protagonist among Agenda’s objectives (Leone, 2019): end hunger, achieve food security and improved nutrition and promote sustainable agriculture (Goal 2); ensure availability and sustainable management of water and sanitation for all (Goal 6); ensure access to affordable, reliable, sustainable and modern energy for all (Goal 7); build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (Goal 9); ensure sustainable consumption and production patterns (Goal 12); take urgent action to combat climate change and its impacts (Goal 13); conserve and sustainably use the oceans, seas and marine resources for sustainable development (Goal 14); protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (Goal 15)(Annesi et al., 2021).

Although not expressly mentioned by the document among the institutional interlocutors, or made involved only in the phase preceding the drafting of the document (Heuser & Koehrsen, 2021), religions can validly contribute to the protection of the environment (Tatay, 2021). The formal recognition of their intervention would allow the 2030 Agenda to concretely meet the requirement of inclusiveness that distinguishes it (Aluffi, 2021). In fact, their involvement is motivated by the impact they exercise in the lives of their faithful, whose actions are imbued with religion (Sorvillo, 2019). In this sense, they prove to be important “social actors” (Naso, 2015), guaranteeing services that civil systems are often unable to provide.

Religions can contribute to the definition of strategies for environment’s protection by inviting their faithful to adopt compatibles behaviors with environmental values (Sorvillo, 2014). Belonging to a religious group guides the actions of the faithful, transforming the precepts of faith into legal rules. In this sense, the confessional dimension exercises a double function: in the private sphere, it forms consciences, in the public sphere it is an instrument of connection between the religious factor and the juridical system (Vérgez Alzaga, 2020). There are many intersection fields between religion and law: ways of faith exercise faith (Dalla Torre, 2020), food (Fuccillo, 2015a), religious organizational forms (Fuccillo et al., 2019), clothing (Borghi, 2019), worship buildings (Decimo, 2021), economic choices (Sorvillo, 2016), instruction (Parisi, 2008), marriage (Ventrella Mancini, 2021), ways of understanding the beginning and the end of life (Camassa & Casonato, 2008). Environmental protection is among these and the religious denominations’ attention is addressed to that.

There are several proposals in this regard. The Baha’i International Community has actively contributed to the definition of ideas and action plans in support of the 2030 Agenda through the document “Bristol Commitments”, signed in 2015, highlighting the vital role of religion in the success of the Sustainable Development Goals: “more than 80 percent of the world’s people belong to a religious group. Knowing this, it is clear that the UN must work closely with religious

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communities over the next 15 years, if the new global sustainable development goals are to be achieved” (Ladd, 2015). Also, Buddhism offered a notable boost. Its proposal to combat climate change and stop environmental decline resulted in the publication “*Buddha would be green*”, aimed at raising awareness among the faithful on environmental issues in the perspective of greater awareness of the man-nature relationship and of the respect and love to be nurtured towards it (Amina Barbieri, 2020). Instead, the Hindu eco-theological current is based on the divinization of the plant world. It can constitute an opportunity to combat environmental degradation if it takes as an example the practices of some rural populations, such as the obligation to protect all forms of life, the prohibition of cutting trees, the prohibition of killing cattle or wearing blue clothing, as its dyeing destroys some particular plants (Pelissero, 2021). Sensitivity to environmental conservation also emerges clearly from Jewish sources (Torah, Mishnà, Talmud). The exaltation of the sacredness of the land of Israel (Es. 3,5: “*Togliti le scarpe, perché il terreno sul quale cammini è sacro*”) is praise to God’s greatness, who created “a good land” (Gios. 24,13). That land, which is “promised”, calls man to preserve and cultivate the harmony of the cosmos (Piccinni, 2013). He must respect the Bal Tashhit principle, which prohibits all forms of destruction (Bernstein & Fink, 1992), and that involves him as an individual and as belonging to a community. The fulfillment of the precept motivates the faithful to preserve the quality of life and the environment, in the implementation of the principle of *tikkun olam*, the duty to perfect the world (Dershowitz, 2005), as an alliance between God and man. In this perspective, the concept of justice in relation to ecology and the environment is also declined (Pozzi, 2021): it calls the faithful to achieve a balance between the legitimate use of environmental resources and the control and processes that disturb or harm the health of other individuals (Piccinni, 2013, p. 111).

The Islamic ethos is based on the precepts of the Koran and Sunna, defined as “green reservoirs full of legal principles and precepts” (Poderati, 2021), aimed at “harmonizing the law with nature” (Nasr, 2003). The environment, *muhit*, as defined in Islamic sources, is the place created by God, where man lives and can enjoy all the goods donated (Nasr, 1995), as a trustee (*amanah*) and manager (*achirah*). However, his desire for supremacy and domination transforms him into an administrator, whose actions destroy the harmony of nature. Hence the Ummah’s duty is to translate Islamic principles into action, which invites the faithful to assume the responsibility of protecting the planet through the sustainable use of natural resources by man (Bagader et al., 1994). In this sense, we speak of Green Ummah, as a community of faithful who take care of the Earth with policies aimed at addressing and stemming the environmental crisis (Abdul-Matin, 2010). Eco-sustainable Islamic action is therefore inspired by the principle of balance (*mizan*), by which each faithful must synchronize his way of living with nature and cooperating with it (Nasr, 1990).

Therefore, environmental sustainability actions are already conceived and implemented by religious confessions in compliance with their precepts. The absence in the 2030 Agenda of specific references to religions as interlocutors of civil institutions is not understood. They, in the common consideration that “our land cannot be transformed without achieving a change of conscience in the individual and in the community ... keeping alive, deepening and transmitting this responsibility to future generations is the specific task of religions” (Parliament of World’s Religions, 1993), can define shared strategies, capable of “appealing to the human being in all its complexity of mind, heart and spirit” (Küng, 2004).

## 2. Catholic Church and magisterium in the field of environmental protection

The United Nations’ 2030 Agenda was received with great enthusiasm by the Catholic Church (Larrù, 2020), which considers the adoption of the document “an important sign of hope” (Dicastery for Promoting Integral Human Development, 2017). The ecclesial sensitivity to environmental issues (Gasparro, 2022) emerges with evidence from the pontifical interventions and documents (Currà, 1999; Pettinato, 2014; Piccioni, 2018), whose universal relevance makes it possible to reach every corner of the world to favor the establishment of good practices (Lévesque, 2015).

The first mention of environmental protection emerges from the Encyclical Letter “*Populorum Progressio*” of 1967 by Pope Paul VI. He highlights the principle of the universal destination of goods, on the assumption that “created goods should flow fairly to all, under the leadership of justice

and in the company of charity” (Paul VI, 1967, n. 22). With the Apostolic Letter “*Octogesima Adveniens*” of 1971 by Paul VI, Christians are called to become aware that the reckless exploitation of nature risks destroying it. Therefore, Roman Pontiff presented *Il Pontefice presentava dunque* “new perceptions in order to take on responsibility, together with the rest of men, for a destiny which from now on is shared by all” (Paul VI, 1971, n. 21).

John Paul II identifies the environmental crisis among the serious signs of the times with which men are called to confront. In the Encyclical Letter “*Redemptoris Hominis*” of 1979, he states that “man often seems not to perceive other meanings of his natural environment, but only those that serve the purpose of immediate use and consumption” (n. 15). With Encyclical Letter “*Sollicitudo rei Socialis*” of 1987, he invites awareness of the limit of natural resources and the consequences of their misuse on the quality of life. Instead with the Encyclical letter “*Centesimus Annus*” of 1991, John Paul II notes the need for an environmental conversion capable of involving the individual faithful and, as a member of the people of God, the entire community of faithful.

Benedict XVI focuses attention on the fundamental rights and duties that derive from the relationship between the environment and man. In the Encyclical Letter “*Caritas in Veritate*” of 2009, he underlines the responsibility of mankind, institutions, and the Church towards creation, deeming an alliance between man and the environment, necessary to “hand over the land to the new generations in a state such that they too can worthily inhabit it and further cultivate it” (Benedict XVI, 2009, n. 48–51).

An important step forward was offered by Pope Francis with the Encyclical Letter “*Laudato si*” of 2015, later confirmed by the Post-synodal Apostolic Exhortation “*Querida Amazonia*” of 2020 (Buffon, 2019; Berlingò, 2021; Nobre et al., 2021; Prakash, 2021; Roca Alcázar, 2021; Céspedes, 2021), and by the Apostolic Letter “*All Brothers on Fraternity and Social Friendship*” of 2020 by Francis (Spreafico, 2021). The documents are addressed to all people of goodwill and all human beings as inhabitants of creation. In particular, “*Laudato si*” stands as an icon of the Catholic teaching on the ecological question (Bignami, 2017). Pontiff’s approach is universal, not addressing the document only to the Catholic faithful but to “every person who inhabits this planet”. The theme is developed from the analysis of the environmental crisis up to emphasizing the need to recover the “levels of ecological balance”, with the awareness that protection does not concern the environment itself but the entire creation what God’s plan (Larivera, 2015; De Gregorio, 2016). “Everything is interconnected, everything is connected” (Francis, 2015a, n. 91, 117, 138, and 241). Francis reiterates this to form consciences in a perspective that starts from the environment but cannot stop at the environment (De Gregorio, 2019).

The centrality of the issue in Francis’s (2017) pontificate is highlighted by the constitution of the Dicastery for Promoting Integral Human Development on 17 August 2016 with the Apostolic Letter issued “*Motu Proprio*”. “The solicitude of the Holy See with regard to the care of creation” is among the main objectives of the Dicastery, so that the values concerning justice and peace are promoted, according to Article 1 of the Statute of the Dicastery. Furthermore, with the institution of the World Day of Prayer for the Care of Creation (Francis, 2015b) and the signature of the Document on Human Brotherhood, the Pontiff highlights the inseparable link between the values of peace, justice, and respect for creation and the earth, considering that the commitment to safeguard creation and the whole universe becomes the opportunity to establish forms of dialogue, common collaboration and mutual knowledge (Francesco & Ahmad Al-Tayyeb, 2019).

Francis’s ecological approach urges us to reflect on current development models, in order to “create a new mentality that thinks in terms of community, of the priority of everyone’s life about the appropriation of goods by some”, as well as obliging to think many juridical instruments and to create a new law in order to achieve “an adequate administration of the common home which is the whole world” (Secretariat for Social Justice and Ecology of the General Curia of Jesus’s Society, 2016).

The originality of Francis’ teachings transforms statements of principle into concrete commitments. On the occasion of the Academic Act of the Pontifical Lateran University, the Pontiff established the new cycle of studies in Ecology and the Environment, as a “meeting point for reflection on integral ecology, capable of gathering different experiences and thoughts, combining them through the method proper to scientific research. In this way, the Universitas shows itself not

only as an expression of the unity of knowledge, but also the custodian of an imperative that has no religious, ideological, or cultural boundaries: to guard our common home, to preserve it from wicked actions, perhaps inspired by a politics, an economy, and training linked to immediate results, for the benefit of a few” (Francis, 2021b).

The intercultural direction chosen by the Pontiff not only favors confrontation between religions but also towards States. In fact, the ecclesial perspective is placed in the same direction as the civil one. 2030 Agenda highlights “sustainable development” among the objectives and it recalls (Minelli, 2021) “integral sustainable development”, understood by the Catholic Church as “recognition of the limits of available resources and the need to respect integrity and cycles of the nature of every being and of its mute connection in an ordered system, which is precisely the cosmos” (Dicastery for Promoting Integral Human Development, 2017, p. 8). The protection of the environment prepared by Article 9 of the Italian Constitution is oriented in this sense. The constitutional law of 2022, February 11th, n. 1, containing Amendments to Articles 9 and 41 of the Constitution regarding the environment, includes “the protection of the environment, biodiversity and ecosystems, also in the interest of future generations” among the fundamental principles of the constitutional order. This statement is the result of a series of jurisprudential interventions, which have recognized the right to the environment as a primary constitutional value (Cecchetti, 2006), as a “fundamental right of the person and fundamental interest of the community” (Constitutional Court, sent. 94 of 1985; sent. 167 and 210 of 1987) and as “center of imputation of a series of values that are not merely naturalistic, but also cultural, educational and recreational in a correct and modern conception” (Constitutional Court, sent. 302 of 1994; Giannelli, 2016).

Therefore, a solidarity vision of environmental protection is the common point of reflection between civil and confessional systems. They involve citizens as the holders of constitutional rights and the faithful as responsible for the environment as God’s creation (De Gregorio, 2019, p. 306).

### **3. Environment as creation: Perspectives of protection between ecological sin and ecological conversion**

“In the beginning, God created the heavens and the earth” (King James Version Bible, n.d., Genesis, 1:1). The sacred text of the Catholic Church presents God as the creator of the world, in which everything is created because it is considered a ‘good thing’. Man too is the fruit of this act of love (King James Version Bible, n.d., Genesis, 2:7), created “in our image, after our likeness” (King James Version Bible, n.d., Genesis, 1:26; Nuer, 2021), as caretaker and responsible for all of creation and with the task of protecting its harmony and development (King James Version Bible, n.d., Genesis, 2:15). He is not called to dominate all that God has created but is God’s delegate with respect to creation, of which he must take care “in justice and holiness” (Second Vatican Council, 1965).

The change of perspective asked of the Catholic faithful is clear: if the environment is God’s creation, it’s necessary for him to develop “a correct idea of the environment which, while on the one hand cannot utilitarianly reduce nature to an object of manipulation and exploitation, on the other hand it must not absolutize it and overlap it in dignity on the same human person” (Pontifical Council for Justice and Peace, 2004). Therefore, nature and creation are in asymmetrical perspective positions: the first, different and distant from man, is included in the second, in which man is inserted, thanks to God’s plan, for which every creature has its own value and meaning (Francis, 2015a, n. 76; Boff & Hathaway, 2018).

The faith’s perspective of environmental protection as protection of creation (Moltmann, 1987) can direct the ecological action of the faithful in an increasingly consistent way with the teachings of the Catholic Church on the subject.

This idea is also shared by other religious denominations (Bartholomeo, 2018). On the occasion of the Day for the Protection of Creation on 2021, September 1st, Pope Francis, the Ecumenical Patriarch Bartholomeo, and the Archbishop of Canterbury Justin Welby said “The current climate crisis speaks volumes about who we are and how we view and treat God’s creation. We stand before a harsh justice: biodiversity loss, environmental degradation and climate change are the inevitable consequences of our actions, since we have greedily consumed more of the earth’s resources than the planet can endure ... Each of us, individually, must take responsibility for the ways we use our

resources. This path requires an ever-closer collaboration among all churches in their commitment to care for creation ... Taking care of God's creation is a spiritual mandate that requires a committed response. This is a critical moment. The future of our children and our common home are at stake" (United Nations Climate Change, 2021).

Conceiving the environment as a creation means that it can be read only as "a gift from the outstretched hand of the Father of all, and as a reality illuminated by the love which calls us together into universal communion" (Francis, 2015a, n. 76). Nature represents the meeting point between human and divine "in the slightest detail in the seamless garment of God's creation, in the last speck of dust of our planet" (Francis, 2015a, n. 11).

Christ's teachings confirm this link (Gasparro, 2021). They acquire regulatory value when Christ's actions prescribe to the faithful how to protect what is created by God and live the condition of being baptized in coherence. Man-Environment/Faithful-Creation are the plots of the discourse on environmental sustainability from a Christian perspective. The attention asked of man towards the environment that surrounds him becomes for the faithful care of what has been created for him, projecting him into a dimension of salvation, which can only be reached by renewing and keeping faith in the covenant concluded with God (Buffon, 2020).

In this sense, the creation underlies the relationship between God and man, between cosmic love and the Eucharist (Jerumanis, 2016), so the environment around him has a divine origin (Dammacco & Ventrella, 2015). Creation, as a gift from God, can benefit from more careful and effective protection, by virtue of the theological perspective, whereby the faithful Catholic is called to act with a view to reconciliation with God, with others, and with creation (Harsányi, 2021).

However, the analysis of reality highlights the limits and breaking points of the covenant between God and man. It is possible to talk of ecological sin in relation to those human behaviors that break vital relationships with God, neighbor, and creation "causing damage not only outside, but also within us" (Francis, 2015a, n. 66). On the occasion of the Final Document of the Special Synod for the Pan-Amazonian Region of 2019, ecological sin was defined as "an action or omission against God, against one's neighbour, the community and the environment. It is sin against future generations, and it is committed in acts and habits of pollution and destruction of the harmony of the environment. It is a sin against future generations and manifests itself in acts and habits of pollution and destruction of the harmony of the environment, in transgressions against the principles of interdependence and in the breaking of networks of solidarity between creatures and in actions against the virtue of justice" (Synod of Bishops, 2019, n. 82).

There are no strategies or sanctions against those who commit a similar sin, if not an ecological conversion, in the sense of "examining our lives and recognizing how we offend God's creation with our actions" (Francis, 2015a, n. 218). The conversion process, which culminates in reconciliation (Carbajo Nuñez, 2019), must "translate into concrete attitudes and behaviors that are more respectful of creation, such as, for example, making careful use of plastic and paper, not wasting water, food and electricity, separate waste, treat other living beings with care, use public transport and share the same vehicle among several people" (Francis, 2022). Conversion means becoming aware of the sins against nature and returning the damage caused to creation, man, and God (Palmer et al., 2014).

The transition from ecological sin to ecological conversion allows man to regain possession of the role that God gave him at the moment of creation: guarding nature (La Vergata, 2017), administering it as a delegate of the Creator, in order to promote it with respect for it and human dignity (Malnati, 2015) and to re-establish the relationship between God and creation.

Therefore, Francis's innovative approach shifts the axis from possible actions in defense of the environment to man's ability to heal in his relational sphere, as created by God and placed in creation as a guardian (Di Marco, 2020).

#### **4. The hypothesis of an ecological canon in the Code of Canon Law: A necessary regulatory intervention**

The pontifical interventions show how much environmental protection represents an evangelization challenge for the Catholic Church. In fact, his missionary action is ordered to the "salvation of all mankind", taking into account his personality, dignity, and integral salvation. However,



the identification of good practices for the protection of creation, as already proposed by the Social Doctrine of the Church, has not prevented the perpetration of harmful behaviors for the environment and the occurrence of further environmental disasters. The culture of waste and rejection, so opposed by Francis' teachings, has not been stemmed (Panico, 2016). This prompts us to reflect on the advisability of introducing specific regulatory measures aimed at regulating new cases relevant to the law. The Pontiff stated that "it's essential to create a regulatory system that includes inviolable limits and ensures the protection of ecosystems before the new forms of power derived from the techno-economic paradigm end up destroying not only politics but also freedom and justice" (Francis, 2015a, n. 53).

The environmental matter is not unknown to canon law (Míguez Núñez, 2017). Canon 747, para. 2 of Code of Canon Law attributes to the Church the task of "announce moral principles, even about the social order, and to render judgment concerning any human affairs insofar as the fundamental rights of the human person or the salvation of souls requires it". In fact, it is believed that "all human events and realities concerning the fundamental rights of the person or the salvation of souls" fall within its competence (Mosconi, 2019).

Compliance with the principle of environmental sustainability could be achieved, as claimed on several occasions (Stocchiero, 2020), by introducing among the rights and duties of the Christifideles also that of "protecting and promoting the environment in which one lives". The reform of Book VI of the Code of Canon Law (Astigueta, 2021; Arrieta, 2021), implemented by Francis with the Apostolic Constitution "*Pascite Gregem Dei*" of 2021, May 23rd, entered into force on 2021, December 8th, could also have provided for a specific criminal law on environmental matters. In this sense, a proposal for the reform of the Code of Canon Law had already taken place with the idea of introducing an ecological canon to protect the environment, according to which "Every Christian faithful, mindful that creation is the common home, has the grave duty not only not to damage, but also to improve, both with normal behavior and with specific initiatives, the natural environment in which each person is called to live" (Coccopalmerio, 2018).

However, even in the absence of specific legislation, it is believed that an act contrary to the social order of the Church and capable of endangering peaceful coexistence (De Paolis, 2005) may be subject to the coercive power of ecclesiastical authority (Michiels, 1934). In fact, the universal Legislator has provided for the possibility of applying just penalties "beyond the cases established by this or other laws". The provision of Canon 1399 does not derogate from the principle of legality of the penalty established by Canon 221 of Code of Canon Law as "*nullum crimen sine lege poenali praevia*" (Aymans et al., 2013; a different opinion is supported by Dalla Torre, 2008; Jenkins, 2010), but it is only aimed at providing for cases of particular gravity and urgency (Chiappetta, 2011).

This canon, considered the "lung that oxygenates the series of codified norms" (Fedele, 1937), "allows to punish an action that has not previously been expressly provided with a penalty, i.e., it allows the decision of the competent authority to punish a certain anti-legal action to be taken not before, but after its execution" (Sanchis, 1993). However, the Legislator has provided two conditions for its application: the special gravity of the violation and the urgent need to prevent or repair the scandals (Sanchis, 2002). These could exist in the presence of behaviors that are seriously damaging to the environment or that, even if to a lesser extent, create prejudice to a certain community. Therefore, it is necessary to remedy the scandal, as already argued in the field of financial offenses (Fuccillo, 2015b) and the publication of offensive satirical cartoons of Catholic religious sentiment (Santoro, 2016). In this sense, can. 1399 CIC (D'Auria, 2021a) could perform a supplementary function in the repression of environmental crimes which, although not expressly provided for by the canonical regulatory system, are constantly subject to the reflection of the Magisterium which, in any case, binds Catholic faithful.

The provision of an environmental crime would have a considerable deterrent capacity on the faithful who, aware of the sanction linked to a specific conduct (Wenz & Vidal, 1951), would have an incentive to behave in accordance with the religious precept. Indirectly, it would also affect those who do not belong to the people of God. For example, the production techniques of goods placed on the market or the daily actions that may involve Catholics can be different from the canonical norms. In this case, the the Catholic Church's action on the subject of environmental sustainability can be declined in the double perspective of observance of canon law, for those who are

faithful, and of anthropological revolution regarding the correct distribution and correct use of resources and economic increase, for the unbeliever (Aime, 2021). In this perspective, the image of the environment as “creation” could be further enhanced: the performance of an action particularly damaging to the moral order would make the offender guilty before God (D’Auria, 2021b).

The positive contribution of Canon Law in the dynamics of environmental protection can also involve the administration of ecclesiastical heritage, promoting forms of sustainable use of assets owned by Catholic ecclesiastical bodies, and the eventual eco-sustainable conversion of religious buildings. In this matter, the Italian Episcopal Conference intervened in the construction and renovation of religious buildings. It has identified criteria and working methods compatible with the protection of the environment, from the choice of eco-friendly spaces and materials to be used to restoration and energy adaptation interventions.

Therefore, the Catholic faithful are invited to develop an ecological wisdom (Boff & Hathaway, 2018), which is based on the human being’s ability to enter into a relationship. Catholic Church’s action, in a pastoral and juridical sense, will become more effective if the concept of ecological sin is at the basis of the principle of environmental sustainability (Figuroa, 2020), understood as an action or omission against God, neighbor, community and the environment, which breaks the pact with God, as well as damaging people and communities. In this sense, it is necessary to define personal and collective attitudes and a new project of society.

However, reflections on the advisability of introducing a specific regulatory reference cannot ignore the duty to take care of educational processes (Minelli, 2021, p. 173), as education inevitably requires a specific relationship with the environment (Colag , 2020). There is a close connection between the protection of creation and the educational factor, since “it is inconceivable to take care of creation without being educated to do so; but neither can there be an integral education of the person regardless of the bonds that unite him to the Creator, to other human beings and to the rest of creation” (Francis, 2020c).

In this perspective, the person as a whole is central, since from his formation comes the care for himself, for others, and for the reality that surrounds him (Francis, 2020b) as a keystone for an effective and lasting ecological conversion.

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# LEX MANCIANA AND LEX HADRIANA: TWO REGULATORY INTERVENTIONS FROM THE AGE OF THE PRINCIPALITY FOR THE SUSTAINABILITY OF ROMAN AGRICULTURE

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**Keywords:** *Lex Manciana*, *Lex Hadriana*, Columella, Sustainability, Northern Africa

## 1. Introduction

During the Roman Principality (I–III century AD) various regulatory measures were issued aimed at promoting the sustainability of agricultural policies in the perspective of the best possible management of the Italian and provincial territory. These measures are framed in a profound crisis in the Italic and provincial agricultural system – attested by literary sources, in particular in the work of Columella — which on more than one occasion had jeopardized the supply of food in Rome. The objective of this contribution is to highlight two legislative measures dating back to the age of the principality, the *lex Manciana* and the *lex Hadriana*, in their application profiles between public and private law in the provincial world, evaluating their impact on the progress of agrarian economy of the time.

## 2. Columella and a model of sustainable agriculture

The policies of sustainability between the exploitation of resources and the need to guarantee the supply of food in the long term are undoubtedly inspired by current trends for the care of ecosystems and by future concerns for the process of climate change on the Earth; however, the issue had already been addressed in the past and the experiential data, there is no doubt, can also inspire solutions for tomorrow.

This vision in Roman times unfolds through scientific assessments and a series of regulatory interventions aimed at guaranteeing an uninterrupted flow of food resources for the capital and the other cities of the Empire and, therefore, intending to ensure continuity in the management of factors of production, as well as social peace and security.

With reference to the age of the Principality, this reflection from a theoretical point of view emerges in all its clarity in the works dedicated to agriculture, and its economic aspects by Varro, Cato, and Pliny the Elder, as well as from imposing work of Lucius Iunius Moderatus Columella, the *de re rustica*. Columella, a man of the first century AD (born in 4 AD and died in 70 AD), lived in full the Augustan age during which, following decades of social and civil wars, considerable difficulties had arisen in the management of the Italic agrarian system; a system that, due to the proliferation of large estates, and the neglect of the landlords — the large landowners — had suffered a notable decline in the production of essential crops for the supply of the city of Rome (in particular cereals), in favor of other far more profitable, such as the grapevine. This circumstance had weakened the proximity supply system, with the consequence that Rome, at that time by now a metropolis, was forced to make continuous use of supplies from the provinces, with the considerable delays and risks of navigating the Mediterranean; this situation had also generated several revolts and a general sense of instability. Columella, therefore, not without first having sharply criticized the absence of a scientific approach to the agrarian problem (*de re rust. ad P. Silv. praef.*), due to the inexistence of sector studies and to the absence of training schools for farmers, proposed to the attention of public opinion a land management model that could reconcile the income or entrepreneurial reasons — so to speak — of landowners, but also guarantee the city of Rome substantial autonomy with respect to the procurement of goods food from the provinces (*de re rust.*), and above all in general moderation in the management of funds, ie sustainability.

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Columella does not seem to oppose the large estate in principle, however, this should have had sustainable limits that would have been avoided — in his vision — leaving land uncultivated (according to Columella, *de re rust.*, the fund could no longer be extended by 20 km, i.e., the distance that the owner could reasonably have traveled in a day) and well organized through a wise and rational use of capital and labor, and above all by distributing work and land in heterogeneous activities; I will not dwell on the minuteness of Columella, *de re rust.*, but in his opinion, each large estate should have guaranteed the production of rough cereals, olive trees, vines, and fruit, but also pastures for livestock and the breeding of fish. The model of sustainability proposed by Columella is, therefore, that of the large organized farm (De Martino, 1980, p. 230) and managed, by those who have shown themselves able to cultivate and raise — the model of the small owner/direct farmer on the kind of Cincinnatus is perhaps not the ideal that inspired Columella — but also of those who were able to organize the workforce, mostly slave laborers, but also free or free, as Columella himself considered it appropriate to repopulate these farms, also of renters interested in the good performance of the land rather than lazy and often poorly supervised slaves, considering it a real good fortune to be able to make use of settlers born on the spot (“*in paterna possessione*”, *de re rust.*). This circumstance, very widespread in the Italian agricultural system, dominated by the model of the slave villa, as also highlighted by Hopkins (1984) with less intense immigration of slaves from the provinces into Italy than in the past and a parallel emigration to Rome, in the Italic cities and the provinces of the Italic rural populations, on the other hand as specified by Lo Cascio (1999, p. 513) with a “*più elevato* standard of exploitation” of slave labor compared to free labor.

The model of villa perfecta, in a perfect balance between *agri cultura*, *pastio agrestis*, and *pastio villatica*, proposed by Columella would therefore have allowed Rome and Italy to develop intensive crops, saving Italic agriculture from “*omologanti pratiche latifondistiche*” (Carandini, 1999, p. 779) which were developing in the provinces, particularly in Northern Africa.

Columella’s proposal fits into a context, that of the first century AD, marked — as mentioned — by a notable crisis in the Italian agricultural system (Carlà & Marcone, 2011, p. 41), characterized by an overproduction of vines, stemmed only by Domitian’s clumsy attempt (*Suet., Dom.*) to prevent the planting of new vines, harshly criticized by contemporaries, scarcely sufficient production of oil and fruit but in perspective at risk in case of famine, and especially of low cereal production.

For Pliny the Younger, who unlike Columella was less fascinated by the idea of organized large estates, the way forward was that of renting rustic properties to private individuals, *liberi* or *liberti* (*epist.*), with a clear preference for the contractual model of the partisan colony rather than that of the lease. In fact, from Pliny’s point of view, the lease would have generated income for the owner, with the risk, however, of the unfulfillment of the pecuniary obligation, while with the partial colony, that is a rent with a rent in kind, a double purpose would have been achieved of sustainability.

The settler would have had an interest in cultivating the land because it would have guaranteed him income, subsistence for himself and his family, as well as the means to pay the rent. The advantage for the owner would have been that of being able to better organize the rest of the farm, focusing on more profitable agricultural activities and in any case leaving the funds in “good hands” if necessary.

### **3. *Lex Manciana* and *Lex Hadriana*: From a *lex contractus* to the imperial provision**

If the Italian situation was not the best, in the province the question of *agri rudes*, of uncultivated or otherwise abandoned lands, was even more evident. Without attempting to analyze in this report the varied and heterogeneous situation of the different parts of the Empire, an interesting picture of what the solutions adopted by the imperial administration for the sustainability of the agricultural resources of the Empire emerges with extreme clarity from the examination of some regulatory measures issued for the province of Africa Proconsularis, roughly corresponding to the current Tunisia. As noted, however, by Sanz Palomera (2007, p. 377), there is no evidence to suggest that these measures were applied outside the limits of Africa Proconsularis (Flach, 1982; Vera, 1988; Kehoe, 1988, 2005; Kolendo, 1991), although it could be imagined that the objectives of the agricultural policy of the imperial government were global for the entire Empire. In this province, already in the late Republican age, many Roman citizens had acquired rights to provincial land, particularly colonial ones, allowing the business class to enrich themselves considerably.

These riches, however, entered the aims of the emperor Nero, who with a reckless move confiscated the land purchased by Roman citizens, in which they too had invested a lot in terms of infrastructure, becoming a large part of the territory belonging to the *Fiscus Caesaris* (Plin. *nat. hist.*). But this aggressive measure is explained by the fact that the province of Africa at the time was a very fertile territory and the subject of important irrigation works, as well as very close to Italy and Rome and strategic precisely for the supply of foodstuffs of the capital of the Roman Empire (Carlà & Marcone, 2011, p. 150).

Within this framework, there are two regulatory measures aimed at the management of African lands that have now become public management: the *lex Manciana* and the *lex Hadriana* (Scholl & Schubert, 2004).

The *lex Manciana* was probably an imperial regulation, returned to us with the inscription of Henchir Mettich (CIL VIII, 25902; Cuq, 1902; Schulten, 1897; Pernot, 1901; Frank, 1926; de Ligt, 1998–1999), but its nature and its dating are discussed by time in literature (for its normative character Kornemann, 1900, De Martino, 1980, p. 245).

Some believe that it was a *lex locationis* belonging to the previous owner subject to confiscation (Kornemann, 1900, p. 537; de Ligt, 1998–1999, p. 220), T. Curtilius Mancina, *consul suffectus* in 56 AD and legacy of Upper Germany in 56–58 AD, who allegedly formulated a *lex contractus* for one of his African possessions and that one of these possessions — or related to another private possession whose owner had copied the *lex* of Mancina — had been left in inheritance to the Imperial *Fiscus* or even confiscated by it (de Ligt, 1998–1999, p. 220).

Subsequently, this contractual model would then be normativized for the imperial domains (Flach, 1978, p. 443, González Bordas, 2020, p. 62). As for the dating, if it is attested that it was applied during the age of Trajan (Pernot, 1901, p. 69; De Martino, 1980, p. 246), some scholars trace it back to age of the Flavians (De Martino, 1980, p. 246), or even — but the position is considered a minority — at the republican age, that is, it would even be a *lex publica* (Saumagne, 1937, p. 292).

This *lex*, applicable as emerges from the epigraphic source that refers it to the *Villa Magna Variana* (Cuq, 1902; Scjaloja, 1892). Recently, a vast fund of the province provided for the concession to the inhabitants of the territory to cultivate uncultivated lands and to sell part of the fruits to the tenant or concession holder of the State (*pars colonica*).

The aim of the regulation application is that of sections of the territory identified by the surveyors as *subseciva*, that is, imperial lands left furious by assignments because they are deemed not to be cultivable. This regulation establishes a detailed list of land products and all the percentages in terms of the relationship that had to be sold to the tenant or concessionaire. All those who owned farms had to pay a third of the wheat, a quarter of the barley, a quarter of the spelled, a third of wine and oil, and a sextary of honey (FIRA, I 100, p. 487, I.25–30).

The same regulation also refers to the application of local customs — a sort of *mos regionis* — in relation to other cases: by way of example, it was established that if the settlers had planted fig or olive trees before the entry into force of the *lex* they should have paid a certain unspecified amount according to custom (FIRA, I 100, p. 487, II.14 s.); while if they had been planted after the law came into force, those who had planted the trees could have appropriated the fruit for five consecutive harvests and then yielded to the tenants or the villagers (De Martino, 1980, p. 246).

Moreover, the farmers saw a *usus proprius* (Cascio, 1951, p. 26) recognized in them which was also transferred *iure hereditario* to their legitimate successors and could be given as a guarantee (FIRA, I 100, p. 488, IV.5–9), according to a scheme that could be traced back to antichresis. The settlers, however, also owed a few days of work to the owners and in case of abandonment, the cultivated lands returned to the tenants or owners.

Of a legislative nature, but evidently elaborated on the model of the *lex Manciana*, the *lex Hadriana de rudibus agris* (Scialoja, 1892, 1896; Schulten, 1907; Fornell Muñoz, 2016; Gonzalez Bordas, 2020) was, on the other hand, a provision of the emperor Hadrian, the content of which has been reconstructed thanks in particular to the inscriptions of Aïn el-Djemala (CIL VIII, Suppl. 4, 26416, FIRA, 102, p. 493) and Lella Drebbliia (AE, 2001, p. 2083, Sanz Palomera, 2007) pronounced in response to a plea from the inhabitants of African funds, the which lived within imperial estates often given in concession to private individuals but not cultivated and or abandoned for a decade.

Hadrian granted to these provincials the right to cultivate the uncultivated lands according to the custom established for the *lex Manciana*, also authorizing the cultivation of cereals (which were not mentioned in the petition); to these farmers, he also granted not so much the *usus proprius* as *the ius possidendi ac fruendi* (FIRA I 102, p. 495, III.10 s.; Cascio, 1951, p. 26) which equated them with landowners in terms of procedural protection. Even those settlers would have had to pay part of the products to the tenant of the abandoned estate (*centuriae elocatae*): one-third of all fruit tree products, with a ten-year exemption and one-third of the olives after exemption for seven years. The grain would have always been paid in the amount of one-third for five years to the tenant of the abandoned fund and then subsequently to the tax authorities (FIRA I 102, p. 495, III.15 s.), with an obvious advantage in terms of availability of resources for the Empire (about *lex Manciana* in Late Antiquity, see Piganiol, 1953; Weßel, 2003; Corcoran, 2013).

#### 4. Conclusion

The two regulatory measures examined above represent an effective cross-section of the relationship between law and economics in the ancient world and of the sustainability policies that over time allowed the imperial administration to guarantee a continuous flow of supplies. These legislative acts, presumably drawn up on the model of a privatistic *lex contractus*, were inserted not so much in the prospects of improving the conditions of the inhabitants of the provinces, but in the protection of the public interest in seeing the provincial crops increase in the perspective of ensuring future supplies, and with a view to the sustainability of rustic funds, according to the model already profiled by Columella, namely that of the large farm organized with the use of capital and people and with crops and livestock as heterogeneous as possible.

Nonetheless, the relationship between proven law and public law appears significant, both concerned with the problem of agricultural sustainability, to the extent that the willingness to negotiate expressed in the *lex locationis* (*lex* of Manciana) has been acquired as a model by the imperial administration for the drafting of a regulation.

It seems clear that, although sustainability policies in agriculture were a “concern” of the state administration, the economic-legal models reflected purely local and private expertise. Therefore, sustainability according to a *mos regionis*, would also explain the lack of news about the application outside the province of Africa of the *lex Manciana* and the *lex Hadriana*, the latter in turn elaborated based on the former.

Therefore, we are in the presence of a model — conceived by Columella but governed by contracts and by precise regulatory provisions — of intensive cultivation, inserted in a landowning context, both publicly and privately managed, which would have guaranteed the best use in perspective — and mind you good unexploitation — possible of arable land that would have guaranteed food for Roman citizens and provincials in the long years of the *pax romana* of the Principality.

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# NEW TECHNOLOGIES AND SOCIAL INCLUSION: VILLA RENDANO AND THE ORGANIZATION OF THE CONSENTIA ITINERA MULTIMEDIA MUSEUM AS EXAMPLES OF SUSTAINABILITY

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**Keywords:** Cultural Heritage, Museum Management, Multimedia Museum, Digital Technologies, Sustainability, Inclusion, Enhancement of the Territory

## 1. Introduction

Over the last few years, the topic of sustainability has been at the center of the international and national scientific debate. The interest in sustainable development has increased considerably, not only by an increasing number of policymakers, constantly committed to defining development programs capable of ensuring a fair balance between economic and social growth and environmental protection, but also by numerous subjects who within society intend to play an incisive role in the dynamics of sustainable progress. Among these are the museums, which over time have undergone a profound evolution, thus passing from places of mere conservation of cultural heritage to promoters of virtuous behavior. Institutes are capable of stimulating processes of active participation and social inclusion. Sustainability is a multidimensional issue and now concerns the economic, environmental, social, and cultural spheres. The 2030 Agenda, the action program for the protection of the planet and the prosperity of people, also highlights how the sustainable growth process of the next few years must include all aspects of society, requiring a collective effort that concerns not only institutions but also individual citizens. A certain attention on the part of scholars has also been shown over time towards the social dimension to such an extent that some authors (Lee & Jung, 2019) have tried, through a semantic work, to identify the concept and reference context of social sustainability. The result was to observe how the concept in question has in some way evolved over time, taking in elements of the various social themes (unemployment, education for sustainable development, separate collection of waste, and everything that can contribute to an improvement of people's quality of life). "Social sustainability is how communities, societies and individuals live; it is about equity and basic needs. It deals with working conditions, human rights, participation, fair wages and cultural diversity" (Rajak & Vinodh, 2015, p. 1184). With reference to these aspects and in particular to people's participation and quality of life, the following work intends to underline the importance that cultural institutes, and specifically museums, can play in the processes of social growth, favoring maximum inclusion through an increasingly accessible cultural offer. Museums, through their educational function, can exert a positive influence on their users. With their activities, museums are able to contribute significantly to the dissemination in society, especially in the younger categories, of the principles of sustainability, solidarity, and equity, of the values of morality and legality.

"The new museology, in the aftermath of the chaos caused by the pandemic, cannot fail to take into consideration the social dimension of culture and museums to give a rediscovered sense of identity after the estrangement of mankind, to prevent exclusion and build a new sense of territorial and social belonging" (Piraina & Vanni, 2020, p. 135).

The Faro Convention itself underlines the close relationship between the community and cultural heritage, recognizing the latter a central role in the development of a sustainable and democratic society. Also, in this case, clear reference is made to the strategic role of museums, called not only to protect cultural heritage but also to enhance it through targeted actions that make it the protagonist of processes of economic development and social cohesion. A real social responsibility is required of museum institutions. This means that they will increasingly have to strive to encourage the full

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involvement of citizens in order to strengthen the link between the cultural heritage and the territory. With regard to the social role that museums can therefore play within the communities in which they are located, in the past some studies on the subject (Sandell, 1998) have made it possible to identify some social inclusion strategies such as the inclusive museum, the museum as an agent of social regeneration and the museum as a vehicle for broad social change. According to Sandell (1998), the inclusive museum can be understood as a tool capable of removing any barrier (physical, economic, intellectual, psychological, and geographical) that hinders access to the museum. Accessible and participatory places are able to foster confrontation, including between cultural diversities, and to activate democratic processes. In this sense “Museums can support growth and development for all individuals — democracy and human rights for all — in myriad ways. It is the responsibility of the museum community to acknowledge this task and exploit its opportunities” (Hein, 2005, p. 362). “Museums in many countries are developing their social role, purpose and impact, forming partnerships with health, welfare, social service and other agencies and are seeking to deliver social outcomes in relation to disadvantage” (Sandell, 2003, p. 46). “In addition, the engagement of marginalized social groups and the celebration of cultural diversity in museum programming contribute to social inclusion” (Scott, 2008, p.36). Museums, like any other place of culture, are also able to stimulate regeneration processes, especially if inserted in peripheral contexts and far from the areas of large urban centers.

“Culture has the potential to contribute to a more complex process of urban (re)development: it provides communities with a higher quality of life — although not precisely measurable — in terms of the immaterial benefits gained and it is also able to generate material benefits for the economy and for the society as a whole, both directly and indirectly” (Lavanga, 2009, p. 74).

Specific actions can also be implemented to raise awareness in the community on sustainability issues, in all its various forms. This is a complex issue and it is clear “How in some cases museums ... can set in motion processes of awareness and dissemination of the issues, playing the role of facilitators and mediators between people and decision-making bodies. This is why it is important that museums return to being — as happens in many cases — places of research, scientific and cultural production to reinterpret and translate phenomena in progress, also through the resumption of recent and past history” (Rota, 2019, p. 54).

In this multifunctional vision “More than ever, without a doubt, the museum thus appears as complex hybrid, torn between its collections, its public, and its researchers or, in a more global manner, its users” (Brown & Mairesse, 2018, p. 536). The latter, in particular the visitors, have radically changed their expectations over time with respect to the cultural proposals offered by the museums. The needs of the public have become increasingly articulated and at the same time, the desire to be able to benefit from increasingly dynamic and interactive cultural experiences has increased.

“An effective adaptation of the museum offers to the cognitive expectations of visitors (who are looking for identity, sense of belonging, knowledge and insights, in any case emotional, aesthetic, intellectual stimuli) would involve a rereading of the entire museum material, in order to integrate the works of the collection with all the specific information supports that can enrich the visitor experience” (Sacco & Trimarchi, 2003, p. 9).

Although this requires a great deal of effort, in terms of technological resources, competent personnel, and therefore also costs, more and more museums are trying to satisfy the needs of users. If it is true that the use of digital technologies may require, at least in the initial phase, a significant economic investment, it should be emphasized that they will be able to return to the museum a series of benefits both in terms of greater accessibility, favoring the widest participation, and in terms of public appreciation for highly innovative museum experiences. Today there is “... a museum narrative that can be based on multiple levels and tools which, integrated with each other, can in turn make the museum truly accessible to all, a truly inclusive place” (Mandarano, 2019, p. 9). Starting from these premises, the paper proposes to offer the analysis of a case study in order to strengthen the thesis according to which museums, through their social vocation, can play an incisive role in society by promoting sustainable growth dynamics. Museum institutions face an important challenge: to contribute to improving people’s living conditions through daily actions that favor the spread of culture, social inclusion, and the development of human capital. The cultural, social, and economic growth of individual communities is necessary so that it can be followed by a more general evolution

of societies in the broadest sense of sustainability. The Consentia Itinera multimedia museum seems to have well understood the importance of this challenge and has been working for some time to become, in the local context, a cultural reference point capable of interacting with the community, involving the most fragile categories and guaranteeing maximum participation. The objective of the following work is to demonstrate how adequate management of cultural heritage, through the use of digital technologies for the provision of one's own cultural offer and attention to the needs of the local community, can prove to be a winning strategy not only for the affirmation of the cultural institution being analyzed but also for the development of sustainable growth dynamics.

## **2. The case study: The Consentia Itinera Multimedia Museum**

### ***2.1. Research methodology***

The survey was carried out through the analysis of a case study: the Consentia Itinera Multimedia Museum; a young and innovative museum that finds space in a nineteenth-century villa, Villa Rendano, in the historic center of the city of Cosenza. The study, conducted through a qualitative approach, made it possible to analyze the dynamics of the museum's management, the principles that inspire its activities, and the objectives it aims to achieve. The analysis of the documents and the collection of information through questionnaires and direct interviews with the managers of the museum made it possible to deepen the knowledge of the museum as a place that aims to strengthen its social role for the community it intends to represent. In fact, the study highlights the Museum's intention to encourage debate on sustainability issues, to promote the identity of the territory, and to enhance its environmental and cultural peculiarities. It is an ambitious project attentive to the territory and close to the citizens.

### ***2.2. The cultural project and museum activities***

The Attilio and Elena Giuliani Foundation<sup>1</sup>, established in 2010, conceived and proposed the Villa Rendano Project in 2014, committing itself, following a restoration project in collaboration with the Superintendence for Architectural and Landscape Heritage of Cosenza, to make available to the city of Cosenza one of its most beautiful historic buildings. A villa built in 1887 and inhabited by the famous pianist Alfonso Rendano. It is a project with which the foundation has tried to transform the Villa into a "House of Ideas", a place in which to transform ideas into concrete activities with an eye that is always attentive to the territory. Thanks to the work of the Foundation, Villa Rendano is configured today as a training and research center, as a multimedia museum space, and as a place of cultural and tourist experience.

The Consentia Itinera Multimedia Museum was established in 2017 and represents for the Foundation a propulsive center of ideas and projects aimed at the territory and, above all, at the enhancement of the historic center of Cosenza. The first format of Consentia Itinera Multimedia itineraries in the history of the city of Cosenza represents a real immersive and storytelling journey through which to tell the history of the city. The realization of the project has allowed Villa Rendano, which despite its prestigious history for a long time had a poor relationship with the urban and local context, to become an active partner with the territory. The multimedia space dedicated to the museum and its activities has made Villa Rendano an engine aimed at technological innovation and a driving force for ideas and projects aimed at the territory and the enhancement of the historic center. It is, in fact, a cultural institution in which citizens and tourists, through the identity project, can deepen their knowledge of the history and evolution of the city. The museum offers a historical itinerary divided into seven rooms characterized by an environment equipped with immersive projections, video-mapping, and virtual reality and with fascinating storytelling available in Italian and English; a path that stimulates the visitor's emotional sphere and strengthens the desire for knowledge.

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<sup>1</sup> The Attilio and Elena Giuliani Foundation, established in Rome in 2010, recalls in the name figures of entrepreneurs well known and appreciated in the city of Cosenza for the innovative spirit with which they made their company, in the furniture sector, a reality successful even outside the borders of the Calabria region.

Digital technology is therefore used to reactivate interest in history, return literary sources to diversified audiences, tell communities about specialist studies, and research one's own city. Technological innovation as a tool for enhancing local identity. The historic center becomes the fulcrum of the Foundation's attention and actions, intending not only to enhance its specificities but also to motivate citizens to their belonging and active citizenship, strengthening its social role as well as safeguarding legality. In the absence of material assets, the museum, through the digital reconstruction of the different historical periods of the city, not only favored its rediscovery but also stimulated urban recovery and regeneration paths confirmed by the numerous conferences, seminars, and projects shared with the nearby University of Calabria.

"From a conceptual and scientific point of view, Consentia Itinera traces the historical periodization of the city of Cosenza, from the beginnings to the contemporary age, proposing to the visitor protagonist some systematic insights into events, personalities, stories, and artifacts relating to the identity heritage of the city of Cosenza, and carries out its educational action using the highest and most recent digital technology. Reasons for technological innovation, strengthening of the scientific content, strengthening of the social value of the museum feed its daily action of a pedagogical, educational and citizen welfare nature" (Cipparrone, 2018, p. 14).

The museum, as envisioned by the foundation, becomes a tool for social inclusion, capable of fostering direct dialogue with residents and the involvement of the most disadvantaged categories.

The activities carried out by the museum are widely varied and for this reason, they are able to arouse the interest of different sections of the population. It is about:

- Ludo-didactic activities and publications for children;
- Workshops diversified by school level (childhood, elementary, middle, and high school);
- In-depth study and entertainment activities for families;
- Activities for the enhancement of the artistic and craft specificities of the Calabrian territory (exhibitions on the art of nativity scenes, experiential workshops on ancient artisan traditions, multimedia products in the villages, etc.);
- Activities to stimulate the creativity of the youngest;
- School-work alternation activities;
- Cultural aperitifs (moments of discussion through thematic insights);
- Activities to stimulate heritage and legality education;
- Spaces for interaction with the public with disabilities.

With reference to the latter, it is important to underline how the museum has fully grasped the importance of its role in the social context. The museum is strongly committed to promoting maximum inclusion through the implementation of specific projects with the Parkinsonian Association of Cosenza, with the Blind and Visually Impaired Union, with some family homes, and with associations engaged in emotional and cognitive disabilities with a specific goal of strengthening the accessibility of the site and of the multimedia path and thus making the museum an open place for dialogue, comparison, and well-being. The strong sense of social responsibility that the foundation intended to develop is also demonstrated by the development of a survey to understand the expectations that the city and the entire local territory have towards it. The objective of the foundation, through the activities of Villa Rendano and those of the Consentia Itinera museum, is in fact to qualify as a strategic point in the cultural and social projects of the city of Cosenza.

The desire to strengthen the link between the territory and the different categories of society, even the youngest ones, is also demonstrated by a series of other activities carried out, among which the "Think about the story — Know your village" competition deserves to be mentioned (now in its third edition). Reserved for secondary schools in the province of Cosenza, the "PensAmi la Storia" format is part of the "Borgo in Borgo" project of Villa Rendano for the relaunch of Calabrian villages and the recovery of their identity, conceived to promote and consolidate the knowledge of the towns in the Cosenza area, of the excellence and traditions linked to them and of the "cultural landscape" in an innovative perspective of development of the territory. The competition consists of the elaboration of a project idea that has as its object the villages where the schools have their headquarters and/or the territorial realities of residence of the students involved. Students are asked to build a storytelling project in the cultural field, developing it at their free choice according to the possible methods of narrating identity values: creative writings, photographic shots, videos, and/or other audiovisual products related to the field of Social Networks (i.e., vlog, Reels, etc.). Since the identification of



identity elements is an essential prerequisite for starting a path of recovery, requalification, and innovative growth, PensAmi la Storia intends to stimulate the growth in the young participants of awareness of their own cultural identity — through a careful analysis of the resources, of the critical issues but also of the potential of the places in which they grow and are formed as individuals — also in order to encourage them to be agents of reactivation and advancement of their own territory. Always in search of maximum inclusiveness, the Foundation immediately after the pandemic eliminated the entrance ticket and reformulated the cultural and recreational activities to facilitate new moments of encounter and comparison. Table 1 indicates a series of information relating to the museum to make it easier to get to know.

**Table 1.** Summary sheet of the main characteristics of the Consentia Itinera Multimedia Museum

<i>Museum</i>	<i>Consentia Itinera</i>
Typology	Multimedia Museum
Location	Cosenza, Calabria
Legal form	Private museum owned and managed by the Attilio and Elena Giuliani Foundation
Exhibition content	The museum adopts digital technologies to reactivate interest in history, return literary sources to diversified audiences, tell communities about specialist studies, and research their own city reality.
Year of establishment	2017
Average annual number of visitors	15,000
Initial investment	€450,000
Ordinary Management	€250,000
Tourist reference target	Proximity and return tourism, school groups
Entrance	For a fee
Staff	Five units, including the director and technical staff. Each figure was chosen in the light of his/her training and compatibly with the skills required by the profile covered. The museum undertakes to guarantee continuous internal and external training of the staff, both from a theoretical and a practical point of view, in order to increase its cultural offer and meet the needs of its public. The professionals employed in the museum are regulated by contracts of a different nature. Furthermore, the museum intends to be able to absorb within its staff any professional figures who have carried out curricular internships at the institution.
Online site	The Multimedia Museum has its own profile on the website dedicated to the historic home that hosts it: <a href="https://www.villarendano.it/il-museo-multimediale/">https://www.villarendano.it/il-museo-multimediale/</a> . The website is entrusted to an employee with responsibility for Internet communication and social media. The employee was selected in the light of his technical-scientific background.
ICT use	Tablets, used both for audio guides and for interactive games created specifically for the museum; apps to facilitate the visit; social networks for communication; mailing lists; etc.
Wi-Fi access for visitors	Network coverage is guaranteed on all levels of the museum.
Presence on social networks	Facebook and Instagram
Activities carried out during the lockdown	During the lockdown, the museum enhanced the use of its social pages by maintaining contact with the public through historical-artistic insights, photos, and videos. The museum has also made available ludo-didactic activities to be completed by following the tutorials uploaded on the social pages. The museum also offered training and information opportunities, organizing a series of conferences through live streaming platforms.
Spaces	Seven rooms with immersive projections, virtual reality, and storytelling.
Activities	Laboratories, scientific projects, educational projects, initiatives, and various events (from the presentation of books to conference activities; from concerts to theatrical performances).

Finally, to allow a greater understanding of the potential of the Consentia Itinera Multimedia Museum, a Swot Analysis (shown in Table 2) was developed to identify and deepen the strengths and opportunities for the museum but also those critical issues that represent a limit in terms of operations.

**Table 2.** Swot analysis

<i>Strengths</i>	<i>Weaknesses</i>
<ul style="list-style-type: none"> <li>• The only multimedia museum in the Calabria region.</li> <li>• The museum offers its cultural offer in an innovative way: it uses sophisticated digital technologies and augmented reality to offer the visitor an experiential and immersive experience.</li> <li>• Immersed in a lively cultural context, characterized by the presence not only of numerous museums but also of theaters, libraries, and numerous cultural associations.</li> <li>• Although the Museum is located within the historic center, it is logistically close to the more contemporary part of the city which makes use of numerous architectural companies (Piazza Bilotti, the Planetarium, the Calatrava bridge, the BoCS Art, etc.).</li> <li>• From the Museum it is possible to easily reach other places of cultural, religious, and landscape interest (the Cathedral of Cosenza, the Sanctuary of Paola, the Center of San Giovanni in Fiore, and the Sila National Park).</li> <li>• Good geographical positioning. The Museum is located in a developed urban area and, therefore, favored, from the logistical point of view, by connections and transport. A few kilometers from the University of Calabria and the international airport of Lamezia Terme.</li> <li>• It makes use of an important educational offer, workshops, and an area dedicated to schoolwork alternation.</li> </ul>	<ul style="list-style-type: none"> <li>• The Museum offers its contents using only digital technologies. This means that the need to always adhere to a museographic approach can represent, in some cases, a critical issue for the museum.</li> </ul>
<i>Opportunities</i>	<i>Threats</i>
<ul style="list-style-type: none"> <li>• The Museum is part of the Cosenza Museums Network (together with the National Gallery of Cosenza, the Brettii and Enotri Museum, the Diocesan Museum of Cosenza, the Comics Museum, the MAB open-air museum and the BoCs Art Museum).</li> <li>• The Museum manages to fit into different types of tourist circuits: cultural tourism, proximity and return tourism, and school tourism.</li> <li>• Involvement of young people and schools.</li> <li>• Involvement and inclusion of the most fragile categories.</li> <li>• Partnership with associations, institutions, and sector organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited capacity on the part of the territory to perceive the opportunities that can derive from the presence of the museum.</li> </ul>

Some interesting aspects emerge from the information contained in the tables above. The Consentia Itinera Multimedia Museum represents a unique example of its kind in the Calabria region. It is the only museum to represent the historical heritage of a Calabrian city through the use of sophisticated multimedia tools. This allows the museum to adopt an innovative approach that allows visitors to enjoy its cultural contents through a unique and interactive experience. The museum has the advantage of enjoying a favorable position that allows it to be easily reached both by neighboring communities and by tourists coming from other regions. From the museum, it is also possible to go to other cultural and landscape destinations and this can be a positive element for the tourist who intends to explore, even in a short time, the various attractions present in the northernmost part of the province of Cosenza. The multimedia museum is able to offer a wide variety of content not only to tourists wishing to learn about the history of the city but also to visitors from local communities. Finally, the museum is able to address both the youngest and the most fragile categories through laboratory activities and experiences imagined and created with the primary objective of guaranteeing maximum inclusion and stimulating constant active participation.

### 3. Conclusion

The analysis carried out allows us to elaborate some interesting reflections on the role of the museum and more generally on the project implemented by the Attilio and Elena Giuliani Foundation in Calabrian city. The first important aspect to be noted is how technological innovation has been assigned the task of defending the cultural heritage and forming the critical consciences of the new generations. Villa Rendano with its multimedia space dedicated to the museum represents an engine

aimed at innovation and a propulsive center of ideas and projects aimed at the territory and the enhancement of the historic center. The second aspect concerns the originality of the project implemented by the cultural institution. An identity project, through which citizens and tourists can deepen their knowledge of the history and evolution of the city through a dynamic and engaging experience. Finally, the last aspect concerns the social responsibility that the foundation has decided to assume, through the management of Villa Rendano and the Consentia Itinera Multimedia Museum, towards the city, demonstrating particular attention to local development and a great sensitivity towards social issues. The Foundation, with its precise cultural mission, intended to create a museum that was not only capable of enhancing the identity heritage but that managed to become a socio-cultural reference, an open place capable of encouraging forms of aggregation and comparison. Only “When museums adopt holistic and empowering organizational practices and behaviors, they have the opportunity to become even more accessible and inclusive for all visitors” (McMillen, 2015, p. 104). And, in fact, Consentia Itinera, thanks to its original multimedia activities and the numerous cultural events held in the historic Villa Rendano and its ability to address the most fragile sections of the local community, confirms itself as a virtuous example of social sustainability for the territorial context in which it is placed; it is a tool capable of promoting maximum inclusion and stimulating dynamics of cultural and social growth.

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# RESIGNIFICATION OF HUMAN EXISTENCE FOR A SUSTAINABLE WORLD: AN ECOSYSTEMIC PERSPECTIVE

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**Keywords:** Resignification, Human Existence, Sustainability, Ecosystemic Perspective

## 1. Introduction

In a world immersed in deeply convulsed realities in all its environments: educational, political, cultural, socioeconomic, and ethnic; exacerbated by the COVID-19 pandemic, the need to rethink and resignify the human being in his coexistence dynamics arises; from the recognition of its hyper-complexity; beyond a reified, enslaved being in which triggering or inhibiting factors of thoughts, emotions, beliefs, attitudes and behaviors move; from the perceptions that daily events build, which are constituted in arguments of life.

Nowadays, humanism must face the challenge of transforming the dominant values of society framed within an individualistic, materialistic, consumerist culture, which progressively participates in self-destructive and degrading processes of its natural environment. This raises the urgency of an inner turn of the human consciousness capable of understanding its reality and cooperating with its peers in the maintenance and protection of our life on the planet in harmonious coexistence with other species.

This conventional economic progress systematically transfers wealth from the poor to the rich; paradoxically, their way of creating wealth also creates poverty. Today more people than ever are living in absolute poverty (more than a billion), and their number continues to grow. Hence, it is necessary to move to a new national and world economic order, aimed at the well-being of people and the Earth, the maintenance of ecosystems, the assertive management of energy, and the holistic optimization of quality of life, rather than the quality of consumption and the accumulation of material goods, which generates an exponential increase in exclusion and inequity.

In the actual use of the term, “progress” is first and foremost an unstoppable process that advances regardless of our wishes and indifferent to our feelings: a process whose unstoppable and overwhelming force demands our meek submission ... Progress, in definitively, has ceased to be a discourse that speaks of improving everyone’s life to become a discourse of personal survival ... one no longer thinks of the desire to acquire speed ... a desperate effort not to derail, to avoid disqualification and exclusion from the race ... (Baumann, 2013, p. 27).

In this order of ideas, the World Bank Group (2022), precisely the following: an “immediate forecast” (preliminary estimate) for 2020 in which the effects of the COVID-19 pandemic are incorporated, it is calculated that this will push between 88 million and 115 million more people into extreme poverty, bringing the total to between 703 million and 729 million.

Such a crisis of a humanity signed by high rates of multidimensional poverty that transcends purchasing and financial power in flagrant violation of the fundamental rights of human beings, inequity, marginality, corruption, violence in its most diverse and perverse manifestations; It tells us about a complex and progressive process of dehumanization, in which the dignity of the human being is blurred in a violated existentiality that is built in a daily reality where passive acceptance has been reached, complicit in the suffering and pain of a person. humanity that advances towards its destruction in the midst of wars, organized crime, drug trafficking, white slavery, child labor and deep social, political, cultural, ethnic and generational inequalities.

In this sense, Morín (2011), points out the following “ ... a strong increase in inequalities, due to the transformation of poverty typical of traditional agrarian societies ... into suburban misery and proletarianization, while creat gigantic fortunes” (p. 109). For this reason, “A politics of humanity does not have the mission of equalizing everything and destroying diversity, but must consider reforming ways that would progressively reduce the worst inequalities” (p. 109).

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From this perspective, it would be worth reflecting on the meaning and meaning of poverty, as one of the realities that affect the development and well-being of the human being, in a world marked by discrimination and inequity. For Bourdieu (2007) “the richness of the interviews and observations can account for all the microcosms where the misery of the world flourishes” (p. 497). From these new transcomplex understandings and an attitude of totality understood as longing, poverty goes beyond the shortcomings or restrictions in purchasing power or accessibility to goods and services. In this sense, it would be a question of reversing the idea of progress that De la Garza (2012) specifies: “Those who are constantly threatened cannot make long-term plans; and for those who constantly find themselves in the need to fight, the civilization of the desire for attack and aggression is, rather, dangerous and even deadly ...” (p. 353).

In this way, it is proposed to educate the formation of a state of conscience sheltered by the interest and the availability to go out to meet the other that in full and responsible use of his freedom makes relevant contributions in the solution of related problems, to the construction of vital scenarios for peace, from coexistence and the maintenance of life. From this perspective, education must be rethought; beyond progressive, evolutionary expectations imbricated in a dehumanizing technologism, which could degenerate into the “death of humanity” (Durant, 2017).

## 2. From the reified human to the resignified human

We focus our discursive reflexivity on the consideration of the sense of transcendence of an integral psychophysical, spiritual, emotional individual, family, and social human being in permanent change and connection; in a world characterized by deep convulsions, uncertainty, fragility, plurality, diversity; that leads us to the necessary resignification of human existence, driven by the need to reencounter the dignity of their existence, which must be oriented towards the preservation of the autonomy and freedom that are characteristic of their nature. For Bauman (2015), “Modernity was a staunch enemy of contingency, variety, ambiguity, randomness and idiosyncrasy, all anomalies that declared a holy war of attrition; and it was known that autonomy and individual freedom would be the main casualties of that crusade” (p. 31), in the new framework of the intelligibility of a society where intersubjectivities, complex interactions, plurality, diversity, mediations; prevail in the global-local dynamics, in contrast to the traditional homogenizing and fragmentary tendencies.

Assuming great challenges opening up to the possibility of new forms of existence, from the meeting with the multidimensional human essentiality, from a new ethical rationality and a new social intelligibility; It implies contributing freely, responsibly, and interdependently to the progress of humanity, without this meaning self-destruction or extermination.

Protagoras (490 BC) begins his work “*On Truth*”, also called “*Demolishing Speeches*”, with the following statement: “Man is the measure of all things, of those that are, as they are, and of those that are not, insofar as they are not”, refers to the reciprocal interactions that give shape and meaning to the linked life of the human being in his dialogic and complex thinking and actions, involved in realities marked by diversity, plurality, inter and multiculturalism, typical of life in otherness.

In the same way, the complexity of the human being, in Aristotelian thought, emphasizes its social and political animal nature, as reflected in the following paragraph:

“... man is by nature a political or social animal; And the reason why man is a political animal (*zôon politikón*) to a greater degree than any bee or any gregarious animal is evident. Nature, in fact, as we say, does nothing without a determined end; and man is the only one among the animals who possesses the gift of language. The simple voice, it is true, can indicate pain and pleasure and, therefore, the other animals also possess it — since their nature has developed to the point of having sensations of what is painful or pleasant and of being able to signify this to others, each other — but language has the purpose of indicating what is beneficial and what is harmful and, consequently, also what is just and what is unjust, since it is a particular property of man, which distinguishes him from other animals, being the only one who has the perception of the right and wrong, just and unjust and other moral qualities, and it is the community and participation in these things that makes a family and a city-state” (Aristóteles, 2016, p. 1253).

This is how, in the existential reality of humanity constituted by ethics. Hegel (1966) specifies “This ethical substance in the abstraction of universality is only the thought law, but it is also, in a no

less immediate way, real self-consciousness... which is the consciousness of the universal consciousness in its singularity as its own being, as that their actions and their existence are the universal ethical habit" (p. 219).

For Morin (1999), the problem of thinking about the human is raised from complexity, in the following terms:

"... Since we must think, from the beginning, that every concept, even the most physical, is produced by a human spirit, then there is always an anthropomorphic side, that everything that is human always has a physical reality. Thus, there is always in every physical concept the clandestine co-presence of an anthroposociomorphism, in every anthropo-social concept, the clandestine presence of a physical reality. The real problem, therefore, is trying to overcome the combination of the two naiveties and blindnesses, that of reductionist physical formism and that of reductionist anthroposocioformism, which reign together today" (p. 312).

In this context, hypercomplexity is the complexity of the human being, because it is made up of such a diversity of biological, anthropological, sociological, spiritual, and cultural dimensions and, above all, because of the paradox that supposes the inseparability and hierarchical simultaneity between them. This is how, in complexity, uncertainty, plurality, diversity, biodiversity, and sociodiversity; the redefinition of human existence must be driven by the need to rediscover the dignity of its existence, which must not only be oriented towards the preservation of the autonomy and freedom that are characteristic of its nature. In this regard, for Maturana (2003) "... every human task is, gives foundation to the understanding of two additional dimensions of the human being, that is, responsibility and freedom ..." (p. 109).

In the same way, we allude to the thought of Heidegger (1991):

"The "being there" is, existing, its "there", it means first of all: the world is "there"; its "being there" is the "being in". And this one equally "there", namely, as that for the sake of which "being there" is. In the "for the sake of what" the existing "being in the world" is opened as such, "open state" that was called "understanding" ... the significance that is founded on it is co-opened ..." (p. 97).

From this perspective, progress must be made towards full human fulfillment, from the recognition and appreciation of their dignity and ethics; in a permanent tension between the existential principles of freedom and interdependence in the search for new horizons of evolution and self-development of man as a species and of the human being as a being who with his will has to transcend in the construction of his desires, no longer as a simple survival but of a full existence in the responsible and ethical use of their freedom, Hegel (1966): "I is the we and we the I" (p. 113); getting involved in the commitment to respect the life of the other in a projection of their own life, not in coercion or manipulation; but in the inescapable complementarity of its relational nature.

Under this point of view, a new educational approach would result in critical reflection of the "I", which Ricoeur (2000) places in the plane of reflective philosophy:

"... to the possibility of understanding oneself as a subject of cognitive, volitional, estimative operations, etc. Reflection is the act of returning to oneself by which a subject recaptures, in intellectual clarity and moral responsibility, the unifying principle of the operations in which he disperses and forgets himself as a subject. "The I think", says Kant, "must be able to accompany all my representations". In this formula all reflexive philosophies are recognized" (p. 200).

This entails the consolidation of permanent spaces for reflection, from the recursive hologrammatic tetralogy subject-nature-society-knowledge, from an ethical base. This implies a thought, which would consist of avoiding the mistake of avoiding the challenges that the complex human existence poses to us (Durant, 2017).

This reality entered a new era, in the production of new scientific theories based on biodiversity, sustainability, and bioethics. This implies the generation of research committed to the production of new knowledge that contributes significantly to the formation of a planetary conscience (Morin, 2006) that, in an ethical and responsible manner, encourages people to build new scenarios of coexistence, solidarity, freedom, and world peace; through the intelligent use of all its intellectual, emotional, communicational and relational tools.

Therefore, in the context of globality, the planetary reflexivity favored by the communication channels opened by new technologies and by this progressive increase in the flows of exchange of information, images, and lifestyles that characterize contemporary society must be the starting point of

this new resistance of the dialogical strategy. It is precisely that awareness of what unites us through what separates us; it is this approach to the world as a great cultural archipelago that will allow a weakening of imprinting parallel to the mutually enriching display of antagonisms and conflict between ideas. It is, then, about finding and practicing various communication strategies and forms, based on critical reflection on the effective uses of language as an essential communication tool of human beings in their intra and interpersonal relationships, which means giving way to new communication paradigms, founded on the recognition of intersubjectivities. In short, it is no longer possible to continue accepting a legitimization of language and its “turns” by way of universal instrumental rationality, surely exhausted. These new global scenarios identified by overwhelming transformational dynamic; the vertiginous technological advances must be part of a new interactive dialogue in which the understanding of the true communicative dimension of the human being stands out. For Morin (2011), “The development of human understanding could be promoted by the internet which, in principle, would make it possible thanks to the multiplication of networks, which ensure the transmission of knowledge, but without producing it automatically. In fact, human understanding ... requires an open and shared relationship...” (pp. 158–159).

In this sense, the formative ecosystem approach promotes in the individual the consolidation of soft skills for the construction of a culture of dialogue and agreement; change spaces for solidarity and community interactions that allow us to open ourselves to a harmonious, supportive, and interdependent us. Under this gaze, the cooperation of points of view is imposed, within a permanent tension between opposition and adaptation, of new meanings beyond the consensus around the values and intentions expressed. It would be, then, to set objectives of a communicative nature that, from respect for differences and plurality; transcend coexistence to a real coexistence. In short, a transdiscursiveness situated between identity and difference, between singular and plural, and between the stability of meaning and the permanent reconstruction of meanings must be carried out.

In this order of ideas, Maturana (2003) maintains:

“The different human actions are defined by the emotion that sustains them and that everything we do, we do it from an emotion. For this reason, although the human emerges in the evolutionary history to which we belong when language emerges, it is constituted, in fact, as such in the conservation of a particular way of living ... it occurs in the intertwining of languaging with emotion” (p. 106).

This is how the reciprocal meta-understanding of senses and meanings assigned to coexisting realities in the phenomenal world of a being in a relationship finds full realization in the power of language communication (Durant & Naveda, 2013). Therefore, education for sustainability must underline the commitment to the formation of new citizenship with individual and social responsibility in the construction of a new ethic of life, based on respect for diversity and biodiversity in a relationship of cooperation that mediates in the search for new senses and meanings shared in a social imaginary where diversity, equity, freedom and creativity of the human being constitute the dimensions of an existential tetralogy in a resignified humanity, from the self-understanding and self-transforming reflexivity of the world of life harmoniously interacting with others, congruent and self-directed.

In this regard, Morín (2000) specifies the following:

“Our autonomy is situated in a loop and a dialogue between genes, environment, brain, spirit, culture, society. We are in antagonistic relationships with each of the instances of this loop that tends to destroy our autonomy, but this relationship is complementary to establish this autonomy. We are possessed by and in this loop, but in our moments of autonomy when we stop living solely to survive, we possess this loop that possesses us” (p. 10).

It is in this dialogic integration of the ontogenetic, ethical, sociological, anthropological, and cultural aspects that the author, already mentioned, conceives freedom as freedom of choice. In short, chance, uncertainty and risk play a role as important as these bio-ethical- socio-natural-cultural determinations. We are, after all, processes in a permanent state of realization, and, in this, the opening to the social imaginary must be the basis for the development of an autonomy that allows us to achieve subtle individual neutralities.

These new formative conceptions regarding the life of the human being in otherness and coexistence with other ecosystems imply the location of the development of peoples, from the development of human beings, through permanent processes of self-realization supported by a system of intellectual values, vital, ethical, social, aesthetic, and effective. Consequently, the time

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must come when the life of a society is based on humanistic values, and on this solid scaffolding, the political, economic, ethical, religious, and cultural structures are consolidated. In this regard, Morin (2011) warns “Another challenge ... would arise from our ability to develop social ties, to try to make our differences (ethnic, racial, cultural and economic) a wealth, not an impoverishment” (p. 192).

On the other hand, the unity and humanity to which one aspires must not consist of a destructive homogenization of cultural and individual diversities and differences but must allow the adoption of diversities and particularities within it. The new universal society must be based on diversity and not on homogeneity. A complex, plural, heterogeneous society that renounces violence and imposition, recognizes different views, and makes dissent and difference possible. It is, therefore, a society founded on diversity, which centers its existence on parallelism, relativism, and complementarity and not on the rigidity of the hierarchy (Morin, 1974).

In this sense, training under the ecosystemic approach must be oriented towards the development of transversal skills for the exercise of citizenship and coexistence; from a new collective intelligibility, which begins by rejecting any simplifying way of thinking about human existence; transcending in the synergistic search for negotiation and cooperation scenarios, from the promotion of interactions that integrate local and planetary visions, in the construction of a sustainable world.

In summary, permanent spaces for reflection have been promoted in the spheres of realization of the individual and society, from the recursive hologrammatic tetralogy subject-nature-society-knowledge, from an ethical base, and with social relevance, in an environment of pluralism, multiculturalism, diversity, and biodiversity. From this perspective, the conceptions about human development are resignified, within the framework of a transsubjective discursiveness; approaching a state of consciousness that should lead us to the creation of new contexts of interaction in freedom, respect, a sense of coexistence and creativity in the construction of a new consciousness of social intelligibility.

### **3. The ecosystem approach: Resignifying humanity for a sustainable world**

The ecosystem approach is a new educational paradigm for inclusion and equity; as proposed by Goal 4 in the UN 2030 Agenda for the development of a sustainable world. This new formative conception emerges from the omnicomprehension of transcendent realities of humanity, which pose the need to rediscover the values that are characteristic of human nature: freedom, interdependence, diversity, creativity, and cooperation.

This is how this resignification of the human being in permanent dialogue with others and with the universe drives the need to develop a new humanism, an ecological humanism, which is not only oriented towards the preservation of freedom, dignity, and human rights; but also underlines the commitment to educate citizens with individual and social responsibility in the construction of a new ethic for the sustainability of our planet, based on respect for diversity, biodiversity, sociodiversity in a relationship of cooperation for the search for new senses and shared meanings. (Durant, 2010).

In this context, we allude to Morin (2011): “The reform of the mind depends on the educational reform, but this also depends on a reform of thought: they are two key reforms that feed off each other, each one is reproducing and a product of the other, both essential for a reform of political thought that will lead, in turn, social reforms ...” (p. 282).

In this way, the formation of a state of consciousness sheltered by the interest and availability of the human being to go out of himself to meet the other that in full and responsible use of his freedom makes relevant contributions to the solution of problems related to the construction of vital scenarios for peace. Hence, the changes must be structured in all fields and, mainly, in the relationships of social coexistence. It is about reaching a new perspective of things, an awareness about our thoughts and the way we perceive the world. In this regard, we allude to the thought of Morin (2000):

“Education should show and illustrate destiny with the many facets of the human: the destiny of the human species, individual destiny, social destiny, historical destiny, all intertwined and inseparable destinies. Thus, one of the essential vocations of the education of the future will be the examination and study of human complexity. It will lead to gaining knowledge, that is, awareness, of the condition



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common to all humans, and of the very rich and necessary diversity of individuals, of peoples, of cultures, about our roots as citizens of the earth” (p. 65).

Consequently, education based on Ecosystemic humanism implies a profound transformation of our perceptions and values the formation of a new citizenship from the recognition of human dignity, which Kant (1793) refers to in the following way: “You can mark a consoling perspective of the future in which the human species is represented to us in the distance how it is finally reaching that state in which all the germs deposited in it by Nature can fully develop and can fulfill its destiny in this world”.

This implies a training process of the integrity and comprehensiveness of the human being, from inter and transdisciplinary perspectives in accordance with all the aspects that make up its multidimensional nature (intellectual, social, cultural, emotional, ecological, spiritual, and ethical), which has to prepare you to deal effectively with social dynamism encompassing cultural, ecological, political and economic conflicts.

From this perspective, the ecosystemic approach, based on an ecological humanism, from the omnicomprehension of the incompleteness of the human being, constitutes its deeply humanizing training purpose in the mediation of existential complexity; based on reflexive, critical, intersubjective, dialogical, and dialectical processes; contextualized in the realities that affect the well-being and quality of life of humanity immersed in scenarios and situations that threaten its existence in a complex, continuous and exponential way.

All this, through an educational praxis, argued and developed through significant learning methodologies that mediate the construction of strategic thinking, which could effectively contribute to research for the generation of knowledge aimed at solving intermestic problems in a deeply troubled global society.

Thus, the curricular designs under the ecosystemic approach point towards a flexible, open, and shared training process that mediates the acquisition of communicative and eco-socio-affective skills, whose use in various contexts of interaction, in a real openness to intersubjectivity. For Buber (2013): “The subject-subject relationship constitutes the world of the “you”, the subject-object relationship constitutes the world of the “it” ... where the I affects the You and the You affects the I. But, it is this true encounter, condition of possibility of dialogue” (p. 1). This will allow us to manifest new behaviors, and new vital experiences in otherness, by favoring the dynamic-relational development of the self, redefining relationships with the other, in a subject-subject dialectical interaction mediated by the context.

In short, the formative ecosystemic approach is specified in the transcomplexity that tries to approach the reality of the constitution of subjectivity and its transcendence; from the conscience of the other, emphasizing the importance of the context as a set of moderating circumstances of the communicative process that allow turning the spaces of confrontation into new spaces of negotiation and cooperation, which ends up being a true space of humanization.

In this framework of considerations, from a new ontoepistemic-praxeological framework, I would make relevant contributions for the definitive abandonment of the resourceful, dehumanizing mentality, and go out to meet true inclusive and democratic opportunities that stimulate in people the self-discovery and appreciation of their potentialities with which, in full use of their freedom, will be able to make timely and effective decisions based on deliberative reflection and self-regulation, not as a simple self-management strategy, but as a dialogical and transformational process in the responsible and peaceful coexistence of all beings alive that inhabit the planet; based on transcendental values such as freedom, love, tolerance, solidarity, understanding, respect for plurality, diversity of ideas, multi and interculturality that must contribute to the achievement of the integral well-being of humanity.

These worldviews of reality open new horizons for reflective, critical thinking about the diverse, the complex, and the transsubjective; they imply the recognition of the dignity of the human being in all his multidimensionality, a reunion with the greatness of his humanity and the richness of the heterogeneous, the diverse, the plural. A human nature based on an ontology of otherness, which opens towards infinity in the construction of a sustainable world within a democratic, plural, broad, and inclusive context that allows the harmonious coexistence of human beings with others and with nature.

And above all, develop a passion for life that allows us to defend and enjoy it. This implies transformations that, despite their support in ideas and theoretical reflection, must be reflected fundamentally in joint actions capable of producing changes consistent with the challenges that society

poses today; The great challenge will be to commit to promoting and promoting a solid formation in boys, girls, adolescents and young people with a “profoundly human” personality in the context of their realities, of the current and future problems they will have to face, projecting a coordinated action and systematic approach to building resilient and sustainable communities.

Opening to an episteme of complexity in which the dialogue of scientific and social knowledge is intertwined, supported by a new ethical rationality, and a new social intelligibility. This implies the acquisition and consolidation of transversal skills, which have their origin in the complex nature of the human brain, which in a dialogical, creative, critical, reflective, and dialectical manner has to participate in the search for creative solutions to the various problems that characterize society, through the creation of flexible, synergistic and relevant curricular projects.

In this way, training starts from the understanding of reality in unity and multiplicity, emphasizing the integration of knowledge, its reciprocal interaction, or its transformation and overcoming; through research, planning, and execution of plans, projects, and strategies inherent to shared and experienced needs in the family, institutional, local, state, national and international context; beyond all disciplinary particularities, in a world that, given its complexity, does not accept reductionisms; posing the challenge of unity in diversity. This must irreversibly entail a rationality that integrates links and understands; taking advantage in a dialogical and dialectical way of correlations between the various school, social, specialist, and research actors in a constructive synergy that allows facing the great mutations and challenges of the globalized society (Durant, 2007).

The ecosystemic educational approach as a dialogical, dialectical, transformational, and relational process emerges in a complex context of human interactions. In this sense, it must favor in people the formation of a social conscience, which from the individual and collective nature of the human being; assumes the commitment to build a sustainable society, based on coexistence. All this, through intersubjective processes generated in specific cultural contexts, allows us to overcome the interrelated global challenges that we must face, fundamentally climate change, environmental degradation, loss of biodiversity, extreme poverty and deep ethnic inequalities, social, economic, and technological. This must contribute to a new state of consciousness, autonomy, and control of their ways of life, from a critical openness and self-awareness of their freedom.

Following this thought, the creation of a culture of relations in constructive reciprocity that allows a real approach to individual and collective expectations and needs, through a comprehensive and integrating, dynamic, flexible, continuous, and permanent training process of a character interdisciplinary and transdisciplinary between the different agents and curricular components contextualized in the daily life of human existence, which respects their dignity in harmonious interaction with other ecosystems; considering an ecology of love and freedom.

In this context, new scenarios must be generated that, from a systemic and macroscopic perspective, are defined in the domain manifested by people, in the construction of Life Projects linked to the potentialities and development projects of local and national communities, assuming the ethical commitment to the sustainability of a planetary society (Morin, 2006), in which new links of cooperation, mobility, integration, and solidarity are established.

We find ourselves then, before a transformational dialectic in which dissimilar and antagonistic elements such as the global and the local, the global and the particular, converge in the search for a new dialogical dimension for the coexistence and progress of humanity (Durant, 2004). Consequently, it is about addressing a new dimension of education focused on human development; points towards the cultural-ecological-global commitment, which balances its praxis with the planetarization of society.

#### **4. Form a human being a synergistic-empathic-resilient being**

In the environments of a society made more complex not only by economic globalization but also by the conflicts that merit agreement and the sum of wills mediated by an awareness of global fraternal cooperation; we allude to Maturana (2004) “The properly human way of life is constituted at the intersection of language with emotion ... and it is love, as the emotion that constitutes the space of actions in the hominid way of life ” (p. 105). In this context, education as a trainer of fundamental values constitutes the essence of devising viable projects of society, which guarantee the dignity that we all need (Max Neef, 1993). In light of these ideas, the school, being part of a certain society, commits to

contribute to the development of the person, according to their interests and needs, and must awaken in students a critical and reflective sense of the reality of its natural, social, and cultural environment. Given this reality, the ecosystemic educational approach focuses on the integrity and comprehensiveness of a synergistic-empathetic-resilient being.

Maturana (2003) argues that: "... the different human actions are defined by the emotion that sustains them and that everything we do, we do it from an emotion. For this reason, although the human emerges in the evolutionary history to which we belong when language emerges, it is constituted, in fact, as such in the conservation of a particular way of living ... it occurs in the intertwining of languaging with emotion" (p. 106). This is how the reciprocal meta-understanding of senses and meanings assigned to coexisting realities, in the phenomenal world of a being in relation, finds full realization in language, its power of communication.

From his computational conception of knowledge, Morín (1998) establishes an absolute interrelation between the bio-cerebral conditions, without that great bio-physical-chemical machine that is the brain, the development of human cognitive skills and activities and the conditions socio-cultural of man: cognitive skills can only be deployed from a properly human culture, which "is organized" and "is organizing" ... This is how the "collective representations", the "collective consciousness", the "collective imagination" are manifested (pp. 73–74).

On the same basis, the investigations of Iacoboni (2009) have made it possible to determine that the human brain has a system of mirror neurons: "These cells are the tiny miracles thanks to which we get through the day. They are at the core of how we live life. They link us to each other, mentally and emotionally" (p. 11). From this perspective, beyond a reified, enslaved being, a model of coping with reality is presented that I have called the assertive triangle, made up of three vertices purpose-acuity-flexibility; a strategic alternative for change to become aware, critical, reflective, and responsible; in achieving a level of tolerance in the face of possible scenarios of change; making assertive decisions to solve problems, facing fears, anxiety, sadness; from the understanding and interpretation of the reality of their existence; focused on the tetralogy: empathy — self-awareness — emotional management — sense of commitment; that contribute to a change of attitude for the construction of a culture of life, based on a strategic coping of change for making assertive decisions based on a clear, coherent, critical, reflective and responsible conscience; towards achieving a level of tolerance in the face of possible scenarios of change, crisis and adversity. What has been described above, effectively and consistently leads to evidence of behaviors that characterize a resilient being, that "... despite being born and living in high-risk situations, they develop psychologically healthy and successful" (Rutter, 1993, p. 3). This refers us to a human being who faces fears, anxiety, sadness; from the understanding and interpretation of the reality of their existence that contribute to a change of attitude for the construction of a culture of life in the consolidation of well-being in a world for sustainability. This is how a resilient being shows a sense of commitment, a strong sense of control over events, open to change; interpreting stressful and painful experiences as just another part of existence.

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# ENVIRONMENTAL DISCLOSURE AND SUSTAINABILITY ISSUES

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## 1. Introduction

Over the last few decades, one of the most intriguing topics for business and its different stakeholders has been sustainable development. Sustainable development, as defined by the World Commission on Environment and Development (1987), means the development that meets the requirements of the present without jeopardizing future generations' ability to satisfy their own needs. As a result, corporations nowadays are implementing corporate social responsibility (CSR) plans and engaging in various CSR-related activities to ensure long-term business practices (Ullah et al., 2019).

Environmental, social, and governance (ESG) performance has gained traction as a novel term concerns a company's environmental, social, and governance impact, and has thus gotten a great deal of attention from various stakeholders, including managers, investors, creditors, suppliers, customers, employees, and policymakers. Several issues, including pollution, resource depletion, waste, product quality and safety, and workers' rights and position, have emerged as critical components of this expanding attention (Gray et al., 1995).

In recent decades, the world has witnessed serious environmental degradation; the wide expansion pattern has resulted in severe environmental pollution and ecological devastation, which has had a dramatic impact on the normal lives of the population. Businesses are widely considered as the primary source of environmental problems, and they face great pressure from numerous stakeholders to demonstrate environmental legitimacy (Boutry & Nadel, 2021). Pressure from the media, consumers, and other stakeholders is putting pressure on businesses to take innovative steps to improve their environmental score. Not to mention that, in recent times, alongside the environmental issue, a broad debate has developed on the social, cultural, and environmental consequences of the use of technologies. Kurzweil (2005) said he was concerned about the so-called technological singularity, that is, that point where technological progress accelerates so much that it exceeds the ability to understand, control, and foresee proper to human beings. Therefore, there is an urgent need to reflect and review the choices that have been made and those that will have to be made in the near future to implement a paradigm that includes the person, in its ethical foundation, in order to explain the dynamics of creation and application of new knowledge and technology (Martini & Vespasiano, 2017).

The governance score is the method by which corporations are governed and managers are held accountable to the companies' stakeholders. As a result, the governance score is associated with higher transparency and more credible disclosure and serves as a key instrument to encourage CSR disclosure (Dunstan et al., 2008).

The explanation of this accounting occurrence by the inclusion of ESG criteria has been disputed and the results are not definitive. Based on what has been said, we may summarize our issue with the primary question: *How can ESG performance standards affect the level of environmental disclosure on carbon dioxide emissions?*

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The aim of this chapter is to look at the relationship between ESG performance and carbon dioxide (CO<sub>2</sub>) disclosure in a group of twenty (G20) enterprises. We used linear regressions with panel data from the Thomson Reuters ASSET4 database to evaluate data from 516 group of twenty (G20) corporations between 2013 and 2019. The empirical findings indicate a growing interest in the ESG index to explain and raise CO<sub>2</sub> disclosure, hence improving information quality and making organizations more open. This is important for persons who use financial reporting frequently, such as investors looking for successful investment options. This project will give benchmark data to stakeholders and regulators in order to improve financial reporting by incorporating non-financial data. This research work makes a significant contribution that will be highly valuable to the various economic players involved in commercial activity. As a result, the findings may pique the interest of socially responsible investors and, more importantly, corporate citizens. Furthermore, managers of polluting enterprises could consider the findings of this study by focusing more on a CO<sub>2</sub> disclosure plan. Similarly, civil society organizations and associations may find this work to be a valuable instructional resource for developing a green financial transparency strategy.

## 2. Theoretical background

The central question of this chapter is to test the impact of the ESG index on CO<sub>2</sub> disclosure by G20 corporations. To answer this question, we attempt to sketch out the theoretical framework that allows us to value the repercussions of incorporating the ESG component.

Companies are constantly striving to be viewed as functioning within their society's borders and standards (Mia et al., 2021). As a result, businesses strive to guarantee that their actions are seen as legal by others. As a result, to strengthen their legitimacy, businesses must implement practices that can impact societal evaluation, such as social and environmental practices, including actual operations and/or transparency (DiMaggio & Powell, 1983; Suchman, 1995; Deephouse, 1996). ESG disclosure (for example, greenhouse gas emissions reduction) has grown significantly in recent years, and there is a clear debate in the literature about the motivations for adopting a specific ESG disclosure approach (Cho et al., 2012; Cho et al., 2015; Chouaibi & Zouar, 2022).

This discussion is centered on one basic perspective, which emphasizes that the objective of implementing an ESG disclosure strategy is to acquire legitimacy through meaningful changes in company behavior by aligning their strategies with society standards. Participating in these obvious practices enables stakeholders to assume that corporations are devoted to serving society's needs (Ashforth & Gibbs, 1990). According to this approach, organizations with low ESG performance prefer to boost their level of ESG disclosure above and beyond their actual ESG performance (greenwashing) in order to gain the benefits of ESG practices.

Companies might utilize communication tactics, such as voluntary corporate disclosures, to divert attention and modify public attitudes, expectations, and values in an attempt to address these difficulties (Gray & Spies, 1995; Hooghiemstra, 2000). In particular, with regard to corporate environmental performance and corporate environmental reporting, legitimacy theory suggests that lower-performing firms, which are likely to be under public pressure and have their legitimacy threatened, increase their disclosure of environmental information voluntarily and selectively in order to mitigate the negative effects of inadequate environmental reporting on their legitimacy and corporate reputation (Brammer et al., 2006; Boiral, 2013).

Companies that are subject to increasing public scrutiny and criticism are using their own environmental reporting as a risk management strategy to improve social perception of their commitment and responsibility in terms of sustainable development (Cho & Patten, 2007; Luo et al., 2013). Companies must acknowledge the actions they impact in order to obtain legitimacy when addressing legitimacy theory. In this situation, environmental actions through carbon disclosure can be employed as a type of voluntary corporate information transparency that, when executed, improves the company's image by allowing stakeholders to observe the company's environmental efforts. A good planning system for renewable energy consumption and carbon reduction activities, as evidenced by transparent carbon reporting, would strengthen the company's commitment to sustainability. This is consistent with the findings of Gonzalez-Gonzalez and Zamora Ramirez (2016), Yook et al. (2017); Demirel and Eskin (2017) who found a favorable relationship between financial and non-financial success. When

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organizations implement a holistic transparency plan that focuses on CO<sub>2</sub> emissions disclosure, the consequence is that their environmental efforts become an advantage to reinforce their environmental strategy (Sun & Fang, 2022).

### 3. Hypotheses development

The goal of this study was to see how ESG performance affected carbon disclosure emissions. We proposed three hypotheses in this study on the individual effect of different ESG scores on the degree of CO<sub>2</sub> disclosure.

#### *3.1. The relationship between environmental performance and CO<sub>2</sub> disclosure*

Firms are concerned not just with economic concerns, but also with the social and environmental consequences of their operations (Maas & Reiners, 2014). By implementing effective corporate governance standards and maintaining healthy links with society and the environment, a company can achieve success (Foote et al., 2010). The ESG score has developed as a critical pillar of CSR for building long-term plans that influence the financial performance of multinational corporations (Eccles & Serafeim, 2013; Chouaibi et al., 2021).

Carbon disclosure may be viewed by stakeholders as a kind of corporate accountability in response to the desire to mitigate the effects of environmental degradation. As a result, disclosing carbon emissions will not only assist the company in garnering support from stakeholders, but it will also affect the company's value. As a result, this disclosure is no longer regarded as a hardship because it boosts the company's value.

ISO 14001 certification also indicates that the company's environmental management system has been evaluated and determined to meet the criteria. As a result, ISO 14001 certification evaluates the environmental management system from the planning, implementation, and operation stages, controls and corrective actions, management review, and continuous improvement in order to provide investors with more credible information to understand the company's environmental score. Investors trust this assessment since it is issued by an impartial agency that thoroughly assesses the six principles of the company's environmental management system in compliance with the criteria. Many corporations choose to release only excellent information and conceal environmental information that they do not care about because it may harm the company's reputation. This poor news might erode investor confidence in the company and cause cash to be withdrawn (Li et al., 2021).

ISO 14001 certification, for example, can reassure a company that it has a strong environmental score, environmental responsibility, and reputation, while also positively influencing investor opinion. They will assume that the corporation has met its environmental objectives. As a result, investors believe that the company is a good location to put their money. The presence of good news from companies with ISO 14001 certification will ensure environmental score and undoubtedly improve the company's image perceived by investors and other stakeholders while increasing the company's value, as confirmed by Roblek et al. (2020) research, which shows that environmental score has a positive and significant effect on company value. We can form the following hypothesis based on what has been said:

*H1: Environmental score has a positive impact on CO<sub>2</sub> disclosure.*

#### *3.2. The effect of the social score on CO<sub>2</sub> disclosure*

Gaining a competitive advantage currently necessitates a wide range of actions. As a result, firms understand that the intangible parts of doing business are just as vital as the practical aspects. Furthermore, all stakeholders place much more emphasis on socially responsible elements. Consumers, investors, businesses, and governments are the primary stakeholders pushing this transition by altering their business expectations (Schwartz & Carroll, 2003).

Furthermore, Martínez-Ferrero et al. (2013) discovered that disclosure, following CSR principles, is relevant to increasing the amount of information required for decision-making. In other words,

the socially responsible initiatives of these companies can influence both the volume and the quality of the information provided. According to Wellalage et al. (2020) corporate citizenship, based on social responsibility, provides the firm with a long-term competitive advantage in the capital market.

Fatemi et al. (2018), for example, argue that companies with ESG concerns benefit from ESG disclosure. This means that when companies with ESG benefits improve their transparency efforts, their valuation increases. According to the environmental accounting literature, CSR plays a significant role in corporate success in terms of pollution reduction and disclosure (Chouaibi, Rossi, et al., 2022).

Similarly, in the face of the company's partners' conflict of interest and information asymmetry, CSR is a solution that positively influences the manager's behavior, promoting transparency and improving the company's environmental, natural, and social disclosure. Indeed, regulators and labor unions are putting pressure on firms that engage in irresponsible behavior toward society and the environment. Penalties impose additional costs on them. As a result, environmental disclosure in CSR is increasingly employed to obtain a long-term competitive advantage (Wang, 2016).

The notion of social responsibility benefits the corporation and its various stakeholders by influencing the relevance of environmental disclosures. Similarly, Jamali and Neville (2011) discover that CSR leads to various organizational activities and methods in an institutional framework in order to establish legitimacy and a truthful picture. Karim et al. (2016), on the other hand, investigated the effect of social responsibility on the degree of disclosures in corporate annual reports and discovered a positive association between the level of disclosure and the social responsibility of these organizations. They concluded that the higher the environmental disclosure, the more socially responsible the company. Based on what has been said, the second hypothesis is as follows:

*H2: The firm's social performance has a positive effect on CO2 disclosure.*

### ***3.3. The effect of governance score on CO2 disclosure***

In terms of legitimacy, the corporation incorporates environmental sustainability practices into its strategy as a result of the growing demand for a responsive environment (Yunus et al., 2016). According to prior studies, small boards are often thought to be more effective than large boards in monitoring and controlling management (Jizi et al., 2014). In fact, due to their small size, they are supposed to have more effective communication and coordination, as well as a higher level of dedication and accountability from individual board members. In general, a company's board of directors has a stronger oversight capacity.

According to Nasih et al. (2019), a large percentage of independent board bodies can lower carbon disclosure. Firms with independent boards are more likely to devote resources to creating carbon management systems for corporate activities in order to practice and demonstrate compliance with stakeholder expectations. According to stakeholder theory, Alsayegh et al. (2020) hypothesized that the independent board of directors is favorably associated with the sustainability of voluntary carbon reporting to support an annual level of high transparency of corporate sustainability reporting. According to Iswati and Setiawan (2020), board size has a considerable impact on carbon disclosure, whereas board independence has a negative and small impact.

Organizations must improve their board of directors' carbon-related effectiveness in order to obtain legitimacy and meet social expectations for GHG emission reductions. As a result, according to legitimacy theory, strengthening board effectiveness that is adopted to improve carbon performance should align businesses' operations with society's expectations and promote their legitimacy (Suchman, 1995). Furthermore, societal expectations vary with time, necessitating firms' responsiveness to the environment in which they operate (Deegan, 2002). As societal pressure acts on climate change, organizations must improve their carbon performance to maintain their credibility. However, most studies taking legitimacy theory into account indicate that businesses with lower environmental scores are more inclined to participate in disclosure since it is simpler to control their image than to make actual improvements to their performance (Cho et al., 2013).

This raises the question of whether board effectiveness is followed by symbolic steps to ensure legitimacy or by significant environmental management activities and performance improvement. Nonetheless, according to Berrone and Gomez-Mejia (2009), managers' efforts in this area are frequently unobservable and unverifiable, and hence may not be rewarded by present pay schemes. As



a result, as Kock et al. (2012) suggest, managers have a different utility function than other stakeholders. Because the majority of managers' income is connected to business success, the anonymity of management efforts could potentially create an information asymmetry problem, resulting in managers not being compensated for these efforts. Based on these developments, we can form the following hypothesis:

*H3: Governance score has a positive impact on CO2 disclosure.*

## 4. Study design

In this section, we will put the hypotheses generated to detect the effect of ESG performance on the level of CO2 disclosure of G20 firms. Then, we will deal with the sampling procedure, data sources, and research design.

### 4.1. Sample selection and data sources

Our research focused on corporations from the G20, a group of the world's twenty richest countries. After a series of financial crises in the 1990s, this group was formed in 1999. The data for this study was gathered from the Thomas Reuters ASSET4 database and spans the years 2013 to 2019. This study's first sample consisted of 1360 companies from the G20. Firms with missing data were eliminated from the initial sample in this regard (475). Furthermore, we got a final sample of 516 organizations totaling 3612 observations after filtering our data from financial enterprises (369), including banks and insurance companies, because they are subject to regulatory supervision that influences their governance systems (firm-years). The sample selection is summarized in Panel A, Panel B presents the sample distribution by country.

**Table 1.** Sample selection procedure

<i>Panel A: Sample selection</i>			
<i>Sample</i>	<i>Firms</i>	<i>Obs.</i>	
Initial sample	1360	9520	
- Firms with missing data	(475)	(3325)	
- Banks and financial institutions	(369)	(2583)	
Final sample	516	3612	
<i>Panel B: Sample distribution by country</i>			
<i>Country</i>	<i>Number of firms</i>	<i>Obs.</i>	<i>%</i>
South Africa	70	490	12.47
Germany	47	329	9.10
Saudi Arabia	1	7	0.19
Argentina	2	14	0.38
Australia	33	364	9.26
Brazil	52	231	5.88
Canada	45	315	8.02
China	5	35	0.96
South Korea	41	287	7.94
France	28	196	5.42
India	21	147	4.06
Indonesia	3	21	5.81
Italy	18	126	3.48
Mexico	7	49	1.35
Russia	5	35	0.96
Turkey	6	42	1.16
Japan	20	140	3.87
United Kingdom	25	161	4.45
European Union	50	350	9.68
United States	39	273	7.55
Total	516	3612	100

## 4.2. Measurements

The variables in this article can be classified into three types, namely the dependent variable, the independent variables, and the control variables.

### 4.2.1. Dependent variable: CO2 disclosure (*CO2\_DISC*)

We used the same data source as Velte (2021), who used the Thomson Reuters Eikon database to assess environmental disclosure using a score that reflects environmental disclosure, based on a review of the theoretical and empirical literature on environmental disclosure. We were interested in carbon disclosure (*CO2\_DISC*) as a total CO2 emissions score and one of the primary sub-pillars of environmental performance because it takes values ranging from 0 to 100. Accordingly, a disclosure score was produced based on Velte's (2021) study. Besides, the amount of disclosure for each company is determined by the natural logarithm of total CO2 emissions. This is expressed mathematically as follows:

$$CO2\ disclosure\ index = Ln(Scope1\ emmissions + Scope2\ emmissions) \quad (1)$$

where, Scope1 = direct CO2 emissions, Scope2 = indirect CO2 emissions.

### 4.2.2. Independent variables

Several explanatory variables associated with the G20 corporations can be used to examine their effects on CO2 disclosure levels. We concentrate on three major variables: the environmental score (*ENV\_SCORE*), the social score (*SOC\_SCORE*), and the governance score (*CG\_SCORE*).

- Environmental score (*ENV\_SCORE*): This characteristic is specifically quantified using a normalized and standardized score generated by ASSET 4 that spans from 0 to 1 (Lu et al., 2019).

- Social score (*SOC\_SCORE*): It is a score based on a combination of numerous items that show the social standards followed by each organization. This characteristic is quantified more precisely by the ASSET 4 standardized score, which ranges from 0 to 1. This variable is intended to describe a company's socially responsible commitment. We took the same method as other investigations, such as those by Kılıç and Kuzey (2019).

- Governance score (*CG\_SCORE*): In our investigation, we measured (*CG\_SCORE*) using a score developed and calculated by ASSET4, which ranges from 0 to 1 to assure strong comparability.

### 4.2.3. Control variables

Following prior work, we have included in our model many control variables relating to the company's and its environment's features. We kept the following variables as control variables: Several current studies on the subject use a binary variable to assess sector membership. Thus, the polluting sector (*POL\_SEC*) was measured by a binary variable that takes the value 1 if the company operates in one of the following industries: chemicals, electricity, oil and gas producers, gas, utilities, and consumable oil, metals and mining, buildings and construction materials, and automatic components, and 0 otherwise. As a result, we controlled for the effect of countries' ethical behavior (*ETH\_COUN*), the legal system (*LEG\_SYS*), and the European Union (EU) Emission Trading System (*ETS*), which is a CO2 emission rights mechanism developed inside the European Union as part of the EU's ratification of the Kyoto Protocol. It is a binary variable that is coded 1 if the firm is from an EU country and 0 otherwise. Finally, we included dummy variables to adjust for fixed factors such as year (*YEAR*) and country (*COUNTRY*). Table 2 defines all variables in our model in further detail.

**Table 2.** Overview of variables used in the empirical study

<i>Variables</i>	<i>Variables function</i>	<i>Description</i>	<i>Measures</i>	<i>Sources</i>
<i>CO2_DISC</i>	Dependent	Carbon dioxide disclosure	Natural logarithm of total CO2 emissions = Direct CO2 emissions + Indirect CO2 emissions obtained from Thomson Reuters ASSET4.	Velte (2021)
<i>ENV_SCORE</i>	Independent	Environmental score	This variable is measured by a score developed and determined based on 100 points from the Thomson Reuters ASSET4 database.	Lu et al. (2019)
<i>SOC_SCORE</i>	Independent	Social score	This variable is measured by a score developed and determined based on 100 points from the Thomson Reuters ASSET4 database.	Kılıç and Kuzey, (2019)
<i>CG_SCORE</i>	Independent	Score governance	This variable is measured by a score developed and determined based on 100 points from the Thomson Reuters ASSET4 database.	Iqbal et al. (2019)
<i>POL_SEC</i>	Control	Pollutant sector	A binary variable that takes the value 1 if the company belongs to the following industries: chemicals, electrical equipment, oil, utilities, consumable oil, metals, and mining, automobiles, and automatic components, and 0 otherwise.	Rossi et al. (2021)
<i>ETH_COUN</i>	Control	Ethics country	An index takes a value between 1 and 7, with 1 indicating a very low level of ethics and 7 indicating a very high level.	Chouaibi and Zouari (2022)
<i>LEG_SYS</i>	Control	Legal system	A binary variable that takes the value 1 if the company belongs to the countries that they apply the civil law, and 0 otherwise.	Zouari-Hadiji and Chouaibi (2021)
<i>ETS</i>	Control	EU Emissions Trading System	It is a binary variable coded 1 if the company belongs to the EU and 0 otherwise.	Velte (2021)

### 4.3. Regression model

To test our three hypotheses, the following regression model is posed in Eq. (2). The variables used in the estimation model are defined in Table 2:

#### Model 1

$$\begin{aligned}
 CO2\_DISC_{i,t} = & \beta_0 + \beta_1 ENV\_SCORE_{i,t} + \beta_2 SOC\_SCORE_{i,t} + \beta_3 CG\_SCORE_{i,t} + \beta_4 POL\_SEC_{i,t} \\
 & + \beta_5 ETH\_COUN_{i,t} + \beta_6 LEG\_SYS_{i,t} + \beta_7 ETS_{i,t} \\
 & + \sum_{i=8}^{14} \beta_i YEARS_{i,t} + \sum_{i=15}^{34} \beta_j COUNTRY_{i,t} + \varepsilon_{i,t}
 \end{aligned} \tag{2}$$

where, *YEAR* and *COUNTRY* represent year, and country fixed effects, respectively;  $\varepsilon$  is the error term, and subscripts *i* and *t* represent firms and year, respectively.

## 5. Results analysis and discussion

The present work aimed to empirically test the impact of ESG performance on the level of CO2 disclosure in G20 companies.

### 5.1. Descriptive statistics

According to statistical analyses, the mean of CO2 disclosure is 0.129, with a standard deviation of 0.024. This means that voluntary disclosure of CO2 emissions information is extremely low in the companies in our sample. This result can be explained by the diversity of enterprises coming from various nations in our sample. The findings agree with those of Velte (2020) and Chouaibi et al. (2021). The low amount of forward-looking disclosure (0.129) makes predicting the firm's future performance extremely challenging for stakeholders.

In terms of explanatory variables related to the environmental, social, and governance criteria of the firms in our sample, the findings show that the firms in our sample have a high level of environmental disclosure (0.627). This is supported by the fact that firms in our sample tend to improve their disclosure capacity through the implementation of a transparency plan. Furthermore, this variable has a very low standard deviation from the mean (0.214), indicating that there is no difference between the organizations in our sample in terms of environmental openness. Our findings are consistent with those of Ismail and Latiff (2019) and Chouaibi et al. (2021). According to the descriptive statistics, the mean social score of the firms in our sample (*SOC\_SCORE*) is 0.645, with a comparatively low standard deviation (0.196) from the mean. This is due to the fact that the majority of the businesses in our sample are more involved in social activities and actions. As shown in Table 3, the average level of the governance score (*CG\_SCORE*) is 0.613 with a comparatively low standard deviation (0.20), indicating that our sample has an adequate degree of excellent corporate governance procedures. Panel A of Table 3 shows that the ethical behavior of countries (*ETH\_COUN*) has a mean of about 4.982, with a minimum and maximum of 3.8 and 5.6, respectively. In addition, this variable has a relatively lower standard deviation (0.498) than the mean.

Furthermore, Panel B reveals that nearly half (45.5%) of the enterprises in our sample are in polluting industries. Indeed, the majority of the countries in our sample are engaged in the ethics process by enacting rules and regulations targeted at increasing openness and trustworthiness. As shown in Table 3, the number of companies belonging to the Franco-German legal system is higher than that of companies belonging to the Anglo-Saxon legal system (57% of the companies in the sample belong to the statutory (civil) legal system, and 43% belong to the common law legal system). Finally, the results indicate that the variable EU Emissions Trading Scheme (*ETS*) is relatively acceptable, as 44.9% of the enterprises in our sample use the *ETS*. This result can be explained by the diversity of the enterprises in our sample that comes from various countries and hence have diverse legal systems.

**Table 3.** Descriptive statistics

<i>Panel A: Descriptive statistics of metric variables</i>					
<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
<i>CO2_DISC</i>	3612	0.129	0.024	0.051	0.192
<i>ENV_SCORE</i>	3612	0.627	0.214	0	0.988
<i>SOC_SCORE</i>	3612	0.645	0.196	0.012	0.981
<i>CG_SCORE</i>	3612	0.613	0.200	0.026	0.984
<i>ETH_COUN</i>	3612	4.982	0.498	3.8	5.6
<i>Panel B: Frequencies (%) for binary variables</i>					
<i>Variables</i>	<i>Modalities</i>		<i>%</i>		
<i>POL_SEC</i>	0		54.5%		
	1		45.5%		
<i>LEG_SYS</i>	0		42.7%		
	1		57.3%		
<i>ETS</i>	0		55.1%		
	1		44.9%		

## 5.2. Correlation matrix

Table 4 shows the results of the multi-collinearity test, which show that all of the correlation coefficients have values less than 0.6, implying that the problem of bi-variate multi-collinearity is completely absent Chouaibi et al. (2021). Furthermore, we can confirm this condition with a complimentary test known as the variance of inflation factor (VIF) test. Several prior researches have employed the second approach of VIF to validate the presence or absence of multi-collinearity problems in this regard. When the VIF value is less than 2, there is no collinearity. According to Table 4, the values of the VIF vary between 1.08 and 1.96, which is the critical value as it is less than 2.

**Table 4.** Correlation matrix and VIF test

<i>Variables</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>ENV_SCORE (1)</i>	1						
<i>SOC_SCORE (2)</i>	0.4099	1					
<i>CG_SCORE (3)</i>	0.1972	0.2302	1				
<i>POL_SEC (4)</i>	0.0609	0.0018	-0.0174	1			
<i>ETH_COUN (5)</i>	0.1589	0.0514	0.1449	0.0079	1		
<i>LEG_SYS (6)</i>	0.3071	0.2686	-0.0423	0.0796	-0.0499	1	
<i>ETS (7)</i>	0.2842	0.3066	-0.0191	0.0080	0.3838	0.5390	1
<b>VIF</b>	<b>1.75</b>	<b>1.76</b>	<b>1.11</b>	<b>1.08</b>	<b>1.40</b>	<b>1.08</b>	<b>1.96</b>

## 5.3. Discussion of results

In our estimations, we must account for the difficulties identified by the econometric tests, notably heteroscedasticity and error autocorrelation. It is required to employ the generalized least squares approach, which helps us to solve the problems of heteroscedasticity and autocorrelation of mistakes while delivering more robust results.

According to the findings in Table 4, there is a positive relationship between the ESG variable (environmental score) and the dependent variable, namely carbon dioxide disclosure. In reality, the calculated coefficient for this relationship is 0.02106, with  $z = 9.51$ ;  $p = 0.000$ . This finding suggests that environmental score has a positive and significant influence on CO2 disclosure in G20 enterprises, which confirms hypothesis *H1*. As a result, the ESG variable contributes to increasing the size of CO2 disclosure. The manager is driven to raise carbon dioxide disclosure if the firm's commitment to CSR is strong. This evidence can be explained by the prominence of ESG parameters in company value. Therefore, this result confirms those found by several studies, such as Roblek et al. (2020) and Andrian (2020), which reveal the existence of a positive and significant relationship between environmental score and carbon dioxide disclosure.

Statistical studies show that there is no significant association between the variable social score and its effect on carbon dioxide disclosure. Indeed, the statistical results demonstrate that the coefficient for the variable *SOC\_SCORE* is negative (-0.0024) and negligible ( $z = -0.99$ ;  $p = 0.323$ ), indicating that this variable has no effect on the level of CO2 disclosure. As a result, we reject hypothesis *H2* and conclude that social score has no effect in our sample companies. As a result, social score cannot compel managers to be accountable in order to follow the principles of good behavior and encourage corporate social responsibility policies. Moreover, social score is far from being a factor that could orient the manager towards the well-being of all stakeholders.

Regarding the hypothesis *H3*, the level of CO2 disclosure has a statistically significant and positive association with the governance score. Indeed, the coefficient associated with the link between governance score and CO2 disclosure level is positive (0.01078) and statistically significant at 1% (the related  $z = 5.61$  with  $p = 0.000$ ). This finding indicates that the higher the importance of the company's governance score and ethical standards, the more it engages in CO2 disclosure tactics. On this basis, we may state that our hypothesis *H3* has been validated. Nuber and Velte (2021) have empirically shown a good association between responsible governance practices and dedication to the carbon disclosure procedure by referring to earlier studies. This indicates that governance score strengthens climate mitigation strategies, as it reduces the total intensity of greenhouse gas emissions.

According to the same Table 5, the polluting sector coefficient is positive and significant in explaining carbon disclosure (Coef. = 0.01309;  $z = 16.60$ ;  $p = 0.000$ ). This means that this variable plays a role in explaining CO2 disclosure in the context of the companies in our sample. As a result, our findings are congruent with those of Rossi et al. (2021). The model estimate findings for the variable, country ethics, demonstrated a negative but not significant correlation in explaining CO2 disclosure (Coef. = -0.00346;  $z = -1.42$ ;  $p = 0.154$ ). This means that country ethics have no effect on the CO2 disclosure of our sample companies. As a result, these findings contradict the conclusions of Rossi et al. (2021). Similarly, the results demonstrate a positive but non-significant association between the legal system variable and our explained variable (Coef. = 0.00300;  $z = 1.43$ ;  $p = 0.154$ ). As a result, the legal system has no impact on the CO2 disclosure process for the enterprises in our sample. Furthermore, statistical tests reveal a negative and significant link between the EU ETS (Coef. = -0.00567;  $z = -2.76$ ;  $p = 0.06$ ) and CO2 disclosure at a significance level of less than 10%. These findings show that the EU ETS has an impact on CO2 emissions. Our result is congruent with Velte's (2020). The statistical findings support the hypothesized relationships between the control factors and the dependent variable in part.

**Table 5.** Regression results

<i>Explanatory variables</i>	<i>Coef.</i>	<i>Z</i>	<i>Sig.</i>
<i>ENV_SCORE</i>	0.02106***	9.51	0.000
<i>SOC_SCORE</i>	-0.0024	-0.99	0.323
<i>CG_SCORE</i>	0.01078***	5.61	0.000
<i>POL_SEC</i>	0.01309***	16.60	0.000
<i>ETH_COUN</i>	-0.00346	-1.42	0.154
<i>LEG_SYS</i>	0.00300	1.43	0.154
<i>ETS</i>	-0.00567***	-2.76	0.006
Intercept	0.11654***	5.74	0.000
Year fixed effect		YES	
Country fixed effect		YES	
Wald chi2 (p-value)		1299.15 (0.000)	
Hausman's test (p-value)		4383.53 (0.000)	
Breush-Pagan test (p-value)		10033.24 (0.000)	
Modified Wald test (p-value)		3.8e+06 (0.000)	
Wooldridge test (p-value)		212.941 (0.000)	
Observations		3612	
Fisher (p-value)		9.44 (0.000)	
R2		0.23	

*Note: This table presents the regression estimation results of CO2 disclosure by ESG score variables as well as other control variables. It presents the results of the regression estimation that includes year and country fixed effects. The estimation method is the FGLS method. \*\*\*, \*\* and \* correspond to the 1%, 5%, and 10% significance levels.*

## 6. Robustness checks

The robustness test is used to obtain more conclusive and robust results, as well as to test the sensitivity of our primary regressions. It is critical to investigate the effect of ESG as an aggregate measure on the amount of CO2 disclosure. More specifically, we will regress the cumulative influence of the ESG criteria as well as the other independent and control factors on the variable of interest, namely CO2 disclosure. As a result, the model to be tested is as follows:

Model 2

$$CO_{2\_DISC_{i,t}} = \beta_0 + \beta_1 ESG\_SCORE_{i,t} + \beta_2 POL\_SEC_{i,t} + \beta_3 ETH\_COUNT_{i,t} + \beta_4 LEG\_SYS_{i,t} + \beta_5 ETS_{i,t} + \sum_{i=8}^{14} \beta_i YEARS_{i,t} + \sum_{i=15}^{34} \beta_j COUNTRY_{i,t} + \varepsilon_{i,t} \quad (3)$$

We specifically perform a new regression on the impact of ESG score as an average of three sub-pillars (environmental score, social score, and governance score). Our key findings are as follows:

**Table 6.** Robustness checks results

<i>Explanatory variables</i>	<i>Coef.</i>	<i>Z</i>	<i>p-value</i>
ESG_SCORE	0.004376***	3.68	0.000
POL_SEC	0.0300795***	6.81	0.000
ETH_COUN	-0.000978	-0.18	0.859
LEG_SYS	0.00300	1.43	0.154
ETS	-0.00567***	-2.76	0.006
Intercept	0.4480832***	5.52	0.000
Year fixed effects		YES	
Country fixed effects		YES	
Chi2(p-value)		207.62(0.000)	
Hausman's test (p-value)		24.23 (0.000)	
Observations		3612	
Fisher (p-value)		9.44 (0.000)	
R <sup>2</sup>		0.30	

Note: \*\*\*, \*\*, and \* correspond to the 1%, 5%, and 10% significance levels.

Based on the findings in Table 6, there is a positive relationship between the ESG variable and the variable to be explained, namely CO2 disclosure. In fact, the predicted coefficient for this relationship is 0.004376, with z = 3.68; p = 0.000. This finding suggests that the combined ESG score has a positive and significant impact on CO2 disclosure among the firms in our sample. This suggests that if the firm's ESG commitment is high, the manager is compelled to improve extra-financial measures, such as carbon dioxide emissions disclosure. This evidence can be explained by the prominence of ESG parameters in company value. As a result, this finding verifies the findings of other studies, such as Herold (2018), and Kim et al. (2018), which indicated a positive and substantial association between corporate social responsibility and environmental disclosure. Thus, the results reported in Table 6 confirm the majority of the original findings (H1 and H3), which are qualitatively similar, indicating that the connections between scores and the level of CO2 disclosure are not susceptible to further investigation.

## 7. Conclusion

The primary goal of this paper was to look into the relationship between individual ESG performance and CO2 disclosure of G20 firms between 2013 and 2019. This study aims to address a gap in the literature by analyzing the relationship between individual ESG performance and corporate CO2 disclosure both conceptually and empirically. Several relevant research studies in this field have revealed that the environmental score (*ENV\_SCORE*) can help to boost CO2 disclosure. This is due to corporations becoming more transparent through CSR, which is a primary approach of governance score adopted to reduce agency costs and information asymmetry.

The empirical findings also reveal that social score is inversely related to CO2 disclosure (*CO2\_DISC*). As a result, the social score (*SOC\_SCORE*) is an ineffective method for inducing managers to exercise good behavior and strengthen CSR measures, including CO2 disclosure. According to the findings, governance score is positively associated with CO2 disclosure, indicating that companies have a strong interest in investing in socially responsible activities to ensure the quality of information and reduce conflicts of interest in a context where environmental risk is prominent. Taking ESG factors into account thus allows for improved information quality and less managerial opportunism.

This study makes a significant contribution that will be extremely beneficial to the various economic agents involved in the company's operations. As a result, the findings may pique the interest of socially responsible investors and, in particular, corporate citizens. Furthermore, managers of polluting enterprises could consider the findings of this study by focusing more on a carbon dioxide disclosure plan. Similarly, civil society organizations and associations may find this work to be a valuable instructional resource for developing a green financial transparency strategy.

Our study has two major limitations: the measurement of the CO2 disclosure index varies depending on context. Thus, we excluded other techniques for evaluating CO2 disclosure. In addition, the relationship between ESG performance and CO2 disclosure can be explained in both ways in the absence of an endogeneity test.

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# INTANGIBLE ASSETS AND SUSTAINABLE MANAGEMENT: A NEW ETHICS AND ECONOMICS PAIRING

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## 1. Ethics and sustainability

The subject of sustainability is acquiring more and more interest amongst scholars, so much as to be classified as one of the leading-edge topics of research. This growing interest is to be found in the belief that it is important to preserve natural resources and environmental balance in order to allow future generations to benefit from them.

Therefore, the way of doing business has changed and the attention has moved toward pollution, the exploitation of resources and the effects on climate produced by traditional capitalism. This strategic transition comes through as a valid *modus operandi* for the future and an ambitious goal to reach for the survival of the planet itself. Indeed, the protection of the ecosystems and the promotion of the well-being of all are at the basis of the concept of sustainability.

The trade-off between economic, social, and environmental objectives is crucial to modern industrialization, which must be capable of adapting to the changes in the systems and values.

Sustainable management can give the enterprise some positive returns both in financial terms and in terms of International credibility. Companies must accept this important challenge in the scope of environmental and social sustainability if they want to improve their performances, dominate the markets, and build customer loyalty, as well as save the planet and make it livable (Oliva, 2019).

The company's doctrine, with time, has oriented toward a capitalism that is not only based on the maximization of profits but on environmental performance control models related to economic activities.

On a conceptual level, it is clear that ethics and economics are not just dichotomic categories, but are an integral part of a common consideration in which coexist financial, social and environmental benefits. It follows that company management may define itself as optimal if it takes into account the values of morals, honesty, responsibility, and transparency in one's actions, which are variation factors of its results. A management that follows the triple bottom line demonstrates its strategic approach to corporate social responsibility (CSR).

Such evolution is the product of several causes, amongst which, the one related to the changes in the environment that is external to the enterprise has an important relevance. The social-economic framework of the most recent times has, indeed, greatly mutated to effect of the globalization of the markets, of the technological development, and of the social and political dynamics of the last few decades (Rullani, 1994). This has entailed a structural change in the economies, associated with an extension of the markets and their higher competitiveness, which has forced enterprises to deal with different stakeholders and to respond to their expectations not only in financial terms but also in ethical and social terms (Birindelli & Tarabella, 2001).

Today more than ever there is a need to overcome the antinomy between the ethical and the economic dimensions of human behavior, because production, income distribution, growth, and economic development constitute, today, economic categories that need ethical principles, or else the risk is that the economy will implode and, therefore, collapse (Marziantonio & Tagliente, 2003).

As conveniently underlined by Marra (2002): "Ethics are a competitive advantage, not a limitation; an energy, not a weakness; a stimulus for creativity, not a stop" (p. 32). This to the fact that ethical values are considered, by several parties, factors that increase efficacy and efficiency in entrepreneurial actions and not limitations.

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The evolution of modern capitalism, therefore, depends also on the ethical choices and actions of the entrepreneurs, finalized to reach a profile redefined as *quid pluris* to the advantage of the entire community (Sen, 2002).

Amartya Sen, Nobel Prize in economics, affirms that enterprises, as organizations that use community resources, must take on a social responsibility toward the community. “The company is a social institution, and, as such, holds a citizenship right that makes it worthy of protection and, in some cases, of support. This same right, though, obliges it to satisfy certain expectations that the community to which it belongs has for it, through the respect of ethical rules and the implementation of sympathetic behavior” (Robiglio, 2004, p. 20).

Today, enterprises have a great responsibility toward society, and their main purpose is not only the creation of wealth but also the fulfillment of the social-environmental expectations of the stakeholders. The actions of the managers must be socially and ethically honest because the close relation between economic development and social challenge has changed the expectations of society toward the role and the responsibility of an enterprise. The credibility of a company increases if its behaviors are a guarantee of honesty and awareness of its social role.

The company must grow, and to do so it must invest and create, respecting the eco-system it is part of. To this purpose, the intangible assets, which strategically contribute to the economic variables of the enterprise, assume great importance, because they affect the business choices and the social and environmental policies of the company.

Within the last few decades, the idea of the Sustainability Revolution (Edwards, 2005) has been growing and imposing itself. According to this idea, future survival and development of both macro systems (the planet, the nations, etc.) and Microsystems (social organizations) presume the balance of three crucial aspects: environmental impact, social implications, and the attainment of economic results (conservation and creation of wealth). Regarding social organizations, entrepreneurial ones in particular, the model that affirms itself is one of the sustainable corporations (Elkington, 1994) that is, an organization founded on guiding values and principles, processes, and business means oriented toward sustainable development (Siano, 2012).

To use this new approach (CSR = Sustainability) means to look at the future through four different magnifying glasses. The first one focuses on the employment market and human resources, the second on community, the third one looks at the environment and the fourth one focuses on the market.

**Figure 1.** The vision of sustainability



*Source: Author's elaboration.*

CSR is not substituted by the word “sustainability”, but it stays in the background, even though it is downsized (Crivellaro et al., 2012). In a way, CSR may be considered the basis on which lay the pillars of sustainability. Indeed, the multidimensional vision of the concept of CSR, according to Carrol’s pyramidal model (Carroll, 1991), incorporates the economic, legal, ethical, and philanthropic

principles that substantiate the three dimensions (planet, people, and profit) of the triple bottom line (Elkington, 1997). This connection is expressed in the physical metaphor of the temple, elaborated by Wempe and Kaptein (2002).

**Figure 2.** Relationship between corporate social responsibility and corporate sustainability



Source: Siano (2012, p. 8).

The metamorphosis of companies toward sustainability entails several advantages, not only for the planet, but also for the business, and such a transition is a financially strategic and ethically due choice (Oliva, 2019).

It has been recently argued that ethics does not preclude financial performance, in fact, in some cases; profit is even higher than the investments made because the green economy allows the reduction of energy and raw material costs. Research conducted by RGA, a consulting company that studies solutions in the area of social responsibility, confirms that sustainability contributes to the success of an enterprise in the long term and generates higher profits (Cici et al., 2012).

The most accredited companies choose sustainable managers whom, thanks to circular economy, preserve raw materials and reuse them, operating a resource saving, polluting less and creating value as well as profit.

The due choice to save the planet is to retort to a green economy for the environment, to a white economy, which takes into account the ageing of the population, and the blue economy for the protection of the heritage and of the exhaustible natural resources. These modalities, which were seen by the companies as an additional cost, are now considered an opportunity, a modality that helps realize the same products at a lower cost and with lesser damage to the environment, as the Euro MP Simona Bonafè has recently explained (Saldutti, 2018, p. 45). The implementation of the costs, for companies, is compensated by the increase in the number of clients, by the market shares, and by the credit support from the banks that are most inclined to finance sustainable companies.

A sustainable enterprise has the possibility to build customer loyalty with a higher number of customers who, today, require the attainment of social and environmental standards, responsible business practices, and who place orders in an informed manner. The expectations of the stakeholders don't stop at information and transparency, because many are willing to pay a price differential in order to consume in a sustainable way; therefore, companies are required a behavior that is substantially in line with these expectations, to the risk of losing market shares (Silva, 2016).

From an analysis of what is happening in the business field, we can affirm that "sustainability went from being Cinderella to being the princess of values and principles of the enterprises of the future" (Verona, 2018, p. 3).

## 2. The strategic value of intangible assets

The observation and the evaluation of intangible resources available to the company are essential in order to understand its mission and its vision, which are at the basis of its management. The competitive advantage of a company is affected by the critical ability to evaluate and enhance not only the tangible, but most of all the intangible assets. The human resources and the shared knowledge constitute the value driver, that is, the new determiners of the creation of value.

Value drivers are the range of factors and variables able to act and stimulate the ability of the various business units in which the company is divided to increment global value (Black et al., 2000). The making of a product is not enough anymore: it is imperative to meet the expectations of the consumers by continuously drawing from the knowledge of information and showing sensitivity to external changes.

It is evident that all individuals, with their sensitivity, knowledge, and know-how prominently affect the strategic management of the company; therefore, there is a need to start from an industry 4.0 that has, as a basis, the intangible assets rather than the share capital.

The enterprise, as an establishment, is not a stand-alone entity, but it is an integral part of the territory in which it operates. Management must be socially and ethically honest in order to meet the expectations of the stakeholders that require, from production, the respect of sustainable practices.

Therefore, corporate social responsibility integrates intangible assets in order to obtain a profitable yet ethically honest. A responsible business must guarantee top products, satisfy its clients, and bring sustainability to the territory in which it is integrated. In such economy, the only resources that really count are the intellectual ones, that is, the information contained in the brains of the knowledge workers, both in the databases and in the digital documents on the net.

Companies operating in global and highly competitive markets need to gather information, study the variables that can affect their business strategies, and accurately analyze the pool of competencies and human resources they possess (Oliva, 2021). Therefore, we live in an era in which enterprises must not only respond to the efficacy and efficiency criteria, but they must employ the intangible internal resources that are the foundation of strategic success.

According to the resource-based theory, RBT (Barney & Clark, 2010; Becerra, 2009), the source of the competitive advantage is represented by the internal resources of the enterprise rather than by external environment factors. The RBT scholars sustain that, in order to beat competitors, the enterprise must own resources, abilities, and competencies that are distinctive and superior. The resources on which the enterprise is founded are the knowledge and the trust that “Represent the cognitive provision outline of behavior of other subjects” that is obtained by keeping continuous and stable relationships.

The economy of knowledge manifests itself, therefore, as the capability-possibility to increase the significance of the economic actions, in a dialectical process that is more efficient due to the ability to quickly go from the effects and the “micro” possibilities to the effects and the “macro” possibilities and vice-versa. It is not enough to be the manufacturer of something, it is important to have the knowledge of the meaning of that something, that is, how can it be better employed and what long-term effects will it have.

In this prospect, knowledge is almost a prerequisite of the entrepreneurial activity, an element that produces the basis and the nourishment of the many performances that constitute the enterprise. Knowledge, therefore, just like any widespread prerequisite, must be produced, managed, evacuated, administered, and exchanged (*Gruppo Bilanci Sostenibilita* [GBS], 2008).

The evolution of modern economies can be divided into three mega eras: the culture era, the industry era, and the knowledge era. The economy of our times is different from the economy of the past century; therefore, corporate competition is based on different variables (Bontis, 2001). So, what emerges from this is that the modern economy has undergone more than a change; an evolution for which the basic economic resource is no longer the share capital, but the intellectual capital.

The intangible and/or immaterial factors or intellectual capital such as the distinctive competencies, the quality of the human capital, the commercial relations, the organization, the customer loyalty management, and the corporate image, on a global scale, are considered, in economy, the real key to success. These factors, referred to as the general activity of the enterprise, even if not immediately identifiable or susceptible to monetary evaluation, affect governance.

The definition of intangible assets is proposed by the international accounting principles of the International Accounting Standard (IAS) 38, which state: “It is defined “intangible activity” the activity that is identifiable, non-monetary, without physical consistency, controlled by the enterprise as a consequence of past events, the future benefits of which, for the enterprise, are expected” (The International Financial Reporting Standards [IFRS], 2023).

The intellectual capital is generally divided into three parts: human capital, relational capital and structural capital.

- The human capital is constituted by the knowledge and the competences possessed by the human resources of the company;
- The structural capital is represented by the structural knowledge possessed by the company (patents, database, procedures, etc.);
- The relational capital is constituted by the relations that the company intertwines with its stakeholders.

This classifying partition, though, is not fixed, because intangible assets have a transversal nature, therefore, at times, an asset is considered as belonging to a class, while at times it will be considered as belonging to a different class according to the environmental and strategic context it is inserted in (Oliva, 2021). The combination of these three elements generates an added value in the products and services offered. Such financial added value is identified in the image that follows, which shows the combination of the human-structural-client capital.

At this point, a new structure of the assets of a company is generated and it is given by the following equivalence: *Total assets = physical capital + financial capital + intellectual capital; Intellectual capital = intellectual capital + human capital + client capital* (Stewart, 1999, p. 114).

However, we need to observe that intellectual capital, as well as being a resource, represents an investment that implicates costs because its constitution leads the organization to incur expenses in human resources, software technologies, know-how, commercial networks, etc.

In light of these considerations, we can observe that, in the outline of the financial report, the activation of the intellectual capital generates costs and debts which will be respectively registered in the revenue account and in the liabilities, which will have as an offset both the creation of the investment, the value of which will be registered in the assets of the income statement, and the related and possible profit, which will be registered in the revenue account (Del Bello, 2006, p. 58).

The intangible resources allow enterprises to employ and manage technology and several assets so as to generate a higher or lesser value, which means to either win over the competition of the markets or to succumb, being modulators of the results of the performances of management. Competitive success requires a critical ability to develop, manage; measure, and control the flow of knowledge of the intangible assets, which, therefore, play a dominant role in the ability of the companies to innovate and to compete in an economy based on knowledge. The main source of the company’s value no longer resides in the production of material goods but in the creation, acquisition, and enhancement of intangible goods (Eustace, 2003).

The enhancement of the intangible resources of the new economy is accelerated by the digitalization process, which does not rely only on intelligent machines, but most of all on human beings who, through their intelligence, their knowledge, can reach other goals such as creating wealth and social development.

We can therefore talk about a third industrial revolution, where knowledge and human resources are becoming more and more important and rarer compared to natural resources (Thurow, 2000). The company value is created with the interaction between human resources, organized and linked together with their physical and financial capital. The spreading of the belief that entrepreneurial action must be revised in light of the ethical and moral implications of actions that are respectful of the environment and of the context in which they operate entails that intangible resources play an important role in this direction. The actions of the managers must be socially and ethically correct because the close relation between economic development and social challenge has changed the expectations of society toward the role and the responsibility of an enterprise.

In the last few years, a theory has affirmed itself which states that managers have a “trustful relation” with an ample spectrum of stakeholders, meaning suppliers, clients, employees, shareholders, and the local community, as well as management in its role of agent of such groups, that is, those

individuals or groups that have a legitimate interest or a legitimate demand toward the enterprise, having them invested time and resources in their relationship with it. Such stakeholders' theory is founded on the Kantian principle, according to which, people must be treated as purposes themselves, not as means to reach some kind of purpose (Evan & Freeman, 1988).

The enterprise, as a social institution, finds its legitimacy in the ability to take into consideration an ample spectrum of values, such as social responsibility toward the territory and the community. CEOs and partners must stay oriented toward ethical management and must build leadership that always takes into account the values of the enterprise. The awareness that ethics is the strategic key to the success of a highly competitive global framework is essential to this type of leadership (Miles, 1987).

A socially responsible performance has direct consequences on the intangible capital, and in the paradigm of a strategy that approaches CSR, it has consequences on the intangible resources, because it takes advantage of the relations that link management to the expectations of the stakeholders, to the intangible resources and the financial performances identified in the proposal of the paradigm "stakeholder management — intangible resources — financial performance" (Molteni, 2004; Pedrini, 2007a).

Therefore, there exists a virtuous circle given by the existing relations between enterprise responsibility, intangible resources, and financial performance. Within these enterprises' immaterial resources, it is possible to identify a system (corporate intangible assets system) made of three components that acquire value from one another. Such system of corporate immaterial resources is based on: 1) the widespread and sharing, within the organization, of a solid corporate culture based on a system of values in harmony with those that are present in the social environment; 2) the ownership of an efficient information system able to dynamically transfer, within the enterprise, the information flows related to the knowledge generated by the whole of the relationships intertwined; 3) the creation of a brand equity, the relational value of which is posed toward the market, but it is also relevant toward other corporate stakeholders (Brondoni, 2005).

**Figure 3.** The benefits offered to stakeholders by socially responsible enterprises

<i>Stakeholders</i>	<i>Benefits</i>
<b>Workers/employees</b>	<ul style="list-style-type: none"> <li>• Better and safer work environment;</li> <li>• Greater attention to economic well-being and professional growth;</li> <li>• Better balance between work and private life;</li> <li>• Involvement in decision-making processes;</li> <li>• Improvement of psycho-physical health.</li> </ul>
<b>Consumers/customers</b>	<ul style="list-style-type: none"> <li>• Better quality of products or services;</li> <li>• Better understandings of the company;</li> <li>• Greater awareness of the production/supply processes of products/services;</li> <li>• Easier access to information and obtaining answers.</li> </ul>
<b>Public administration</b>	<ul style="list-style-type: none"> <li>• Fairer tax revenues;</li> <li>• Sharing projects of mutual benefit;</li> <li>• Lower cost of control and supervision.</li> </ul>
<b>Competitors</b>	<ul style="list-style-type: none"> <li>• Fair competition;</li> <li>• More correct market.</li> </ul>
<b>Collectivity</b>	<ul style="list-style-type: none"> <li>• Contributions of qualified skills and planning;</li> <li>• Indirect economic development (induced);</li> <li>• Support of local associations;</li> <li>• Sponsoships to local initiatives (sport, culture, art, etc.);</li> <li>• Technological and scientific innovation.</li> </ul>
<b>Environment/Future generations</b>	<ul style="list-style-type: none"> <li>• Less polluting emissions and negative effects;</li> <li>• Protection and conservation of the environmental heritage;</li> <li>• Correct use of natural resources.</li> </ul>

Source: Moro and Profumo (2003).



CSR can be interpreted as a chance to improve intangible resources and, by creating value from these resources, the expectations of the stakeholders can be satisfied, so as to obtain value for the whole enterprise institution.

Competitive success requires a critical ability to develop, manage, measure, and control the knowledge flow and the intangible assets that play, therefore, a dominant role in the ability of the companies to innovate and compete in an economy based on knowledge. Therefore, the main source of company value does not reside in the production of material goods anymore, but rather in the creation, acquisition, and enhancement of intangible assets (Eustace, 2003). Within the corporate culture, the concept of immaterial goods being crucial is deeply rooted in all of the processes that generate value in time and that guarantee sustainable growth.

### 3. Making the invisible visible

It is important to account for the management of the intangible assets, both in order to monitor the results obtained and to enhance them. The company notice must be implemented with a specific intangible assets budget not only in order to show the shareholders the strategic approach to CSR but also to highlight the role of the assets that generate value.

The financial statement, which is a mere accounting document, must be supported by a voluntary account, which represents an enhancement, management, and transparency tool of the intellectual capital, as well as being useful for generating value for the enterprise (D'Egidio, 2002, p. 94).

Within the accounting framework, a particular value is assumed by the social report, which contains information regarding the ethical values to which management is faithful. The intellectual capital report, instead, has the purpose of highlighting the role of intangible assets that generate value.

**Table 1.** The comparison between the social report and the intangible assets report

	<i>Social report</i>	<i>Intangible assets report</i>
What is it	It is a report on the ethical and social performances of the company.	It is the accounting of the intangible assets of a company.
Recipients	It is addressed to the stakeholders.	It is meant for a restricted audience: shareholders, investors, and financial analysts.
Object	Information on the ethical values of management.	To highlight the role of intangible assets — corporate value drivers.
Purpose	To transparently communicate all the activities of the enterprise in terms of values.	To use information for the evaluation of the context-related ability of intangible resources to generate value.

Source: Author's elaboration.

We can affirm that it is convenient to support the social report with the intangible assets report, which indicates the perspective ability of the intangible assets to generate value. It is clear that we are facing a corporate notice that evacuates all the features as a whole, and even though these features are invisible, they become visible when we realize that they constitute an important resource for the creation of value.

Some scholars think that there is another possibility to create a report that integrates the value of intangible resources in sustainability reports. We, then, get to the drawing of one document alone that combines the sustainability and the intangible resources reports. This integrated report, which extracts the value of the Molteni paradigm, employs non-financial quantitative indicators without arriving at the estimate of the value of the object being accounted for. This system seems to be efficient in supporting a strategy that approaches enterprise responsibility while paying attention to the consequences it has on intangible resources, trying to employ the relations that link the management of the expectations of the stakeholders, the intangible resources, and the financial performances (Pedrini, 2007b).

The GBS group has provided some practical advice for accounting, which will be mostly process accounting rather than content accounting and it will be applicable to any enterprise since it is made of syntaxes rather than morphology, that is, more study and description of relationships than study and description of objects (GBS, 2001, p. 59). Furthermore, the GBS sustains that the social dissertation of

the intangible assets must provide a specific section in the social report, precisely within the social report of the standard, and not a separate and specific report, because of the close relationship that exists among the several types of intangible asset and the wide fabric that links such assets to the whole of the assets of the company.

Given these premises, it is difficult to establish some fixed indicators for their accounting. However, the GBS has provided an outline of indicators divided into relational capital, human capital, and structural capital, inspired by the guidelines of the Danish Intellectual Capital Statement and the performance indicators of the social reporting — Research Document No. 5 of the GBS.

Near the above-mentioned theory, there is another hypothesis for an opportunity to merge in one report (Intangible Assets Global Report) all the information provided by the social reports and by the intellectual capital. It is a document alone that provides a common set of indicators based on intangible assets with the purpose of giving information both externally and internally. The Intangible Assets Global Report model should:

- Provide exhaustive and complete information for each section considered;
- Provide information that is complementary to the one provided by the financial statement;
- Allow savings in the employment of human and financial resources meant for the accounting of intangible capital (Veltri & Nardo, 2008, p. 255).

The intangible assets report must not be intended as a substitution of the financial report, because it is the starting point on which to graft any other report that integrates the financial report (Rusconi, 2002). The measurement of the intangible resources founded on quantitative, non-financial methods has seen the application of quantification systems that provide the identification of the different components of the whole of the resources, the application of a taxonomy that favors an organic approach, and the subsequent identification of index indicators which, lead back to a scorecard, to a table or a balance sheet, allow the monitoring of the trend of the resources. These systems do not allow the definition of the financial value of the intangible assets but can lead to the identification of an expressive index of the quantity of intangible resources (Pedrini, 2007b, p. 124). Amongst the most significant methods ascribable to this approach is the Value Chain Scoreboard.

#### 4. Conclusion

Industry 4.0 and the economy of knowledge have determined the abandonment of the old management systems and have placed attention on new and more high-performance assets. In the present financial scenario sustainability represents a valid strategic choice able to win over the competition and to maintain the competitive advantage on the market.

The relation between economic growth and environmental protection must influence the company's system and project it toward solutions that reduce the environmental impact. Essentially, enterprises must have a widened approach toward paring ethics/economics in order to safeguard the ecosystems and guarantee life for future generations. This culture is to be educated and taken care of, in order to respond to the guidelines of Agenda 2030 and the new Articles 9 and 41 of the Italian Constitution Chart.

In this chapter, we have highlighted the crucial role played by intangible resources in a company. They need to be considered as the “entertainers of the sustainability process”. The close relation between intangible capital and CSR has been analyzed. During these times of crisis and uncertainties, long and medium-term investments guarantee cultural and sustainable growth. It has been demonstrated how important it is to integrate the financial statement with the intangible assets report, or better, how important it is to create a specific report of these two in order to offer valid growth opportunities for the future and to determine the success of a company. Indeed, to account for the performances achieved with immaterial resources means to declare the values as the basis of the company's mission and demonstrate how intangible assets can create tangible benefits. This research work has wanted to sensitize companies regarding the great potential of intangible assets to create sustainable value. We have tried to align some crucial elements for the approach toward the measurement and the management of such assets and we have tried to indicate the tools for their evaluation. It appears evident that managing such assets in a profitable and strategic way for the future good of the company and of the environment is a responsibility of management.

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# THE ECOLOGICAL DIMENSION OF THE CONTRACTUAL AUTONOMY

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**Keywords:** Contractual Autonomy, Sustainability, Limits Party Autonomy, Ecological contract

## 1. Environmental protection as a legal asset

The protection of the environmental system inevitably calls upon a plurality of legal systems on the one hand and, on the other, various sectors of the internal system designed to guarantee the environment as a legal asset.

In this scenario, it should be remembered that an attempt was made to re-elaborate, from a civil point of view, in the seventies, environmental law principally through the models provided by Articles 844 and 2043 of the Italian Civil Code. More importantly, the right to environmental protection emerged only in connection with ownership and the discipline of *immissiones in alienum*, pursuant to Article 844 of the Civil Code. Under this premise, the criterion for establishing active legitimacy was identified only in the vicinitas with respect to a polluting source<sup>1</sup> (Postiglione, 1986; Dini, 2004; Sbordone, 2015).

Overall, the basis of the Italian doctrine on the notion of the environment has been characterized by the opposing positions that have seen, on the one hand, the “pluralistic” thesis (“*pluralistica*” in Italian)<sup>2</sup>. According to this thesis the notion of the environment, and its protection, are essentially based on a plurality of interests, such as landscape protection, territorial governance, and protection against pollution. On the other hand, the “monist” thesis (“*monista*” in Italian) (Gustapane, 1992; Postiglione, 1985; Maddalena, 1999; Giampietro, 1980; Fracchia, 2002) affirmed the uniqueness of the asset, in summary: the protected asset is unique from which at the most a subjective protection aspect can be identified, deriving from Articles 2 and 32 of the Italian Constitution, and an objective one deriving from its Article 9<sup>3</sup>.

In this contest, two other important concepts should not be overlooked. Firstly, the “ecocentric” concept, according to which, the environment is worthy of protection intrinsically, as well as, secondly, the “anthropocentric” concept, according to which, the environment deserves protection as a place where man thrives alone, and within the social structures in which his personality can be developed (Catenacci, 1996).

On a closer look, it should be noted that is not only the Italian Constitution that lacks a definition of environment but also in ordinary legislation there is no valid definition of environment. In fact, this cannot be considered the definition referred to in Article 300 of Legislative Decree 152/2006. This refers only to the compensable environmental damage which is considered inclusive of the economic benefit that can be derived from it<sup>4</sup>. Similarly, nor that provided by Article 5 of the same decree, on the subject of environmental impact can be considered likewise as it offers a definition aimed at considering the effects on the environment of anthropic activity, without considering the environment itself.

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<sup>1</sup> According to Codice Civile Commentato (2012, p. 721), “*E’ fuor di dubbio che - laddove l’immissione sia direttamente nociva per la salute dell’uomo (art. 32 Cost.) oppure sia causa di inquinamento ambientale (cioè, come si sosteneva in passato, prima dell’entrata di specifiche norme di tutela dell’ambiente, causa di “insalubrità” dei luoghi) — non si possa in alcun caso ricorrere al c.d. giudizio di tollerabilità (nel senso che l’attività del fondo immettente, costituendo illecito civile extracontrattuale, non potrebbe per ciò stesso essere tollerata; cfr. C.Cost. n. 247/1974; C.civ., S.U., n. 3164/1975; C.civ. n. 8420/2006). È però, al tempo stesso indiscutibile che, nell’ipotesi di immissione lesiva, l’inibitoria di cui all’art. 844 c.c., di là dall’autonoma tutela risarcitoria, possa costituire rimedio preventivo o attenuativo del danno da preferirsi (o comunque incentivarsi) rispetto alla mera riparazione economica della lesione all’integrità psicofisica dell’individuo”.*

<sup>2</sup> This thesis is supported by Giannini (1973).

<sup>3</sup> Broadly on the effects of the Constitutional reform of Article 42 of the Italian Constitution, see Passarelli (2022).

<sup>4</sup> According to the abovementioned Legislative Decree, “*È danno ambientale qualsiasi deterioramento significativo e misurabile, diretto o indiretto, di una risorsa naturale o dell’utilità assicurata da quest’ultima*”.

In order to better understand the progress made in the Italian system, however, it is necessary to focus on the protection path that has been established at the European Union (EU) level. In this scenario, it is important to start from the following premise: environmental protection was not mentioned among the provisions of the Treaty of Rome (ECC) in 1957. Therefore, on the subject of the environment, the process begins with the United Nations Conference in Stockholm in which some Heads of Government firmly decided that they must go and protect the environmental system with concrete actions (Salter, 1995; Jans & Vedder, 2008). In light of this, the first steps can be traced back to 1972, when the European Council authorized the first Action Program to protect the environment (1973–1976), decreeing, briefly, the political-community structure in environmental matters.

It fits perfectly with what is reported in EU case law which supported the need to make environmental legislation uniform in the Member States, as the relative divergences led to distortions in competition between EU countries (C-91/79, *Commissione delle Comunità Europee contro Repubblica Italiana*). Noteworthy also, is a further ruling in which the European Court of Justice (ECJ) in case 240/1983 established that the protection of the environment constitutes one of the essential aims of the European Community, with the consequence that the need for its protection legitimized certain limitations of the principle of freedom movement of goods (C-240/83).

In truth, it was only in 1987 with the Single European Act that environmental protection was included in the European Economic Community Treaty, in particular in the title concerning environmental policy, consisting of three Articles 130 R, 130 S, and 130 T<sup>5</sup>. A further step forward took place in 1993 with the Treaty on the Union (Maastricht) which gave environmental protection the status of a Community policy. Incorporating along with the objectives of the Community of promoting sustainable growth that is not inflationary and respects the environment. Subsequently, the Treaty of Amsterdam inserted Article 6 in the Treaty, establishing the European Community, which provided for the realization of a meeting point between economic and social development actions. Thereby allowing for the demands of environmental protection to promote sustainable development (Article 6 now Article 11 of the TFUE, 2016<sup>6</sup>).

In this scenario, however, a fundamental element is the inclusion of environmental protection in the “Charter of Fundamental Rights of the European Union”, whose Article 37 states that: “A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development”. Therefore, the protection of the environment assumes the guise of the EU principle and this has influenced, to a greater extent, both politics in its choices and jurisprudence in its decisions.

Summarizing all this, it is possible to infer that the interventions of the European institutions clearly show an interest in characterizing the EU with a special repertoire of incompressible rights equal to those indicated and protected by the European Court of Human Rights (ECHR), whose provisions on the matter certainly represent a beacon in the complicated path of integration between the different EU systems.

Last but not least I would like to point out that nowadays the topic of environmental sustainability is also an object of the United Nations Agenda 2030 that represents an international treaty<sup>7</sup>, more specifically a declaration, a political agreement that demonstrates that Governments, international organizations, private business, academia, and civil society have a collective task to fulfill: that is, identifying the pathways to environmental, social and economic development (Denny et al., 2017).

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<sup>5</sup> In particular, this article establishes the objectives regarding the safeguarding, protection and improvement of environmental quality, protection of human health and rational use of resources. Furthermore, the same article indicated the fundamental principles underlying the Community environmental policy.

<sup>6</sup> Consolidated version of the Treaty on the Functioning of the European Union. Part One – Principles. Title II — Provisions Having General Application. Article 11 (ex Article 6 TEC). (2016). [https://eur-lex.europa.eu/eli/treaty/tfeu\\_2016/art\\_11/oj](https://eur-lex.europa.eu/eli/treaty/tfeu_2016/art_11/oj)

<sup>7</sup> At the United Nations Sustainable Development Summit on September 25, 2015, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (the so-called SDGs) to end poverty, fight inequality and injustice, tackle climate change, foster social economic development, addressing the root causes of poverty and the universal need for development that works for all people.

## 2. On the identification of legal positions related to the environment

Now let us consider the delicate relationship between the protection of man and the environment, in other words, it is necessary to identify the owners of those who protect the environment. To amplify this concept, we must begin with the perception that some scholars hold, of the “right to the environment”. In particular, according to some Italian scholars it is a “*formula evocativa di una rosa di situazioni soggettive diversamente strutturate e protette*” (Cafagno, 2007; Caravita, 1999; Grassi et al., year; Morbidelli, 1996) or better a “*fascio di rapporti giuridici*” (Caravita & Morrone, 1999; Nesor & De Cesaris, 1999).

Starting from these considerations, the legal positions under review have, over the years, been subjected to the analysis of jurisprudence. In fact, the jurisprudence has established both the existence of a subjective right and above all the normative references of the Constitution connected to the aforementioned subjective right, namely Articles 32 and 42 of the Constitution. More precisely, it refers to two rulings of the United Sections Court of Cassation (Corte di Cassazione Sezioni Unite, March 9 1979 n. 1463 and Corte Cassazione Sezioni Unite, October 6 1979 n. 1572) which were then taken up by the Constitutional Court (Corte Costituzionale, May 28 1987 n. 210) in the section which the fundamental right of the individual to environmental protection is emphasized. On this point, it is important to note there is no ruling or close correlation between the environment and the position of the subject, but only a connection with the right to health is emphasized; in fact, the juridical position is often referred to through the term “*diritto ad un ambiente salubre*”. On the other hand, it should not be overlooked that jurisprudence has stated that subjective law should be interpreted in a triple dimension, namely: personal, social, and public. In fact, according to the case law “[...] *la stessa configurabilità del bene-ambiente e la risarcibilità del danno ambientale, pur specificamente regolato dalla L. n. 349 del 1986, art. 18, trovano “la fonte genetica direttamente nella Costituzione, considerata dinamicamente e come diritto vigente e vivente, attraverso il combinato disposto di quelle disposizioni (artt. 2, 3, 9, 41 e 42) che concernono l’individuo e la collettività nel suo habitat economico, sociale e ambientale*” (Corte di Cassazione, June 19 1996, n. 5650).

It seems to me, to reflect, that even if we accepted the recognition of a subjective right regarding the environment, it must be acknowledged, however, that this entitlement is often compared to the right to health but likewise needs to be linked to further subjective legal situations such as the right to development. The latter must be understood not only as freedom of economic initiative but also, above all, as the “right to free oneself from the condition of poverty” (Gallo, 2002); from this point of view, then, the assessment that the Public Administration must undertake becomes important. But despite this fundamental assertion, I believe it is demonstrable that entrusting power to the Public Administration entails the existence of legitimate interests (subjective legal position of advantage). These interests are achieved through the protection of a further interest of the subject, purely instrumental, to the legitimacy of the administrative act and only within the limits of the realization of this instrumental interest (Casetta, 2007; Gallo, 2002).

It is reasonable to conclude, based on existing evidence that in the present case, the concept of relativity of subjective legal positions could be applied. To sum up, the same relationship of a subject with an asset can present itself “according to the cases and moments, and even according to the kind of protection that the subject claims [...], now as a subjective right, now as an interest protected only in a reflex way” (Casetta & Miele, 1966)<sup>8</sup>.

Since the environment is framed at a constitutional level, this entails at the same time a significant expansion of the sphere of legal positions concerned by the subject. Therefore, I would like, once again, to emphasize that different subjective positions can be welded to the concept of environment and as a consequence it seems appropriate to speak of the “right to the environment” which leads to favoring the simultaneous existence of different legal situations outlined by relativity, according to those values, including constitutional ones, to be protected.

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<sup>8</sup> According to Casetta and Miele (1966), “*a seconda dei casi e dei momenti, e perfino a seconda del genere di protezione che il soggetto faccia valere [...], ora come un diritto soggettivo, ora come un interesse protetto in modo solo riflesso*” (p. 112).

### 3. Environmental protection and corporate rights between reasonableness and proportionality

As previously noted, the Public Administrator, in the exercise of his duties, has the task of balancing the interests involved, therefore matching the protection of the environment with the rights of the entrepreneur.

The public administration should make its choices following two fundamental criteria, namely reasonableness and proportionality. In theory, the setting of limits on the exercise of entrepreneurial activity must be bound by the correlation of these limitations to social utility, in the sphere of which health and the environment are unquestionably identified.

From the point of view of the balance between interests involved, it should not be overlooked that the Supreme Court of Cassation has established the separation line between environmental protection and corporate rights. Practically the criterion of reasonableness must be used to ascertain whether or not the limiting norms of the other fundamental rights are reasonable in consideration of the environmental value.

Starting from these premises, it is a question of understanding whether the environmental value examined together with the other interests worthy of protection, entails, in regard to the latter, what I define as “homeopathic compression”. Such compression would be legitimate when it is reasonable and proportionate with respect to the ecological protection objectives to be realized. The point just mentioned came from the view that public interest always prevails over private interests since the former aim is to satisfy general interests. In this context, the environmental interest, although prevailing, meets the limit of definitive non-compression of other freedoms although it seems likely that this can definitively compress other freedoms, provided that this is always justified by a rational necessity. Thereby satisfying the collective reasons reflected in environmental protection. At this point it is important to recall the issue of the so-called “green clauses” to which reference is made when the public entity, according to reasonableness and proportionality, indicates the aforementioned clauses among the criteria for awarding a tender. The aim is to identify entrepreneurs who can offer eco-efficient products and services, thus ensuring an ecologically virtuous management of purchases and public works (Irti, 2017)<sup>9</sup>. On this point, it is important to recall that the European Commission in recent years has repeatedly strongly emphasized the importance of facilitating the means aimed at safeguarding environmental interests in the context of the single market and, therefore, of public contracts.

On this point, it deserves to be highlighted that supranational public contracts are increasingly characterized by references to the environment. A typical example is represented by the environmental policy of green public procurement that aims to push the evolution of the market for products and services that have a minimum impact on the environment. Therefore, the future prospect is to stimulate the production of technology but at the same time to place on the market products that do not impact from an ecological point of view, acknowledging research aimed at bringing about solutions for change (Marcenaro, 2017)<sup>10</sup>.

In other words, it should also be specified that the prevalence of environmental value over the exercise of the business activity must not be interpreted abstractly but concretely. In summary, the aforementioned “compression” of fundamental freedoms by the Public Administration must be understood in a significant way, linked to the verification of the aims intended (Caravita, 1996)<sup>11</sup>.

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<sup>9</sup> Irti (2017) talks about the green public procurement and on this point the author assumes that these “*possono offrire, da un lato, uno straordinario contributo alla sostenibilità e, dall'altro, un vantaggio competitivo per le stesse imprese sul territorio nazionale e comunitario, posto che, nella misura in cui l'ambiente diventa elemento di selezione nel mercato, le imprese che riescono a interpretarlo come un'opportunità di sviluppo economico hanno maggiori probabilità di successo*” (p. 97).

<sup>10</sup> According to Marcenaro (2017), “Sustainability is now an integral part of multinational companies' culture and strategy and therefore their conduct of business, including that of Enel's. It drives a process of continuous and transversal improvement within the company as well as in the local communities, being key for its mission of growth and development worldwide. Aiming at generating and distributing value on the international energy market for the benefit of customer requirements, shareholders' investment and competitiveness of countries where it operates, Enel's activities are aimed at getting support from local communities whereby being in tune with the environment, protecting human safety, focusing on the development of renewable sources and of technically innovative projects. The objective is to contribute to creating a better world for future generations” (p. 250).

<sup>11</sup> Caravita (1996) observes “*la difficoltà dunque, si incontra nel passaggio tra le idee e la realtà, tra la scala dei valori ed i fatti della vita concreta, in cui troppo spesso si realizza a pieno il principio del NIMBY (not in my back yard), che sembra caratterizzare il comune sentimento ambientalistico o della collettività (post) industriale e di una legislazione che è più che altro*



The point, however, is that the concept of reasonableness turns into abuse by the Public Administration. Therefore, one Italian scholar assumes that it is important *“legittimare la decisione non in ragione di principi astratti, ma di realtà concrete e verificate; di interessi reali, anziché di finalità artificiali o prefigurate”* (Berti, 2001, p. 96).

Therefore, it is essential that the Public Administration demonstrates its suitability in the knowledge of socio-economic realities on which its *“agere”* will affect, and at the same time, show that it has evaluated the possible effects that would be produced as a result of its action. In summary, it could be tolerated if environmental policies and values have an impact on socio-economic contexts and if, therefore, the primacy of environmental value over all other fundamental freedoms is declared. Therefore, it is essential that the decisions made are based on a transparent procedure.

#### 4. Content analysis of the “Environmental Contract”

Over the past few years, not only concern emerged but more importantly the need to investigate the topic of the environment from a perspective of protection starting from the institutions of common law. Effectively, the protection of the third party, the possibility of providing remedies to protect the environment, and, at the same time, if these remedies compromise, to protect the environment, the legal sphere of third-party rights, and also any compensation for the damage that they have suffered. In this context, it is necessary to consider precisely the role that, in the context of environmental management, private law, with its tools, can undertake and at the same time the concrete contribution it can provide to these issues.

In this context, if it were agreed to integrate the set of fundamental remedies suitable for countering the new forms of damage to the environment, it appears clear that the subtle relationships existing between private law and environmental law can, in reality, be framed as double-sided. In other words, assuming that private law is increasingly flexible over sensitive issues and those issues related to ecology, it seems necessary to include some civil law institutes.

In practice, adopting this approach would involve a double observation in reference to two fundamental concepts: environmental solidarity, which can be derived from Article 2 of the Constitution and the concept of sustainable development. On this last aspect it is important to remember that an Italian scholar suggests that: *“la sostenibilità, ed i termini che da essa derivano (sviluppo sostenibile), appartengono alla medesima classe di quei pochi concetti chiave che stanno alla base di ogni democrazia liberale — come uguaglianza e libertà — che sono scritti esplicitamente nei documenti fondatori degli Stati Uniti. Termini come questo sono chiamati “nozioni essenzialmente controverse”, intendendo con ciò che esistono continue ed interminabili dispute circa il significato ed il grado per il quale si può ottenere tutto ciò che viene indicato dal concetto”* (Ehrenfeld, 2008).

From this perspective, it is necessary to start from the contract’s concept which is traditionally characterized by an economic setting and nature and as a consequence aims to regulate the (private) interests of the contracting parties. In reality, it would be necessary to disengage (if we are thinking about the environmental topic and the role of the contract in this context) from this approach in order to reach a vision of the contract in which the environment and market can be “merged”. In this regard, the relationship between the environment and the contract becomes significant as this allows us to go beyond the conception of the agreement pursuant to Article 1372 of the Italian Civil Code which is intended as an instrument producing effects exclusively between the contracting parties.

On this point it appears important to dwell on some Italian doctrine observations, according to which: *“il necessario contesto entro il quale è possibile leggere il modo d’essere del soggetto anche nella sua dinamica negoziale, nessun rapporto contrattuale è pensabile entro l’ottica riduttiva di una pattuizione anelastica, perché questa va necessariamente letta (e, in ipotesi, ridimensionata) in funzione delle sue ricadute non solo sui soggetti contraenti, ma anche su tutti coloro che dai riflessi di quel contratto vengono incisi o anche soltanto sfiorati”* (Lipari, 2015, p. 471). In summary, no contractual relationship could be formalized as an inelastic agreement, because this must necessarily be

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*attenta a petizioni di principio, salvo agire con valvole di fuga (attraverso meccanismi di deroghe) in favore di (spesso forti) poteri economici, senza ottenere nessuna forma di tutela ambientale significativa per la collettività”* (p. 357).

transcribed according to its effects not only on the contracting parties, but also on all those who are also indirectly involved by the effects of that contract.

Starting from this assumption, it is necessary to look from another point of view, in the sense that traditional institutions, of a patrimonial nature, must be reread and reinterpreted. In fact, dwelling on the social function, it seems logical to clarify that this does not only affect the right of ownership (Trabucchi, 2001; Bocchini & Quadri, 2011)<sup>12</sup> but could also emerge in mandatory relationships (pursuant to Article 1174 of the Italian Civil Code) when it arises with regard to the non-equity interest of the active subject.

On this basis, it is not surprising that a contract stipulated between two private parties even if it does not contain “green clauses” certainly cannot violate constitutionally protected values such as health. Therefore, the analysis that needs to be done is to see if the contractual agreement is respectful and adherent to the values of the system as a whole since it is based on this reflection that the relationship between sustainable development and contractual equilibrium develops. This must also be understood in the sense of non-patrimonial and contractual justice, where the latter is nothing more than an exaltation of the principles of solidarity and proportionality. In summary, the contractual agreement should be understood not only in those agreements with patrimonial content but also in those sustainable patrimonial legal relationships. The analysis of the contract from an ecological point of view has led some scholars to ask themselves questions, precisely whether it is feasible to consider a new contractual genus: the “ecological contract” (Pennasilico, 2014; Pennasilico, 2016) that is the one outside the imbalances of macroeconomic relevance (Gitti & Villa, 2008). Effectively this “ecological” analysis of the contract demands that the category of the contract, traditionally anchored to the role of a patrimonial agreement, must be understood as an open, flexible, and functional model for the realization of interests also of a non-patrimonial nature. The ecological contract therefore acts as a driving force in the ecological management process and the reorientation of consumption towards “greener” products (European Commission, 2001).

Therefore, if it is also necessary to see and consider, as well as evaluate, the legitimacy of the agreement within the contract, in particular, it will be necessary to verify its legitimacy and merit according to the values that characterize the entire legal system. It will also be necessary to assess that the contract itself does not compromise the environmental value and is therefore compliant from an “ecological” point of view (D’Agnese, 2020, p. 107)<sup>13</sup>.

Based on existing evidence, the acts of the private subject that collide with the general interest of environmental protection will not justify legal protection. We are in the presence of a (concrete) control of merit that takes into account all the acts that have been put in place. In summation, the reason is to avoid an act originating from a private individual (even if it is legitimate by reason) that is illegitimate since it conflicts with the protection of an ecological interest. It seems to me to reflect that nowadays it is possible to speak of “weakening of private autonomy” whenever the subjective right arising from the contract is transformed into a legitimate interest since it touches a public profile, *rectius* the “environmental good”. Therefore, the concept of illegitimacy (*immeritevolezza*) is broad enough since it would not emerge only between the parties but also if the latter, in the exercise of their private autonomy, harm the interests of third parties (which are not a party to the agreement) but which inevitably also placing themselves *ab externo* with respect to the internal agreement between the parties, they are in any case bearers of general interests and therefore susceptible to being harmed.

From the development of these elements, it can be seen that contractual freedom encounters the insurmountable obstacle of social utility, therefore those particular interests that we can call “harmful” from a social point of view will be undeserving of protection. Critically it is possible to talk of a brake of public order on negotiating autonomy. In fact, there is a scale of constitutionally protected

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<sup>12</sup> According to Bocchini and Quadri (2011), “*Pare innegabile che ne derivi una marcata funzionalizzazione del diritto di proprietà, nel senso di un suo riconoscimento, anche quanto a modi di atteggiarsi in concreto, come strumento di tutela dell’interesse particolare del titolare, ma da esercitare sempre compatibilmente con la realizzazione di finalità economico-sociali imposte dall’ordinamento, perché considerate espressione dell’interesse generale*” (p. 414).

<sup>13</sup> According to D’Agnese (2020), “*Quando la P.A. agisce attraverso la sua potestà d’imperio (potere supremo), attività regolata esclusivamente da norme di diritto pubblico, si trova su un piano rialzato (rapporto autoritativo) rispetto a quello sul quale si trova il privato precisamente è come se sedesse su un piedistallo. Nell’ipotesi, viceversa, in cui la P.A. stipula un contratto con il privato-imprenditore (es. la realizzazione di un ponte) i reciproci rapporti sono disciplinati dalle norme di diritto privato, quindi la P.A. scende dal piedistallo per trovarsi su un piano paritario (rapporto paritetico) con il privato, infatti, in tale caso la P.A. agisce iure privatorum ossia come se fosse un privato cittadino, si spoglia, esattamente, della veste pubblica per indossare quella private*” (p. 76).

values: this means that there are values that, despite having the same constitutional dignity, do not have the same specific weight. In summary: private economic initiative is a protected right but this right degrades with respect to that of the good life and as well as environmental protection. What I am saying is that public order certainly does not want to de-legitimize private autonomy but the latter will always have to give way to the founding values of the legal system.

## 5. Ecological contract and possible “trilateral relationship” between all interests involved in the contract

From the above observations, the discussion should be carried out by asking, in a preliminary way, about the possibility or not of giving priority to the positions of the contracting parties within the dynamics of the aforementioned “ecological contract” with respect to the environment. Therefore, the question to be answered is whether environmental protection can weaken in the presence of the interests of the contractors and their “Supreme Will” (Passarelli, 2019).

To better understand this issue, it is necessary first to clarify the subjective legal positions that are identified in the principal three subjects: private (entrepreneur), public administration, and citizens. Add to this the case of two private entities who agree to build a non-public work, the realization of which could harm the environmental property whose owner is the State. It is clear that even in this last case the subjects involved (directly or indirectly) are always three.

From this trilateral scheme of different subjective legal situations (subjective right or legitimate interest)<sup>14</sup> the point where it is necessary to focus on whether the Public Administration and the private entrepreneur can agree on a contract whose subject is the construction of work that is found to be potentially in conflict with environmental protection. In this scenario, it is clear that the environmental good finds its sources in the interests of citizens, bearers of diffuse individual interests. At this point, it is possible to examine and understand the scope of the various subjective legal situations influenced by the ecological contract as well as the profile concerning the civil protection that the injured party would be able to activate.

Notably, it is, first of all, necessary to be aware that the sphere of “non-weakening” rights is created by jurisprudence and has the purpose of providing strong protection to all those substantial situations of interest that should be unrelated to any limitations by the Public Administration. Broadly, the degradation or weakening of law occurs when the individual right, in contrast with a power, changes into a legitimate interest. Therefore, jurisprudence states that there are cases of “non-degradable” rights (Corte Cost. decision n. 140/2007) that are, therefore not subject to the limitations of the Public Administration (Casetta, 2009)<sup>15</sup>.

It is not surprising therefore that Italian Corte di Cassazione<sup>16</sup>, qualifying health as mental and biological well-being, ruled that the protection granted to the healthy environment is the same as that which assists fundamental rights and also applies to the power-duty of the Public Administration to provide for health as a general interest.

Since the seventies, we have seen the need to grant an adequate form of protection in favor of interests referable to the generality of citizens, who as such, exceed the limits of a strictly individual relationship. This has led doctrine and jurisprudence to seek, even in civil matters, solutions that would allow individuals to find positions that can be linked to the widespread interest and, as such, can be protected in court. In this direction, the Italian Corte di Cassazione has highlighted “indivisible” collective goods, with respect to which a juridical situation of advantage for the individual is inconceivable, from “divisible” collective goods susceptible, vice versa, to a fractional enjoyment by individual subjects. In this last hypothesis, a real position of individual rights has been identified,

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<sup>14</sup> It seems fair to remember that these can refer to both natural persons and organizations.

<sup>15</sup> According to Casetta (2009), “*opinare nel senso che un diritto rimane diritto anche a fronte di un potere attribuito da una legge significa ritenere che esso sia stato giudicato «vincente» rispetto a qualsiasi altro interesse da una fonte superiore alla legge stessa e, dunque, dalla Costituzione. Seguendo tale ragionamento, tuttavia, in presenza di un potere conferito dalla legge, il giudice non può accordare la preferenza al diritto condannando l’amministrazione e sostanzialmente disapplicando la legge, ma semmai, ove ritenga che questa abbia attribuito all’amministrazione un potere che non le spettava, deve sollevare la questione di legittimità costituzionale della legge per contrasto con la disposizione costituzionale che configura come intangibile il diritto*” (p. 322).

<sup>16</sup> In this way Italian Corte di Cassazione Sezioni Unite decision n. 1463 of 1979.

incorporated in the widespread interest but separable from the latter, in the event of injury, in order to be activated in court for compensation purposes.

The feasibility of the protection of the individual's right before the civil court has been affirmed with particular force in the matter of a healthy environment<sup>17</sup>, which would be configured as a right when the alteration of the environment is considered as such to have a negative and direct impact on the health of the individual. Practically, the most effective tool for ensuring the individual protection of widespread environmental interests is art. 844 of the Italian Civil Code which guarantees protection against injections harmful to health, not only in favor of the owners of the fund where there are injections but also of any other person, potentially exposed to the danger of damage to their own health.

The next step was the recognition, not only of the admissibility of the competition between the injunction pursuant to Article 844 of the Italian Civil Code and that of no contractual liability for the damage to the right to health, but also to the practicability of the remedy pursuant to Article 844 of the Italian Civil Code outside the cases regulated therein, whenever the infringement of the right to health is highlighted. This ensues from the fact that over the years the legislator has considered introducing a special regulation on environmental damage with Law 349/1986, which takes into account the profound interpretative evolution undergone by the very notion of environment. To summarize, the environmental intangible asset is finally considered by the legal system according to a broad vision, therefore, including all the countless profiles of interest and the different facets that it is able to offer to the community. Therefore, an acquired awareness emerges that its nature as a transversal value requires extensive protection.

In other words, it was intended to characterize on the one hand, "pure" environmental damage, resulting in the compromise of the environmental balance and referred to the knowledge of the civil court; on the other hand, the administrative damage from the tax authorities, consisting of the expense that the administration must incur to repair the environmental damage caused by the wilful or negligent behavior of one of its officials, attributed, however, to the competence of the Corte dei Conti.

Lastly, the *Testo Unico in materia ambientale* (d.lgs. n. 152/2006) significantly affected the issue of environmental offense, by strengthening the legitimacy of environmental protection associations to autonomously propose a compensation action. It follows, as regards the widespread interest, that the latter is protectable provided that it touches the inviolable and fundamental rights of the person.

In the light of these considerations, it follows that the protective "shield" would be recognized in particular hypotheses not directly, but by means of a connection with an undifferentiated generality of subjects. In particular, in compliance with the party autonomy, the ecological contract must also necessarily take into account the individual citizen (understood as a third party in the subjective trilateral position) who, from the economic activity arising from the contract, could see the meta-individual interest (*extra partes*) harmed but who inevitably also touches one's own individual sphere.

On this premise, if the Public Administration issues a provision authorizing the construction of a landfill, this could be contested and therefore the *vicinitas*, as a prerequisite for contesting, is given by the link that binds the applicant with the physical place in which he lives. In essence, the environmental good justifies an expansion of the legitimacy to act in favor of subjects with an environmental interest. Therefore, the environment could appear as a limit to public and private economic initiatives, and the lawfulness of this initiative is measured by the intensity of protection granted to the environment.

It is reasonable to conclude, based on the circumstance that the ecological contract has not yet been regulated by law nor can we already speak of a separate regulatory contract category. It is believed that the relationship between the environment and the contract would lead the latter to be no longer understood in its traditional form but as a "resource" *in primis* of the contractual parties and then of the community. In this scenario, nowadays it could be important to path the way for innovative measures to create incentives (e.g., tax advantages or exception from lawyer's fee<sup>18</sup>) for contractual parties when they adopt clauses that ensure sustainability or environmental protection (Johnston & Dannenmaier, 1998)<sup>19</sup>. Effectively, attention to the details of contracting should coincide with capacity building, integrated environmental impact measures as well as benefits for the contractual parties.

<sup>17</sup> See Cass., sez. III, September 25 1996, n. 5650. Foro it., I, 3062, with comment of Colonna (1996); Cass., sez. III, February 3 1998, n. 1087, in Urb. e app., 1998, 721, with comment of Vivani (1999).

<sup>18</sup> No doubt, lawyers play an essential role, being capable to reconcile the international, public and private laws in the performance of the contract, by way of drafting, interpretation thereof and comparison of various systems of laws and jurisdictions.

<sup>19</sup> Johnston and Dannenmaier (1998) suggest: "Contracts could require group ranches to develop a wildlife management plan (with the support of the Wildlife Conservancy) to ensure the sustainability of the wildlife population and to provide an annual

More importantly, in the view of environmental protection, ecological contracts will have to be integrated into a broader system of resource planning, regulatory controls, incentives, and market mechanisms as well as not only an economic tool but also a management of natural resources in the interest of future generations (Nervi, 2014)<sup>20</sup>.

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flora and fauna species inventory that will serve as baseline data for conservation planning as well as information that can be provided to potential tourists" (p. 73).

<sup>20</sup> Nervi (2014) notes, "esiste anche un'altra dimensione dell'istituto contrattuale, la quale ravvisa nel negozio una valenza precipuamente organizzatoria: il contratto costituisce il mezzo attraverso il quale due o più soggetti coordinano tra loro lo svolgimento in comune di una determinata attività giuridica, i cui effetti trascendono la loro dimensione individuale" (p. 51).

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# THE IMPACT OF QUANTITATIVE EASING ON ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY

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**Keywords:** Sustainability economic, Environmental Sustainability, Social Sustainability, Monetary Policy

## 1. Introduction

By its very nature, the central bank cannot in any way purchase government bonds on the primary market; in fact, Article 123 of the Treaty on the Functioning of the European Union (TFEU) prohibits the purchase of public debt securities issued by EU states. However, in particular periods such as the financial crisis of 2007–2008 and the pandemic crisis of 2020, the European Central Bank (ECB) bought public and private securities on the secondary market; in addition, the EUR1,350 billion Pandemic Emergency Purchase Program (PEPP) is currently underway, intending to reduce the problems that could arise in terms of monetary policy transmission mechanism, but above all to limit the damage to economic growth, tie yourself to the coronavirus (COVID-19). The economic crisis caused by COVID-19 has not only affected production and employment but also the public finances of EU member states. The ECB's monetary policy will certainly be revised in the coming months, as inflation is on the rise. However, it must be said that the crisis was the starting point for the ECB, the owner of the monetary policy to intervene to avert a profound crisis in the EU, which would inevitably also have involved the euro; therefore, it felt compelled to intervene with unconventional measures, to stimulate the economy and also promote sustainable social growth, since sustainability is a development model that the ECB also looks to.

The following section of this chapter describes how the ECB seeks to support “general economic policies in the Union” (Article 127, par. 1 of the TFEU). The third section analyzes the relationship between sustainable environmental policy and social sustainability. The fourth section concludes the chapter.

## 2. Monetary policy and sustainability

For some time, there has been awareness that climate change also jeopardizes the efficiency and stability of financial markets. Climate change as well as policies that require the reduction of greenhouse gas emissions and the use of clean energy have an impact on the functioning of the financial market. For this reason, the monetary authorities are evaluating what the impact of climate change will actually be and what the new opportunities will be. Taking climate change into consideration for central banks is something new but above all revolutionary, since by its nature the monetary authority, in particular, the central bank should take a neutral stance, to avoid experiencing market distortions.

Monetary authorities are increasingly becoming green by looking at sustainable production projects; Of course, all this still represents a small share of the financial market. For example, the ECB still buys a considerable share of bonds from the manufacturing sector and from sectors that make extensive use of electricity and gas, the latter representing the companies that are most responsible for pollution and the greenhouse effect; in fact, it is estimated that in the eurozone they are responsible for 58.5% of greenhouse gas emissions (ECB, 2021a). Public utility is a concept not fully present in the monetary policy of the ECB, and of other central banks, such as the Bank of England, since renewable energy companies do not enter their bond purchases. It is therefore a very traditional portfolio that looks to oil and gas companies and, therefore, to high-carbon investments<sup>1</sup>. All this reflects the characteristics of the financial markets that do not take into account the negative externalities, that is, the pollution associated with their actions. For some time, however, the Central

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<sup>1</sup> They represent 8.4% and 1.4% of their bond purchases, respectively (ECB, 2021).

Bank has been trying to use monetary policy in a more sustainable way, by buying green bonds<sup>2</sup> and taking into account all the risks associated with climate change; in fact, climate change has entered the credit rating. Therefore, the ECB is slowly trying to change its strategy, seeking to coordinate better with those responsible for fiscal policy, to achieve greater harmonization that will allow the transition to an economy with a low level of pollution. Monetary authorities are increasingly convinced that governments' economic policies must be supported to achieve sustainable economic growth. On the other hand, it is well known that greenhouse gas emissions also endanger financial stability, and, therefore, the monetary authorities are trying to commit themselves to contribute with their effort to make the transition towards a non-polluting and non-responsible economy of the greenhouse effect. This does not mean that monetary policy replaces environmental policy, but there must be synergistic work: they can and must work together to achieve maximizing objectives.

The monetary authorities of rich countries<sup>3</sup>, present a high financial risk due to the climate and believe it is necessary to move on several fronts.

First, you need to have transparent and clear information about emitting companies to be able to disclose it. Since 2015, the Financial Stability Council has expressed its opinion that it is advisable to create a Task Force that is committed to providing information on the climate. In December 2016, the Task Force presented a report recommending both financial and non-financial companies publish the risks and benefits associated with climate change in their financial documents.

It should also be said that the financial authorities have proposed to develop climate stress tests, to have a more complete picture of the financial risks of the financial sector and thus be able to assess the level of risk for the financial sector (European Systemic Risk Board [ESRB], 2016; Principles for Responsible Investment [PRI], 2016). Therefore, since 2015 there has been awareness on the part of the financial authorities that they are committed to supporting environmental policies.

In more recent years, quantitative easing (QE) has certainly contributed to the implementation of sustainable policies. QE was introduced as an intervention measure to the financial crisis of 2007 and then re-proposed to intervene to stem the economic crisis of the following years. The monetary authorities therefore preferred to intervene with unconventional measures.

QE operations consist of the simultaneous purchase of financial assets and the creation of a proportional amount of central bank reserves, the reserves represent accounts that commercial banks hold with the central bank and which they can use to settle interbank transactions. In summary, the central bank expands its balance sheet by buying assets on secondary markets, employing newly created money, and making it available to banks; the goal is to lower financing costs, stimulate bank loans, and still keep the inflation rate under control, and thus be able to stimulate economic growth. From a theoretical point of view, QE should operate as a lever for the economy. Purchases by the monetary authority should induce investors to rebalance their portfolios by buying cheaper assets, favoring the increase in asset prices. All this would lead to lower debt costs and encourage the issuance of further loans, thus stimulating investment and economic development. It must be said, however, that QE can generate unwanted effects on the markets if substitutability between assets is lost. In fact, it may happen that institutional investors prefer government bonds more especially if they are inclined to low-risk investments. Since we are in the presence of a global economy, investors also have the opportunity to move their investments abroad; in this case, the effects would certainly not be observable in the national economy.

Surely in the moment in which attempts have been made to clean up, through QE, the balance sheets of banks from underperforming and illiquid assets, this has made it possible to make more credit available to the economy and has contributed to lower mortgage rates (Khemraj & Yu, 2016).

These measures have not been used not only by the Federal Reserve but by all major central banks; the ECB has tried through refinancing operations to increase credit to the real economy (ECB, 2016b) and small and medium-sized enterprises (SMEs)<sup>4</sup> (Bank of England, 2016c). The bonds issued by the Canadian Industrial Development Bank group were purchased by the Bank of Canada to support loans to SMEs. The objective of the monetary authorities is to use asset purchases as a lever for economic growth, however, in the literature it is highlighted how in reality the transmission

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<sup>2</sup> These are bond issues made by investment banks, such as the European Investment Bank (EIB).

<sup>3</sup> The Bank of England stands out in particular.

<sup>4</sup> This until November 2013.



mechanisms work imperfectly, and therefore the choice depends on the asset. The ECB and the Bank of England aim to avoid market distortions, but in reality, the choice of the instrument, that is bonds rather than shares, still has a certain impact and, therefore, the final effect is not so neutral<sup>5</sup>.

Central banks have long focused on buying government bonds to make their monetary policy decisions. Of course, any environmental impact of these sovereign bond purchases depends on the government authorities' commitment to support low-carbon activities through government spending. In this regard, we can recall that both France and Poland have issued sovereign green bonds (Agence France Trésor, 2017).

We also recall the proposal, some time ago, by the EU's Green Party for "green QE" which focuses on the purchase of an increasing number of bonds from the European Investment Bank (EIB) (Anderson, 2015).

While there is a willingness and commitment on the part of financial authorities to move towards green buying in reality, for example, the Bank of England's purchases have long reflected the non-financial corporate bond market, which is sector-oriented high-carbon and neglecting low-carbon investments. Utilities, the most carbon-intensive sector for emissions, also account for the largest share of purchases for both the ECB and the Bank of England. The purchases of companies that focus on renewable energy still represent a small portion of the purchases of the ECB or the Bank of England, while their portfolio consists of bonds of oil and gas companies.

In their portfolio, it is estimated that the share relating to oil bonds is equal to 8.4%, while the bonds of gas companies are equal to 1.8%. "Green" or "climate-aligned" bonds make up a relatively small portion of the bond market (McCrone et al., 2016). It must be remembered that since 2020 there has been a trend reversal, the green bond market is growing.

The ECB has presented an action plan through which it undertakes to include measures that do not neglect climate change in its monetary policy strategy. Therefore, environmental sustainability enters firmly into one's monetary policy. The change in attitude took place after the review of the 2020–2021 strategy, where climate change and environmental sustainability became central. Although climate change is a real priority for the EU, however, the ECB, for its part, increasingly feels the need, without failing to fulfill its mandate, to consider climate change a priority and to include it as an essential element of monetary policy. Climate change and the transition to a circular economy affect price stability as they affect certain macroeconomic indicators, that is, inflation, output, employment, interest rates, investments, and productivity, and therefore all this weighs on financial stability and mechanisms, transmission of monetary policy. Furthermore, climate change and the transition to a sustainable economy weigh on the risk profile of the assets included in the Eurosystem balance sheet and the consequence of all this would be a high financial risk related to the climate. In summary, through this action plan the ECB tries in every way to make its own contribution to combat climate change, but keeping in perfect line with the obligations set out in the EU treaties, carry out stress tests to assess the climate risk on the Eurosystem balance sheet and understand, thus, the degree of exposure of the Eurosystem to the risks associated with climate change.

The ECB will also try to understand to what extent the rating agencies, to which the Eurosystem has entrusted the assessment of credit quality, try to disclose key information to understand how they take into account the risks associated with climate change in their credit ratings. The ECB will try to monitor the markets for sustainable products and is available to support innovation in the field of sustainable finance, in this regard it is also willing to accept sustainability-linked bonds as collateral (ECB, 2020). The ECB today does not overlook the risks associated with climate change in its due diligence procedures for the purchases of assets in the corporate sector of its monetary policy portfolios. The implementation of the action plan will be in line with the policies and interventions implemented by the EU. In addition, in early 2023, the ECB will commit to disclosing climate-related information relating to the corporate sector purchase program (CSPP) (ECB, 2021b).

Thanks to the Paris Agreement on climate change and the United Nations 2030 Agenda for Sustainable Development, governments around the world are increasingly involved in the transition to more circular and low-carbon economies. For its part, the EU, thanks to the Green Deal, is committed to transforming Europe into a climate-neutral continent by 2050. In this context, therefore, the financial

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<sup>5</sup> Purchases often go to support the incumbent operators in the sector and strengthen the existing market. Not to mention that corporate bond purchases can lead to carbon-intensive sectors.

sector will play a leading role, as indicated in the Commission's action plan to finance sustainable growth. Surely the transition to a low-carbon circular economy entails on the one hand more risks and the other hand more opportunities for the entire economic system and financial institutions, without neglecting the fact that the physical damage linked to climate change and environmental degradation has an impact on the real economy and the financial sector. The ECB considers it essential that credit institutions take climate risks into account in their strategic approach. The ECB closely follows the action plan of the European Commission, which highlights the importance of sustainable growth for the financial sector and, therefore, pushes to make more and more sustainable investments, integrate sustainability in the management of risk, and enhance and improve transparency. Regarding the banking sector, the European Banking Authority (EBA) seeks to understand how to integrate environmental, social, and governance risks into the three pillars of prudential supervision. Starting from these assumptions, the EBA has published an action plan on sustainable finance (EBA, 2019) and a Discussion Paper on the integration of environmental, social, and governance risks in the regulatory and supervisory framework (EBA, 2021). It is important to pay attention to sustainability since it is estimated that negative and long-term macroeconomic effects deriving from climate change lead to an enormous reduction in wealth. The cause of all this would be the slowdown in investments and the lower productivity of the factors that would occur in various sectors of the economy, not to mention that the gross domestic product (GDP) would also suffer a sharp slowdown. Potential losses certainly depend on climate and environmental policies, technological development, consumer choices, and market confidence. The ECB will continue in its supervisory approach to consider climate and environmental risks, without neglecting regulatory developments. For the ECB, it is important that institutions take a look at climate and environmental risks in order to implement the appropriate strategic and business plan. Each strategy will have to take into account climate risks for the EU banking sector at regional, sectoral, and corporate levels, as they can interact with the vulnerabilities of other banks, and this can have implications for financial stability, particularly for banks small cap. It is clear that for the ECB climate risk can be the cause of financial risk, in particular credit, market, and liquidity risk. Climate change and negative externalities can cause both microprudential and macroprudential risks, which is why the ECB has expressed itself in terms of climate change and environmental protection. In this regard, banks' exposures to climate risks could be exacerbated by direct interconnections with other banks. Climate risks jeopardize financial stability on a systemic level. Furthermore, it would also have repercussions on markets or market segments, as well as on the real economy, all this can further have serious consequences in terms of climate risks. Systemic risks arise when climate risks are underestimated and consequently the system is led to excessively lend or expose itself to sectors that are very sensitive to climate risk. Of course, when climate risk is realized, this can trigger asset repricing and therefore lead to balance sheet losses. It is therefore crucial to give weight to environmental policy and the ECB has also realized this because structural changes in economies, that is, oriented towards environmental sustainability bring a greater contribution to GDP.

### **3. Is there a trade-off between sustainable development and social sustainability?**

Sustainable development today is increasingly associated with the concept of the circular economy that responds to the desire for sustainable growth. The economic model of reference so far has been: "production-consumption-disposal", where each product was destined to reach the "end of life". In the production of food, in the construction of houses and infrastructures, and in the production of consumer goods, the use of precious materials has always been made, exploited to the maximum, and then disposed of as waste. Population growth and the increase in wealth have also contributed to environmental degradation, as all these elements increase the demand for scarce resources and this obviously leads to environmental degradation. In fact, there is a rise in the prices of metals and minerals, fossil fuels, food for humans and animals, and clean water and fertile soils. In this regard, it is estimated that in the European Union every year almost 15 tons of materials are used per citizen, while each EU person generates an average of over 4.5 tons of waste a year, and about half is disposed of in landfills. It is clear that the linear economy model, which is based only on the exploitation of resources, is no longer feasible. The transition to a circular economy focuses on the following principles: reuse, fix, renovate, and recycle existing materials and products. Thanks to the circular economy, "waste" can

become a resource, the goal is residual waste close to zero. The circular economy can favor the emergence of new markets, where the essential elements are recycling, reusing, and sharing of products. All this also means employment growth. Europe has implemented interventions that can ensure sustainable growth and employment through better use of resources. In this phase of transition towards the circular economy, the role of businesses is important, therefore, every project must be of a circular type, therefore, we must consider: reuse, repair, reconstruction, and recycling which means designing cars, and appliances in a new way, packaging, and other products. It should not be forgotten that circularity also requires greater cooperation between companies and suppliers, which would bring benefits in terms of costs but also for the environment. This creates new opportunities for businesses, especially for small and medium-sized enterprises. Therefore, it is important for sustainable choices by companies, institutional investors, and all consumers, to go towards sustainable lifestyles, for example, to prefer the use of bicycles over that of the car, to improve our behavior is important. For some time, the EU has certainly supported the transition to the circular economy and this was already present in the Seventh Environmental Action Program: Our prosperity and our healthy environment are the result of a circular economy innovative, where nothing is wasted, where natural resources are managed in a sustainable way and where biodiversity is protected, appreciated and restored in ways that improve the stability of our society.

Today the transition to the circular economy is supported by an increasing number of interventions and policies. This, however, does not mean that there are no political, social, economic, or technological obstacles. Many companies have neither the awareness nor the will to undertake a path oriented towards the circular economy; current economic models, technology and infrastructures do not favor the creation of a linear circular model; few investments tend to improve efficiency, just as innovative business models are insufficient because they are considered very risky. It must be said, however, that for some years the demand for sustainable products and services has been showing signs of growth, thanks also to a change in social behavior; the policy also seeks to facilitate the transition to a circular economy by putting in place various measures such as, for example, better eco-design, the prevention and reuse of waste, which generate savings for businesses across the EU up to EUR604 billion, or 8% of annual turnover, also reducing total annual greenhouse gas emissions by 2–4%. In addition, even measures that provide for a 30% increase in productivity by 2030 could contribute to GDP growth of 1% and this would mean more employment, with an increase of about 2 million jobs compared to an economic system not oriented towards sustainability ([www.ecolabel.eu](http://www.ecolabel.eu)). In Europe, especially in the EU, there is an increasing conviction of the strong link between growth, employment, and the efficient use of resources.

#### **4. Conclusion**

There is certainly a link between monetary policy and sustainability, as economy and environmental protection go hand in hand. The green economy paradigm seems to fully include the idea of sustainable development, going beyond the social dimension of sustainability. This will certainly gradually put an end to the trade-offs between environmental sustainability and social equity. Today, unfortunately, sustainability does not get the right attention either from the public or from policy-makers. In truth, the concept of sustainable development lends itself to being a tool to achieve social equity objectives and to improve the quality of life. Therefore, if we work in the direction of economic and environmental sustainability, social sustainability is also achieved. It is increasingly clear that equity, work, health, education, and participation in social life are fundamental for human development. All these conditions are very important since the growth of a society depends both on an efficient health system capable of protecting the health of citizens and on a fair distribution of income. In summary, it is therefore clear that the link between environmental and social sustainability is strong: every investment in the green economy favors employment growth and the improvement of our health. These are two fundamental aspects of society. Of course, economic sustainability can be declined in social sustainability, and the latter can be distinguished, for example, in financial sustainability in this regard it is enough to consider socially responsible investing (SRI) funds, which are funds that contain aspects of social sustainability since when you try to choose the company on which to direct your investments, the following aspects are taken into consideration: protection of human rights, respect for workers,

production, and products in safety. These funds currently perform well and this could further encourage their growth and therefore push more and more companies to place social sustainability as the basis of their strategy.

The economy and environment are two sides of the same coin. A green economy means efficient use of resources, which means reducing costs for the environment and encouraging the development of new technologies and environmentally friendly techniques, which relaunch the economy and make the industrial sector even more competitive.

Environmental policy contributes to achieving smart, sustainable, and supportive growth objectives; for example, the defense of ecosystems such as water, and food allows productivity growth, quality of life, and above all a reduction in health costs. With this in mind, it is important that there is sharing and collaboration between EU member states and the rest of the world, since droughts, floods and the destruction of biodiversity have an impact on us all. Therefore, the quality of the environment must be improved: a rational use of natural resources and international measures to address environmental problems that affect the whole universe. The environment is not a foregone conclusion. We live on a planet where resources are exploited in the wrong way. It is necessary to engage in awareness raising through more efficient use of resources and to change our habits and behavior, or we will not leave anything as a legacy to the next generations; a collective intervention is essential, which interests regions, businesses, NGOs, and citizens all. Our behavior certainly endangers the planet. It must be remembered, by way of example, that during the twentieth the consumption of fossil fuels increased by 12 times, resource extraction increased 34 times; and the demand for food, feed, and fiber could record an increase of 70% by 2050. It is estimated that thanks to the circular economy, transport can be improved and this would lead to a saving of about 57–70% of greenhouse gas emissions, even the development of the generative bioeconomy and the use of biomass could make their contribution to the environment. If we continue to exploit resources without guaranteeing reproduction, we will need more than 2 planets to maintain us (Circular Economy Network, 2021).

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# SOCIAL INNOVATION AND SHARED ADMINISTRATION: NEW GOVERNANCE MODELS IN PUBLIC ADMINISTRATION, WITH A VIEW TO ENVIRONMENTAL, ECONOMIC AND SOCIAL SUSTAINABILITY

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**Keywords:** Innovative Model, Governance, Open Government, Shared Administration

## 1. Introduction

Public administrations are going through a period of profound institutional, legal, and organizational transformation. The causes of this evolution are generally due to the globalization of markets, the evolution of the international context deriving from the growth of environmental awareness, the integration of financial markets, the implementation of responsible consumption, as well as the profound transformation of public management of culture, and the growing needs of users that accentuate new forms of collaboration.

Public administration has always been strongly urged to act as an active and driving force for local and national development. This attitude was legitimized by the fact that the entire public sector felt the need to recover conditions of efficiency, effectiveness, and economy, in terms of management and administration of public bodies.

The relationship between citizens and public administration is changing, indeed it has changed, it is now oriented, in fact, to the search for new governance models, and shared administration is an example of this.

The main aims of the chapter were to answer the following questions: *From what does the research-identification of innovative models aimed at a new governance of the public administration (PA) arise? Can shared administration generate social well-being? In concrete terms, how can these new models be used in a strategic perspective?*

In an attempt to give answers to these questions, the aim was not so much to identify absolutely certain solutions, but rather to start a reflection on social innovation and the shared administration models of PA, trying to affirm their validity as a contribution, certainly partial, to environmental, economic and social sustainability.

## 2. Research approach

The analysis, which has an exploratory character, was structured as follows. In the first part, the main interest was the examination of the reference framework of sustainability, social innovation, open government and shared administration. In the next phase, the case of the Municipality of Bologna was analyzed in more detail. It was one of the first local authorities to apply and put into practice the instrument of shared administration, through the regulation of common goods and collaboration agreements with more active citizens. In addition to these important and basic tools, the Municipality of Bologna has also adopted, since 2017, the participatory budget, considered an instrument of direct democracy through which citizens can propose and vote on projects to guide the choices of the Administration, district by district.

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### 3. Sustainability

In order to increase consensus and sharing of service delivery processes, PA seeks to make the objectives to be achieved more congruent, combined with the interests of the reference community, linked to environmental, economic and social sustainability and for a future strategic perspective of public administrations.

In its report, the World Commission for the Environment and Development of the United Nations Environment Program (1987) defines sustainable development as a development capable “to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (p. 15). Therefore, development capable of combining the economic, environmental, and social dimensions of every human activity, while maintaining its impact within the carrying capacity of the system in which it takes place, is considered sustainable. In fact, the three areas of sustainability were defined:

- environmental: to ensure the availability and quality of natural resources, or reproducibility of resources;
- social: to ensure the quality of life, safety, and services for citizens, or equity;
- economic: to ensure economic efficiency and income for businesses, or rather efficiency and growth.

In September 2015, 193 United Nations (UN) member countries signed the 2030 Agenda for Sustainable Development which includes a program of action, to be achieved by 2030, for people, the planet, and prosperity, based on 17 Sustainable Development Goals (SDGs), and 169 sub-goals or targets, which can be associated with 5 macro-categories (the so-called 5 “Ps”): People, Prosperity, Peace, Partnership, Planet. The process of changing the development model is monitored through 17 goals, 169 targets, and over 240 indicators: with respect to these parameters, each country is periodically assessed by the UN and by national and international public opinion.

In Europe, awareness of this need is evident in all the documents officially adopted and, in particular, in the text of the communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, defined as “The European Green Deal” (Regulation (EU) 2021/523 of the European Parliament and of the Council, 2021).

The concept of sustainable development is difficult to implement but the objectives of sustainability policies on a global scale are perceived only when strictly related to measurable results on the ground.

### 4. From the concept of sustainability to new organizational models

The concept and diffusion of sustainability in the public sphere, albeit still marginal, has generated another phenomenon, namely social innovation, which is part of the more general open innovation. It is necessary to clarify the opinion on open innovation or better, “open innovation” (Chesbrough, 2003)<sup>1</sup>, of which social innovation is a part.

This concept refers, especially in the private sector, to that particular predisposition of companies to enter networks with the aim of exchanging and exploiting ideas, but above all technologies. All of this is a consequence of globalization that has made research and development processes within companies increasingly expensive and risky, given that the life cycle of products has become shorter. According to Chesbrough (2003), the research carried out within the entrepreneurial boundaries called “closed innovation” was no longer enough and an attempt was made to open horizons and orient themselves to important prospective changes, demonstrating that internal focus does not always lead to growth, arguing that organizations themselves must allocate ideas, technologies and internal activities in a different way from the original ones and must be directed towards the outside. Hence the concept of open innovation.

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<sup>1</sup> Henry Chesbrough, economist and American author, was the first scholar to give a definition of the new strategy and innovation that tried to transform the world of private firms.



In the public sphere, innovation is understood not as evolution or invention, but as the development of new ideas, services, and models to respond more effectively to social problems through the contribution of public and private entities, including civil society. And, specifically, by social innovation, we mean, therefore, the identification, development, and implementation of new products/ideas and services which, at the same time, respond to social needs more effectively than alternative approaches and create new relationships and collaborations.

The literature on social innovation has highlighted that it needs an empathic approach, in which institutions must not limit themselves to studying the profiles of service users, but rather immerse themselves in their world, sharing the production process. Collaboration between public, private, and community is therefore necessary to produce social change.

But why the community? The social element refers to the relevance of the “contamination” between the different social contexts, and this is consistent with the principles of the most recent models of innovation, such as the theoretical framework of the propellers of innovation and open innovation, as well as with the dictates of the Italian Constitution.

In order to overcome the traditional barriers to institutional contamination and the risk of lack of relationships that are often at the basis of problems of a social nature, the relational aspects that are established in the community constitute an important source precisely owing to their potential. Consistent with this dimension, social innovation is characterized by a strong inclination to multi-stakeholder governance models.

The concept of social innovation is, therefore, the basis of collaborative governance and rests its foundations on the model called “a five-fold helix” (Iaione & De Nictolis, 2016), which identifies the five actors of polycentric governance. In a nutshell, this model takes into account the following key actors: public institutions, private institutions, and universities, in addition to two other actors of civil society, or organizations (associations) and active unorganized citizens who deal with collective actions for the common good. The addition of these two actors ensures that innovation generates more inclusive and sustainable companies and institutions also from a social, environmental and cultural point of view.

Social innovation, therefore, is what generates change, through products and services specifically aimed at improving society as a whole, and shared administration, in particular of common goods to the community, is an example of this.

Living labs or open innovation spaces are considered social innovation tools. These were created to encourage co-planning through an open innovation system that rests its foundations on sharing the knowledge and skills of individuals to improve community life. In practice, intending to make the best use of the new opportunities offered by technology for the needs of society, the community is at the center of the innovation process within the living labs.

They best express their potential if built to be inserted within a circumscribed institutional context (such as, for example, urban governance) designed to facilitate the production of knowledge in a collaborative and open way through the establishment of the “Public-Private-People-Partnership”. The urban governance or collaborative city approach tends to achieve this goal and is based on a three-level urban co-governance model: sharing, collaboration, and polycentricity. This system embodies a vision of the city as a place of material and immaterial production which, following the principles and method set out by the Nobel Prizewinner for Economics, Elinor Ostrom, is based on local knowledge and cooperation between different actors or users of a common resource.

In this regard, Elinor Ostrom has hypothesized a third solution, between the State and the Market, for the civic management of the community assets by identifying the self-government of the community as a third way. Ostrom’s idea, whose studies were initially concentrated mainly on the analysis of natural resources, fits perfectly into this context, identifying the civic management of common goods (understood as spaces or collective resources) with self-governing institutions, that is management by the local community, made up of a group of people defined as appropriators or users (“principals”), based on systems of rules known and accepted by the members of the community.

Ostrom’s goal was to suggest a solution to ensure the long-term economic sustainability of natural resources. This thinking is linked to the choices of regulation of the resources themselves, which are sometimes public and sometimes private. There is no single objective answer to this question in either

the academic or political fields: some prefer state control of common goods, while others propose privatization, synonymous with guaranteeing efficiency in management and use.

It is necessary to distinguish two dimensions of social innovation, which pertain to two different natures: an internal one focused on the management of human resources, on the management of natural resources, and the contextual evaluation of their effects on the environment, on the adaptation of the results of the management transformations of processes and procedures, as well as on the fleeting definition of socially responsible practices that can be implemented within individual administrations; the second, external, focused on the analysis of external environmental problems at the local level, on the analysis of the different needs of suppliers, business partners, etc.

## **5. New governance models: Open government or shared administration**

In recent years, the succession of socioeconomic changes and innovations in all fields has influenced and forced a constant rethinking of institutional roles, a reworking of the relationship between public, private and citizens, and, more generally, of national and international rules. One of the government models that best responds to the demands of change is that of open government or shared administration. This model allows public administration to open up to civil society, citizens and businesses. The principles on which the open government model is based are three: transparency, participation, and collaboration. Precisely the collaboration between public bodies and citizens represents the gear that makes the mechanism work. It should be underlined that in public structures one of the objectives is the improvement of administrative and management action in terms of effectiveness, efficiency and cost-effectiveness, in order to raise the consensus of the administered community.

The improvement of the degree of efficiency and effectiveness does not depend exclusively on the economic dimension of management, but also on the pursuit of a more articulated and composite system of objectives that manages to adequately represent the expectations of the various stakeholders.

On the citizens' side, through the open government or shared administration model, they are recognized as bearers of knowledge and skills and, at the same time, work is done to enhance them in order to pursue the well-being of the community. Citizens become an active part in the processes of construction and implementation of alternative solutions, to respond to the needs of the community itself, they assume the role of "active citizens" or protagonists together with the administration, leaving the role of "passive citizens", mere recipients of public interventions. We are essentially talking about active citizens understood as all subjects, individuals, associates or in any case gathered in social formations, who take action for the care and enhancement of common goods, sometimes regardless of residence or citizenship.

This concept has been strengthened by the principle of horizontal subsidiarity contemplated in the Art. 118 c. 4., according to which pursuing the general interest is not the exclusive responsibility of public institutions, but also of citizens, both individually and in associated form.

Through collaboration and co-planning between public administration and citizens, a discussion opens on the possible implementation of a specific intervention to be carried out. In this regard, the Constitutional Court, with sentence No. 131 of July 2020, gave full dignity to co-planning, identifying it, together with co-programming and collaboration, as an "ordinary solution" with which to give life to collaborative relationships between citizens and public administrations. In fact, the concept of open government as an organizational model was for the first time considered consistent with the Constitution and can be used whenever it is necessary to give legal form to collaboration experiences. Another element of innovation dictated by the legislator is that the principle of collaboration has been considered a general principle that governs relations between citizens and public administrations.

One of the ways in which this principle is concretely implemented is precisely the co-management of common or collective goods, by which we mean the joint administration (between citizens and administration) which, through care and regeneration interventions, guarantees over time the effectiveness and economic sustainability of the goods themselves. In the panorama of tools available to Italian public administrations, one of the fundamental tools used by the joint administration is the Regulation, which has been defined as a tool capable of transforming the skills of the inhabitants

of a city into interventions for the care of common goods. This document has the purpose and function of translating administrative processes from theoretical to practical and operational, which can, that is, actually be implemented.

Furthermore, the community has the possibility of monitoring the work of the public apparatus by subjecting the latter to judgments and criticisms, but also to positive evaluations by public opinion, through accountability, a sort of relationship between two subjects: the Public Administration, which has the obligation to make known and justify its action and the community, which has the possibility of expressing judgements.

## 6. Discussion

Considered an innovative model, the shared administration of common goods is based on a fundamental tool: The Regulation on collaboration between citizens and administration for the care and regeneration of common goods. This regulation can be defined as the legal instrument that transforms the hidden abilities of the inhabitants of a city into interventions for the care of the common goods that improve their lives and that of all the inhabitants. This tool is generally adopted at the municipal level, this allows for various simplifications and ease of use, first of all, because it is the one closest to the needs of citizens and their daily lives, and then for the speed with which the acts are decided and approved this administrative plan.

On the other hand, collaboration agreements are defined as those written agreements through which “Municipality and active citizens define the scope of interventions for the care or regeneration of urban commons”.

The agreement defines the objectives, duration, and specific actions, the commitments and requirements of each person involved, the object of the proposal in detail, the methods of collaboration according to the principles of subsidiarity, efficiency, economy, transparency, and safety dictated by the rules, but at the same time by focusing relations based on the principles of mutual trust, responsibility, sustainability, proportionality, full and timely circulation of information.

In complex collaboration agreements, there is a co-planning phase which represents the passage from the proposal to the actual agreement. Specifically, citizens express their will, put forward their proposal and the administration adopts it for the assessment of technical feasibility and an opinion on the opportunity to intervene.

Generally, as most of the municipal regulations prescribe, proposals for collaboration are allowed for the care and regeneration of tangible, intangible, and digital assets, which through participatory and deliberative procedures, are recognized by citizens as functional to individual and collective well-being. More precisely, we mean by:

- tangible assets: streets, squares, arcades, flower beds, parks and green areas, school areas, buildings;
- intangible assets: inclusion and social cohesion, education, training, culture, civic awareness, environmental sustainability, reuse and sharing;
- digital assets: sites, applications, social networks, computer literacy.

Based on this distinction, and analyzing various pacts, it can be asserted that most of them concern the care of material goods, such as green spaces, sidewalks, maintenance of school buildings, flower beds, parks, streets, squares, etc.

The pact identifies forms of support from the local authority, which can offer the use of the information media of the Municipality for the promotion and advertising of the activities; furthermore, it can also provide for any training and/or coaching of municipal staff in support of collaboration with citizens, in addition to monitoring the progress of the agreement itself and the management of possible disputes.

Some agreements provide for financial contributions to cover partial or total costs to be incurred to meet unsustainable needs with aid in kind. The amount of the sum that the Municipality can provide as a form of material support depends on the nature and type of the agreement itself.

Observation shows that the areas of application range from the care of flower beds, gardens, and parks to the regeneration of ancient buildings; from reception in libraries to the provision of literacy,

orientation, and professional training courses; from social aggregation to participatory workshops for children or to the protection, enhancement, and dissemination of cultural assets.

It is also interesting to highlight how in addition to the previous application areas, there are cases in which urban decoration interventions are planned, regeneration of public spaces with the requalification and safety of green and pedestrian spaces, restoration of flooring, and preparation for lighting and endowment of street furniture. These are all ordinary maintenance works normally carried out by the municipal administration, which in this case are delegated to citizenship in a single or associated form.

The object of the agreements can also be schools, the maintenance of which is a weak point for the competent administrations. It is immediately clear that, by putting all these agreements in place, you should have a considerable saving of money for routine maintenance and, sometimes extraordinary, of public parks, streets, schools, squares, and buildings.

This should certainly have positive repercussions on the municipal budget, which in the opinion of the writer, could decrease the expenses of public bodies and ensure the economic and financial sustainability of the body.

In the Single Programming Document of the Municipality of Bologna, a chapter is dedicated to active citizens and their participation in collaborating with the administration, in particular for the care and regeneration of urban commons. To consolidate the reforms on administrative decentralization, the Municipality of Bologna intended to act in this direction by focusing on the Neighborhoods, which take on a central role as they represent the highest degree of institutional proximity to the territory.

In order to foster shared administration, it was intended to strengthen the link between participation, governance, and the processes that are implicit in it, enhancing the role of the Neighborhoods in the care of the territory and the community. Particular attention is paid to the co-planning of interventions, as it represents a privileged methodology for sharing objectives, collaborating in the construction of the lines of intervention, and carrying out monitoring and social reporting activities. Bologna is made up of 6 districts. To consolidate and systematize complementary and supplementary interventions, the collaboration agreements for tangible, intangible, and digital assets are concretized, or for those issues to which it is articulated or not immediate to respond with the tools and ordinary resources available to technical sectors. All supplementary services are contemplated alongside those considered more traditional, therefore not only technical maintenance services but also school, welfare, and equal opportunities. With this, a formula is defined for monitoring the collaboration agreements for the years 2019 to 2021, precisely by the programming indicated in the Single Programming Document.

The participatory budget is a direct democracy tool to report and vote on proposals for your neighborhood. For example, for 2019–2020 (latest data available) the resources of the participatory budget have doubled, with a total of 2 million euros. Examples that concerned shared administration in this sense:

- redevelopment projects in the 6 districts, for buildings, gardens, and public parks, on public works, equipment, and furnishings;
- ideas and proposals for projects for the neighborhoods for example on sport, culture, environment, economy, and social (these are expenses in the current account).

## 7. Conclusion

The purpose of the paper was mainly to initiate exploratory reflections. It was proposed to contribute to the discussion by photographing the current situation and we tried to highlight how shared administration is a new mode of administration that allows local administrations and citizens to cooperate to achieve a common goal, also, above all, in a perspective of sustainability.

Mutual gift advantages: on the one hand, therefore, we have active citizens who want to contribute to the common good, and on the other, the public body provides support and active collaboration in the management of collective assets, which can finally be used and enjoyed by citizens.

In conclusion, it is argued that shared administration, through its tools, must be interrelated, in general, with the strategic processes of the entity and specifically must be included in the planning,

programming, and control documents, in order to define an integrated system that has as its starting point the focus of the attention of the political bodies and technicians on the dynamics inherent in the management processes of collective assets.

It is emphasized that certain shared administrative tools, such as co-programming and co-planning, will allow local authorities to access the use of the resources of the National Recovery and Resilience Plan (PNRR).

Only by encouraging the tools of social innovation can the management of a public body be improved, using the shared administration approach, which allows, among other things, reshaping the role among the subjects involved because of the general interest, precisely because regulation exists only at the local level.

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# SUSTAINABILITY REPORTING IN THE FASHION COMPANIES

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**Keywords:** Sustainability Reporting, Fashion Companies, Sustainable Development Goals, SDGs

## 1. Introduction

This chapter aims to highlight the importance, for companies operating in the fashion sector, of adopting the sustainability report. We define the conceptual framework as useful for clarifying the reasons it is essential to disclose the impact of one's activities relating to the environmental, social, and economic spheres in a sustainability report.

To this end, in Section 2, through a brief review of the literature, this corporate reporting tool is presented. Subsequently in Section 3, a series of critical arguments supporting our choice to focus attention on the companies that operate in the fashion sector is proposed, considering two questions in particular:

1) How do corporate governance bodies see the evaluation and the monitoring of the environmental and social objectives (positively and/or negatively) deriving from corporate activity? Are these activities simply a way to be compliant with the law or are they intended as a real approach to be adopted?

2) In the latter case, is it sufficient to plan and carry out the activities adequately or is it also necessary to report what has been done in a timely manner?

To highlight the role and importance that companies in the fashion sector give to the main sustainability reporting tools — i.e., the sustainability report and non-financial disclosure based on environmental, social, and governance (ESG) indicators — the case of the Ferragamo Group is presented in Section 4.

Adopting a thematic analysis approach (Solomon & Thomson, 2009) on the sustainability report prepared by the Ferragamo Group, the contents were evaluated in terms of strategies and actions aimed at 1) reducing the negative impacts on the environment and society and 2) accelerating and intensifying the transformation processes of this fashion group towards sustainable business models.

In Section 5, some final considerations and some ideas for future research are presented.

## 2. The sustainability reporting

In the context of the broad debate on sustainability, business and management studies have mainly focused on two aspects: on the one hand, aspects of a strategic nature, on the other hand, aspects relating to accountability activities and therefore to the tools through which to report the activities and results of companies considering all areas of sustainability.

With regard to aspects of a strategic nature, in the literature, the role of sustainability dimensions in the process of creating value for companies and, consequently, the effects that a corporate strategy based on sustainability can determine on corporate performance were examined in depth. In this regard, it is emphasized that the Sustainable Development Goals (SDGs) set by the 2030 Agenda have helped to push towards this direction, highlighting the importance of integrating and aligning the dimensions of sustainability within a corporate strategy to allow the pursuit of competitive advantage (Adams, 2017; Hristov & Chirico, 2019).

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The SDGs can have an important role in the advancement of theoretical and practical studies on sustainability accounting and reporting (Bebbington & Unerman, 2018) because — as Rosati and Faria (2019) stressed — they “represent a sufficiently radical, coherent, and generally accepted definition of sustainable development and a compelling call for sustainability action” (p. 1314).

In this context, the efforts of scholars have also been directed towards the identification of Key Performance Indicators (KPIs) suitable for managing sustainability issues and to identify a way to make these KPIs an integral part of the broader corporate planning and control system. As James (2015) highlighted in her study “accounting majors tend to support sustainability reporting of multiple performance indicators relating to environment and safety, employees and community, and corporate governance both in terms of current year and comparative information” (p. 3).

The growing strategic importance of sustainability and related performance issues has stimulated interest in the relationship between sustainability dimensions and performance measurement systems. Although many organizations have begun to implement sustainable management systems, they are rarely adequately integrated into the corporate strategy.

The literature on corporate sustainability has shown that sustainability reporting can be an “important driver of an organization’s sustainability orientation” (Lozano, 2015, p. 32) and some authors (Agarchand & Laishram, 2017) consider the sustainable report a useful tool to increase transparency and accountability and to front progress towards the SDGs.

Today entities — civil society, regulatory bodies, socially responsible investors, international organizations, and national and international legislators — that demand greater transparency regarding non-financial reporting are ever-increasing, as are the many stakeholders who call for a transparent disclosure of information concerning the so-called ESG issues within and related to business management.

With regard to the accountability tools that can be adopted to report on one’s choices and the results pursued in the environmental, social, and economic fields, attention was mainly paid to the sustainability report, integrated report, and non-financial disclosure.

Sustainability reporting is defined by the Global Reporting Initiative (GRI, n.d.) as “the practice of publicly disclosing an organization’s most significant economic, environmental and/or social impacts, and hence its contributions — positive or negative — toward the goal of sustainable development” (p. 1).

In recent years, the validity of this document has been recognized to the extent that an increasing number of companies, regardless of size and/or the sector in which they operate, voluntarily draw up their own sustainability report. Considering the document drafting process, an important element should not be underestimated, that is, the absence of a single framework to follow (Simnett et al., 2009; Schreck & Raithel, 2018). In any case, the literature agrees that the most frequently adopted is the GRI Sustainability Reporting Framework.

In fact, in recent years, there has been a growing trend in the world of the companies that use the GRI considered to be “the more modern and comprehensive Sustainability Reporting Framework enabling organizations to measure and report their economic, environmental, social and governance performance — the four cornerstones of sustainability” (Atağan, 2017, p. 511).

The absence of a single model to follow for the preparation of the sustainability report, on the one hand, allows each organization to freely produce its own document without constraints of contents or schemes which, can be more or less articulated based on the complexity of the analytical accounting system present within the individual company.

As Atağan (2017) stressed, sustainability accounting and reporting “can be considered as a complement to financial accounting. When used together, financial information and sustainability information can provide a complete view of the performance and value creation of a corporation” (p. 511).

Of the same opinion are Carp et al. (2019) who stated that sustainability reporting can be considered “an instrument by which companies complete the classic set of financial data with information on the organizational involvement in protecting the environment and in social actions” (p. 17); in particular for the authors, this document is able to reflect the commitment of a company to adopt “a responsible behavior, with favorable results both for its own development and for the socioeconomic medium it is part of” (p. 17).

However, on the other hand, the autonomy in choosing the model to be followed determines a lack of homogeneity of the documents that often does not allow for comparative analyses. However, according to the GRI, this type of report should provide information on the performance of an organization in a “balanced and reasonable” fashion. This includes both positive and negative contributions to sustainability by the business. In particular, this report can be especially effective when combined with financial information to create an integrated report, which is becoming a necessity, because it explains to the investors how the organization creates value over time.

There are several reasons for submitting a sustainability report. In fact, through this sustainability management and communication tool, the company achieves both internal advantages — which are reflected in a better organization and management of internal processes within the company — and external advantages that translate into better visibility and greater reliability for external interlocutors.

Internal benefits for businesses and organizations can include:

- greater understanding of risks and opportunities;
- the more evident link between financial and non-financial performance;
- improved long-term management strategy and policy;
- simplification of processes, cost reduction, and efficiency improvement;
- possibility of comparison and evaluation of sustainability performance with respect to laws, regulations, codes, performance standards, and voluntary initiatives;
- dramatic reduction in the chances of getting involved in publicized ESG failures.

External benefits can include:

- mitigation of negative ESG impacts;
- improvement of reputation and brand loyalty;
- possibility for external stakeholders to understand the true value of the organization;
- ability to demonstrate how the organization influences and is influenced by expectations on sustainable development.

The commitments made in the area of sustainability create a more solid, authoritative, and credible reputation for the company over time. Communicating to stakeholders, both internal and external, what the sustainable actions implemented by the company are and how they are aimed at improving the environmental and social impact as well as improving its reputation, gives companies the opportunity to approach new forms of financing and investment (Gugler, 2015), as well as discovering new businesses and eliminating inefficient operating costs, and offering a product or service on the market at a competitive price.

As Ngu and Amran (2018) asserted, “stakeholder engagement is a fundamental step of the sustainability reporting process, as it assists in defining the materiality and relevance of the information communicated and enhances greater transparency and greater accountability to stakeholders” (p. 1).

The role of stakeholder engagement has been recognized as being significant in completing the process for materiality disclosure in sustainability reporting. In fact, the materiality approach allows to scope and define the content for sustainability reporting or reports that only disclose issues that are considered material from the perspective of the stakeholders. This aspect is very relevant to both entities and stakeholders.

The sustainability report, therefore, lets companies implement continuous monitoring and improvement of performance while allowing them to consider the risks of a social, environmental, and governance nature that may have a direct impact on the business.

Consequently, risk management of this type brings several benefits to the company:

- the probability of achieving the objectives increases;
- improves the identification of opportunities and threats;
- engages the company in a periodic collection of data relating to the management and performance of the company;
- improves operational effectiveness and efficiency;
- retains and motivates staff and attracts new talent.

### 3. Sustainable issues in the fashion industry

The fashion sector is internationally recognized as one of the production sectors with the highest environmental, social, and economic impacts (Boström & Micheletti, 2016).

In general, from the environmental point of view, there is a high consumption of raw materials (water, crops, energy), a wide use of chemicals that are harmful to health and pollutants and an above-average production of waste.

Just consider some data: fashion and textile companies are responsible for one-fifth of the world's water pollution and 85% of all man-made debris on the coasts. It is estimated that companies in the sector will use 35% more land by 2030, consuming a quarter of the world's entire carbon budget responsible for a 2-degree warming by 2050. Worrying is the revelation that 70% of garments continue to use artificial fibers, materials that take about 200 years to biodegrade. Water consumption is also very high, with wastewater from the production of clothing contributing to pollution and the loss of biodiversity.

Also harmful are the dyeing and washing processes of synthetic materials that release toxic chemicals and microplastics into rivers and oceans, damaging marine flora and fauna.

According to Turker and Altuntas (2014), another important impact is "the heavy environmental burden ... from increased transportation mileage. This is exacerbated by the time pressure on fast fashion industry orders, which means that the majority of shipments are delivered by air, significantly increasing CO<sub>2</sub> emissions" (p. 839).

Moving on to consider the social aspects connected to companies in the fashion sector, the main concerns refer mainly to:

1) Poor working conditions, characterized by low standards of health and safety, gender inequality or the pay gap between women and men, and child labor, which is still very frequent in this sector. Many cases of forced labor have also been reported along the fashion industry chain. The most notorious example occurred recently in Uzbekistan, one of the largest cotton exporters in the world. Each fall, the government forced over a million people to quit their regular jobs and go picking cotton. Children were also mobilized and taken out of school to assist. Uzbekistan managed to accelerate the fight against child and forced labor in 2020 and has now almost eliminated it.

2) Trade union restrictions in the fashion industry. In fact, in some countries, government laws and specific regulations do not allow employees of these factories to form trade unions to defend their rights. In Bangladesh, for example, only 10% of the 4,500 garment factories have a registered union. Some factory owners threaten or even physically attack union members or fire them with complete impunity, thus not allowing employees to form trade unions.

These effects are the direct consequence of some trends, among which the general process of market globalization assumes particular importance and, specifically, considering the sector in question, the spread of the so-called fast fashion.

As Turker and Altuntas asserted (2014), "Current organizational changes in the fashion industry started when the traditional luxury fashion industry's long-established stable structure was challenged by several environmental changes, particularly globalization, changes in its customer base, and the entrance of competitors into previously protected markets. Until then, the fashion industry had followed a fixed calendar of trade fairs and shows presenting the forthcoming season's trends" (p. 838).

This made it possible to forecast demand as far as a year before the time of consumption based on previous sales data. Under the impact of specific factors, this stable situation has evolved towards a new model called "quick fashion" (Guercini, 2001), "street fashion" or "fast fashion" (Doeringer & Crean, 2006).

The increasing competition in the fashion industry has led manufacturers to produce clothes at an increasingly lower price that remain in the shops for a shorter period of time than the traditional seasons of luxury brands (Bhardwaj & Fairhurst, 2010). This motivates the masses to go into the store in a really short time to buy the products which, usually, are used only once (Hawley, 2006; Sull & Turconi, 2008).

These trends in the fashion industry have had negative impacts on both the environment and society and to respond to these increasing problems, fashion companies have started to adopt sustainable approaches in their strategies and practices (Armstrong & LeHew, 2011; Nagurney &

Yu, 2012): generating new opportunities for organizations to innovate their value propositions, reach new customer segments, collaborate with new partners, and develop new and more sustainable business models (Hahn & Kühnen, 2013).

The data on the exploitation of natural resources and the related repercussions in terms of environmental damage together with the exploitation of human resources, which, in some cases, has had a tragic ending (such as, for example, the death of over a thousand textile workers following the collapse — in April 2013 — of the Rana Plaza production complex in Bangladesh), have increased the attention of nomic operators, and in particular of the big fashion brands, towards transparency and traceability of operations.

Increasing transparency is therefore a fundamental objective, as well as an opportunity for the sustainable transformation of companies operating in the fashion sector.

The latter, therefore, can react in two ways: by adapting to current trends or laws, such as those envisaged for listed companies, or by voluntarily adopting a strategic approach with which to stimulate new practices in the direction of sustainability to integrate this aspect into the corporate strategy. Therefore, it is possible to aim for a truly sustainable business model also capable of taking into account the need to adopt a holistic vision with which to involve all the stakeholders concerned and to guarantee the sharing of principles aimed at respecting the typical aspects of the three spheres — environmental, social and economic — that characterize sustainability.

From an operational point of view, this translates into an effort towards activities aimed at giving a strong impulse to the so-called circular fashion, or towards activities that bring the principles of the circular economy along the entire fashion supply chain, avoiding as much as possible, the waste of discarded fabrics and clothing and using, in the production phase, sustainable materials such as those recycled, bio-based or made with innovative technologies. Implementing these actions aids in both the saving of raw materials and financial resources.

As Shen et al. (2017) asserted, “to meet stakeholders’ increasing expectations and reduce the risk of negative social and environmental externalities, apparel firms across all market levels” — from fast fashion brands to luxury brands — “have implemented various approaches to enhance the level of sustainability in their supply chain management” (p. 1).

Among the initiatives undertaken to improve understanding of the textile production chain through the definition and use of new tools for monitoring and control, of particular interest is the Fashion Transparency Index which uses a composite series of indicators to determine social and environmental impacts of production.

In addition to promoting transparency and therefore the credible disclosure of information, through this index it is possible to compare information and data relating to the supply chain, production practices, and the treatment of workers, communities, and the environment, leading to several advantages for the companies that adhere:

- better economic performance, as a consequence of the greater confidence of the markets and consumers;
- greater ease in identifying unauthorized subcontracting or subcontracting;
- creating stronger partnerships;
- easier identification of inefficiencies;
- greater ease in meeting the requirements of environmental and social regulations;
- the possibility of securing larger market shares.

#### **4. The sustainable report of the Ferragamo Group**

The issue of the sustainability reports in the fashion sector attracts the attention of analysts and scholars, and in this paper, we adopt an analytical approach to this phenomenon that is predominantly descriptive, analyzing a case study: the sustainable report of Ferragamo Group.

The Salvatore Ferragamo Group was chosen among the companies operating in the textile and apparel sector that have their registered offices in Italy, but that operate around the world, and whose sustainability reports are prepared following the guidelines of the GRI.

The Salvatore Ferragamo Group is one of the main players in the luxury fashion sector and its origins can be traced back to 1927. The Group is mainly active in the creation, production, and sale of footwear, leather goods, clothing, silk products, and other accessories, as well as perfumes, for men and women. The range of products is completed with glasses and watches, manufactured under license by third parties in Italy and abroad, to exploit local excellence to ensure products of the highest quality and above all Made in Italy.

The contents to be reported in the sustainable report are selected based on a structured materiality analysis that allows for the identification of the most relevant sustainability issues for the Group and its stakeholders. Furthermore, in order to define the contents, the European Commission's Guidelines on non-financial reporting are also taken into account (European Commission, 2017).

The process of collecting and processing data and information is managed by the inter-functional working group dedicated to the sustainability of the company through the preparation of data collection forms sent to the managers of the Group functions involved.

Since its origins, the Salvatore Ferragamo Group has made sustainability a behavioral model to be followed without compromise and has achieved important objectives in this area over the years. In order to further strengthen its commitment, the Group drew up a Sustainability Policy in 2017 and envisaged a process of continuous improvement through a Sustainability Plan to 2022, the last update of which was made in 2019. In particular, the Sustainability Plan defines the strategic vision of the Group in terms of sustainability and represents the operational tool that guides short and medium-term actions.

The Sustainability Plan is aligned with the Group's Strategic Plan in order to encourage ever-greater integration between strategic and sustainability objectives, identifying the main objectives to be achieved in relation to strategy and governance, people and principles, environmental protection and culture and participation, and mapping the achievement of the same objectives set.

The commitment undertaken to integrate sustainability in the performance of its business activities is further attested by a series of commitments undertaken by the governance of the group, among which we note:

- the participation in the Sustainability Table, promoted by the National Chamber of Italian Fashion to trace an Italian way of responsible and sustainable fashion and promote the adoption of responsible management models along the entire fashion chain;
- the integration of climate-related risk factors into its mapping of risks, as part of the Action Plan on Sustainable Finance, to increase the level of awareness, understanding, and monitoring of risks and opportunities connected to climate, in line with the recommendations provided by the European Commission (Guidelines on reporting climate-related information);
- the SA 8000 social responsibility certification;
- the adoption of an Inclusion Policy;
- the code of conduct shared with suppliers of raw materials, processing services, and finished products
- certification on the environmental management system (ISO 14001) valid for all Italian offices and stores;
- the organization of the Sustainable Thinking project (ISO 20121: 2013 certified) to organize events, exhibitions, and fairs in a sustainable way by offering different food for thought on the theme of sustainability and offering suggestions for a paradigm shift in the world of fashion, art, and architecture;
- the OHSAS 18001 certification for employee health and safety; the adoption of policies to fight against child labor and the Inclusion Policy that aims to support multiculturalism, which is considered essential to develop innovative and distinctive elements that can increase the Brand's competitiveness and promote equality and equal opportunities, fighting all types of discrimination and condemning any form of harassment. In addition, the Policy sets the goal of promoting meritocracy and fair treatment at all levels, facilitating the development, expression, and enhancement of individual potential;
- the joining in the Ellen MacArthur Foundation's Make Fashion Circular initiative to stimulate the collaboration and innovation necessary to create a new fashion industry, aligned with the principles of the Circular Economy;
- the joining in the Fashion Pact.

Following the joining in the Fashion Pact, in 2019 the Group further strengthened its commitment to environmental protection by integrating three additional United Nations SDGs into the Sustainability Plan: Climate Change (SDG 13), Life Below Water (SDG 14), and Life on Land (SDG 15).

In the following Table 1, the SDGs and sustainability actions of the Ferragamo Group are briefly presented.

**Table 1.** SDGs and sustainability actions of the Ferragamo Group

<i>SDGs</i>	<i>Sustainability actions</i>
SDG 3: Good Health	In line with its own Charity Policy, the Group is committed to promoting and supporting initiatives aimed at protecting the health of women and children.
SDG 4: Quality Education	The Group, in collaboration with the Fondazione Ferragamo, is committed to investing in the education and training of those who intend to work in the fashion and design world and the highest and most artistic forms of Italian craftsmanship, in line with the stylistic values and canons expressed in the work of its Founder.
SDG 7: Renewable Energy	The Group is committed to protecting and safeguarding the environment through continuous improvement of energy efficiency in its consumption and by promoting the use of renewable sources.
SDG 8: Decent Work and Economic Growth	The Group focuses its commitment on encouraging and enhancing people's professional development, while respecting the community's historical values, in order to encourage innovation and creativity, while also ensuring the healthiness of the workplace.
SDG 11: Sustainable Cities and Communities	The Group is committed to directing significant attention and resources to artistic and cultural initiatives, in order to ensure a more responsible management of urban areas and promote culture in all its forms and expressions.
SDG 12: Responsible Consumption	The Group is committed to guaranteeing responsible management in its processes to produce and consume resources, raw materials, and packaging materials, investing in quality in order to reduce environmental impact and extend the life cycle of its products, and reporting on its business based on the principle of transparency.
SDG 13: Climate Action	To combat climate change, the Group is committed to protecting and safeguarding the environment through strategies and initiatives intended to minimize the environmental impact of its operations.
SDG 14: Life Below Water	The Group is committed to protecting the oceans, seas, and marine resources through concrete initiatives such as reducing the use of single-use plastic.
SDG 15: Life on Land	To restore biodiversity, the Group is committed to implementing meaningful actions to protect species and promote a sustainable use of the terrestrial ecosystem.

Source: Ferragamo (2020, p. 113).

## 5. Conclusion

This study highlighted some trends that are characterizing companies in the fashion sector, in relation to the strategic approach adopted by company management towards the issue of sustainability and, therefore, also in relation to the use of the tool with which to report the activities falling within the three spheres (environmental, social and economic) of sustainability, i.e., the sustainability report.

A first aspect to consider concerns the concept of sustainable fashion which evaluates whether to adopt and then experiment with new business models. The latter are guided by careful management of the use of resources aimed at reducing waste and the impact on the climate, protecting animal welfare and ensuring the safety and fair treatment of workers throughout the supply chain.

As Saksena (2020) stressed, "All strategies promoting more environmentally, socially, and ethically conscious production and consumption are important steps towards a more sustainable industry and, hence, a sustainable future" (p. 1). In order to meet sustainable goals, the fashion industry is challenged to buy and produce goods and services that do not harm the environment, society, and the economy.

Saini et al. (2020) highlighted that if on the one hand, "waste recycling has become a multibillion industry", on the other hand, "the second-hand market of clothes and the internet as a facilitator can help in reducing textile waste" (p. 47).

According to Rosati and Faria (2019), a second aspect to consider is that "the organizations of the fashion industry can play a significant role for the advancement of the Sustainable Development Agenda, by integrating SDGs into their strategies and operations and providing new solutions to global sustainable development challenges" (p. 1312).

As highlighted by Hahn and Kühnen (2013) the decision of the companies' governance to address sustainability issues and report on their sustainability commitments can be affected by external and internal factors. Evaluating and monitoring the environmental and social impacts (positive and/or negative) deriving from company activity are actions that are increasingly integrated into the more general strategic approach that companies intend to adopt. As highlighted in the Salvatore Ferragamo Group case study, this can be done by aligning the sustainability plan with the general strategic plan.

As the business and management literature points out, it is not enough to plan the activities to be carried out adequately, but it is also necessary to set up an adequate information-accounting system with which to monitor the achievement of the set objectives and report what has been done in a timely manner. In this regard, Salvatore Ferragamo Group has set up a process for collecting and processing data and information that is managed by the cross-functional working group dedicated to the sustainability of the company through the preparation of data collection forms which, once processed, are published in the sustainability report.

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# CLIMATE CHANGE: BETWEEN ENVIRONMENTAL SUSTAINABILITY AND HUMAN PROGRESS

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## 1. Introduction

The question of sustainability, tackled by the International Conference “*Perspectives of Sustainability: Yesterday, Today and Tomorrow*” held in Benevento in December 2021, of which the acts are collected in this volume, is certainly a very topical issue, which in many respects, lies within the broader theme of the so-called “environmental question”.

This environmental issue can be, summed up as a whole series of problems related to the preservation of the ecosystem, which, now as never before, is threatened by a crisis that may ultimately undermine its very survival. It is a crisis that, in the opinion of many in the theoretical debate, is the cause of what we could define (also in the light of the scientific results of different disciplines) as a non-harmonious relationship between man and the natural environment that hosts him.

This theme has been addressed by the present author with preliminary ethical-legal reflections in some recent publications (Tarantino, 2018a)<sup>1</sup>, but it needs further study. The considerations that will be presented here will not address all the problems peculiar to the ecological crisis but will refer specifically to the phenomenon of climate change. My reflections on this issue, which has recently received widespread public attention due also to the COP 26 conclusions (Conference Of the Parties — United Nations Conference on Climate Change, held in Glasgow from 31 October to 12 November 2021), will be made against the backdrop of Carducci’s (2021) in-depth analysis found in the entry “*Cambiamento Climatico*” in “*Digesto delle Discipline Pubblicistiche*”, published in recent months.

## 2. Legal aspects of climate change: Between natural climatic variability and anthropogenic “climate-altering” actions

First of all, it seems appropriate to start with a definition of the phenomenon of climate change. The most accepted one can be found in Article 1, point 2 of the United Nations Convention on Climate Change (UNFCCC), also known as the Rio Agreements, resulting from the Earth Summit held in Rio de Janeiro in 1992 and which had the purpose of safeguarding the climate, to be implemented above all by reducing the emission of greenhouse gases into the atmosphere. According to this definition, climate change is “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.

On reading this definition, one immediately realizes that the element that is legally given greater prominence is the one that identifies human actions as the main cause of climate change. In the documentation, these human actions are commonly called “climate-altering” and as mentioned before, coincide largely with the human activities of artificial emission of large quantities of greenhouse gases into the atmosphere. These human climate-altering actions are therefore added to the natural dynamics already existing in the ecosystem that can also affect the climate. However, they are added to these natural dynamics not by “supporting” them, but by “modifying” them, often irremediably. Carducci himself makes this clear in the entry mentioned above, when, referring to the UNFCCC definition of climate change, he states that: “It should be underlined that the juridical definition expresses two key concepts: natural climate variability tied to complex natural processes that

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<sup>1</sup> The content of Tarantino’s article quoted in the text will be partly referred to, *passim*, in this paper, but in a different and broader perspective.

are external (cycles of the sun and earth's orbit) and internal to the planet, i.e., connected to interactions between the Earth's geophysical elements; and the "alteration" of this natural variability, which can be "attributed" to human activity. The human action does not comply with causal interactions, it "alters them" [...] While the climate's natural dynamics derive from the planet's radiative equilibrium (amount of energy entering and leaving the Earth's system) and from the interchange of matter largely internal to the Earth System, human action is added on top of this, changing it with anthropogenic energy and matter" (Carducci, 2021, p. 54).

And it is precisely the reduction (or elimination) of these anthropogenic climate-altering actions that has been the theme that inspired, for example, the Global Strike for Future<sup>2</sup>, which, as is well known, is aimed at raising the awareness of governments on the harmfulness of greenhouse gas emissions into the atmosphere. Public opinion, in fact, and especially the many environmental movements, argues that the solution to the climate problem can be achieved through an "ecological transition" (i.e., the shift from the use of fossil fuels to purely renewable sources for energy production necessary for human activities) which by most scientists is now considered unavoidable. For example, this is confirmed by the Catholic economist Giraud, who considers the production models of the current economy incompatible with respect for the environment (we could say "out of harmony with the environment", to stick to the fundamental concept of these pages). With reference to the environment (to Creation) he wrote: "We know it too is fragile: our way of living, producing and consuming, inherited from the second industrial devolution, is not compatible with respect for Creation, especially with finite nature of sources of fossil fuels and the slowness of the production of renewable energy. The episcopal conferences of Germany and France strongly encourage us to take part in the extraordinary conversion to which the energy challenge summons us. It is a conversion to a sober lifestyle in a non-carbon economy with just institutions, supportive towards the poor.

The small gestures of everyday life are certainly indispensable ... But that will not be enough to slow down global warming. Especially since part of our energy consumption is obligatory: those who do not have a car to go to work or have a badly insulated house cannot "simply" go by bike or put on a jumper ... The ecological transition is the process whereby our societies could pass from an economy based on the consumption of fossil fuels, which has among its by-products enormous emissions of greenhouse gases, towards an economy that consumes less and less energy ... This will be for the coming decades what the invention of printing was for the 15th century or the industrial revolution was for the 18th and 19th centuries" (Giraud, 2021, pp. 103–105)<sup>3</sup>.

For the sake of completeness, it must also be recognized that what has been said so far is valid and is widely accepted even though there are discordant opinions on the subject, ultimately attributable to a form of climate denial that goes so far as to question the very existence of the phenomenon of climate change.

### **3. The ecological transition as a tool for overcoming the conflict between the interests of the economy and the protection of fundamental human rights**

If we do not look at the motivations of climate denial and if we accept the inescapability of the ecological transition, we can also agree with the assumption that carrying out the ecological transition means re-establishing in our time that same harmonious relationship of man with nature, mentioned at the beginning of this article, today no longer what it was for centuries. In other words, it means agreeing that the ecological transition will ensure the protection of many of the fundamental rights of the person (among these, primarily, the right to life, which could not continue to exist in an extremely polluted environment; the right to freedom, which is often undermined by the exploitation of resources and of citizens from poor countries considered a low-cost workforce by the multinationals belonging to the richest states on the planet; the rights of future generations, who, by the political-

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<sup>2</sup> By this term we mean the Global climate strike organized by the movement Fridays for Future, of which the main leader was the very young environmental activist Greta Thunberg.

<sup>3</sup> With reference to the Episcopal Conferences of Germany and France the author refers in the notes, respectively, as follows: in note 3 on p. 104 "*Declaration Der Schöpfung verpflichtet* (Duty-bound by creation) May 2011"; in note 4 on p. 104 "*Enjeux et défis écologiques pour l'avenir* (Ecological issues and challenges for the future), April 2012, Bayard/Cerf/Fleurus-Mame, Paris, 2012".

economic choices of the present generations, would be prevented from enjoying fundamental rights: to health, to food, to free access to water or energy resources, etc.).

If we now look for the reasons why the relationship between man and nature is no longer harmonious, as it was for millennia, we will easily find them in the situation which sees the scientific and anthropocentric paradigm on the one hand, and globalized economic models on the other hand, too often leading only to the search for the satisfaction of economic interest at any cost, without respect for either individuals or the ecosystem of which they are part. This no-holds-barred search to satisfy economic interests is also implemented at the cost of carrying out those climate-altering actions that can irreparably damage the ecosystem. This is confirmed by what Acosta (2021) argued when he wrote that: “Repressive social structures, capitalist accumulation and rationalistic economic dynamics must be replaced if life on Earth is to survive. As Karl Polany admitted in *La Grande Trasformazione* (1944), this could mean the death of economics itself. But we need a post-economy that retains only ideas that guarantee a harmonious existence between human beings and between human beings and nature.

This post-economy should abandon anthropocentrism. We must accept that all beings have the same ontological value, regardless of their utility or the labor needed to maintain them. We must recognize and celebrate the non-instrumental values of the world of non-human life, overcoming the gross materialism of patriarchal-capitalistic economic thought ... This post-economy is not an anti-economy. In actual fact, a post-economy would acknowledge that society needs production, distribution, circulation, and consumption to reproduce its material and socio-political life. However, these processes need to be regulated by a socio-ecological reality, and not by capital, which drowns the planet in its own waste (Schuldt, 2013)” (Acosta, 2021, p. 404).

I believe Acosta’s argument acknowledges the need for the harmonious relationship between man and nature which is the underlying theme of this article. However, I cannot agree with his statements that: 1) it is necessary to abandon any anthropocentric vision; 2) all beings must be considered of equal ontological value. Indeed, these statements have the effect of diminishing the ontological value of the human being, and of its dignity, in the sense — as in Aristotle (Aristotle, 1971, 1973)<sup>4</sup> — of constituting a moral superiority over all the other beings in the ecosystem. This standpoint is supported by Becchi (2013) when he says that the expression of human dignity can have two different interpretations. He writes: “On the one hand, “dignity” indicates man’s special place in the cosmos, and on the other, the position held in public life. From the first point of view, it has ontological depth, from the second it indicates a value. “Dignity” is therefore connected both to the fact that man differs from the rest of nature, because he is the only rational animal, and to the fact that he differs from other men, due to the active role he plays in public life which gives him a special value. In the first sense it is man as such that has the dignity deriving from being at the top of nature’s hierarchy, in the second sense dignity depends on the position held in the social hierarchy” (Becchi, 2013, pp. 7–8).

Dignity is therefore seen as moral superiority which, in the final analysis, is the foundation for the respect and protection of the human being’s basic rights (*passim*, Tarantino, 2018b), along with those mentioned earlier in this section.

Leaving aside, however, the theme of human dignity, too vast to be analyzed in depth here, and returning to the enslavement of nature to profit at any cost, we see that it has not been criticized only by Acosta with his post-economy proposal, which was referred to earlier<sup>5</sup>. It was also criticized, for example, by Latouche (2005), who theorized, instead, the possibility of (happy) economic de-growth, which does not aim at reducing the well-being available to man today, but nor does it necessarily see the cost of progress as the subjugation of the ecosystem’s integrity to the economy. In this regard, in the volume entitled “*Surviving Development*”, he stated: “To conceive the society of peaceful degrowth and access it, it is necessary to leave the economy, in no uncertain terms. This means questioning the dominance of the economy over our life, in theory, and in practice, but above all in our heads” (Latouche, 2005, p. 79).

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<sup>4</sup> Moral superiority of man that Aristotle identified in the fact that man is endowed with intellect and reason, which come not from biology, but from the outside, as something divine.

<sup>5</sup> The authors who have more or less directly discussed the need to find a balance between human economic models and the economy of nature are far too numerous to cite here. However, some of them will be indicated in the bibliography accompanying this article.

Finally, we also wish to recall what Pope Francis has written on these issues. In his encyclical *Laudato si'*, he criticizes both the ideal of limitless growth and the technocratic drift of our time. He does this when he says that all of this happens “through the imposition of the human hand, which tends to ignore or forget the actual reality of what is before us. This is why human beings and things have ceased amicably shaking hands, becoming rivals instead. From here it is a short step to the idea of an infinite, unlimited growth, which has been so enthusiastically embraced by economists and theoreticians of finance and technology. This takes as true the lie about the infinite nature of the resources of planet earth, which leads to it being “milked” to the limit and beyond the limit” (Francesco, 2015, II, 106).

#### 4. Sustainability as a necessary condition for human progress

Given these examples, the perspective advocated in these pages is perhaps clearer. It holds that, if we want to re-establish the harmonious relationship between human beings and their host, nature, it is not necessary to go as far as the extreme of stopping human progress: we can, instead, try to achieve at least a state of sustainability for the progress of the human species.

The discussion on sustainability becomes very complex (also considering the plurality of disciplines involved in this issue) and here it is not possible to trace all the arguments in the debate between scholars. We will just point out that in the Brundtland Report, sustainable development was mentioned for the first time, defined as “development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p. 15)<sup>6</sup>. Since then this definition has stood, as the fundamental principle to refer to in order to achieve harmony between the natural economy and the human economy (and progress). It has been conceptually taken up in numerous regulations of environmental law, both international and domestic<sup>7</sup>. However, there has been no lack of criticism of this definition. The most widely endorsed ones have attributed to the definition of sustainable development in the Brundtland Report the demerit of having given support (and conceptual justification) to an inauthentic ecologism. This has been, exploited by economic actors to implement, for example, greenwashing economic policies<sup>8</sup>, aimed at surreptitiously circumventing the belief that human progress cannot be equated to unlimited economic growth. Among the many who have discussed it, Gomez Baggethun (2021), referring to the principle of sustainable development, wrote: “Despite its popularity in political circles, environmentalists have criticized sustainable development, seeing it as another form of Greenwashing of traditional policies of growth and development. It is also accused of recreating in the 1980s a new international consensus on the idea of growth, after the latter was brought into question in the report *The Limits to Growth* drawn up by the Club of Rome. The report convinced numerous world political leaders (including the fourth president of the European Commission, Sicco Mansholt) that infinite growth in a finite world was not possible. At that time, the first International policies for sustainability were based on the fact that rich, industrialized consumer societies were a global threat to the environment ... The spirit of this approach was conceived at the 1972 Stockholm conference on the human environment, and was embodied in the term “ecodevelopment”” (Gómez Baggethun, 2021, pp. 145–146). Despite the considerable attention given by the Stockholm conference to the Club of Rome theory<sup>9</sup> about the need to impose limits on human development, in the following years there was a reversal of the trend, opposing the theory of the need to limit growth. As Gomez Baggethun (2021) again points out, there emerged in fact “ideas developed after 1980 under the label of “sustainable development”, which became the new guiding principle in

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<sup>6</sup> The Brundtland Report is the result of the work of a Commission set up by the United Nations on the issues of the environment and development.

<sup>7</sup> For example, it was also taken up by “*Obiettivi di Sviluppo Sostenibile*” (SDGs), with the related 2030 Agenda, which were adopted with the United Nations AG Resolution 70/1, on 25 September 2015. With this Document, 17 environmental sustainability objectives were identified, to be achieved by 2030.

<sup>8</sup> Greenwashing is a strategy, essentially of marketing, with which companies have a falsely ecological and eco-sustainable public image, aimed at hiding the true negative environmental impact that actually characterizes them in reality.

<sup>9</sup> The Club of Rome was an association of scholars founded in the late 1960s, based in Paris (but which met for the first time in Rome, at the Accademia dei Lincei), whose aim was to study the problems of humanity, considered in a global scenario. As well as the *The Limits to Growth* (1972), it is also worth mentioning the equally well-known reports *Strategy for Survival* (1974) and *Reshaping the International Order — project RIO* (1977).

policies tied to sustainability, up-ending the previous view of environmental problems and solutions. Economic growth began to be seen no longer as the cause of environmental issues but as the solution. The Brundtland report states that “the international economy must accelerate its economic growth” (World Commission on Environment and Development, 1987, para. 74), advocating “rapid economic growth both in rich countries and in the developing world” (World Commission on Environment and Development, 1987, para. 72). Anticipating the idea of green growth, the report states that “faster growth would be sustainable if countries steered their growth towards less material activities that were less energy-intensive, developing more efficient technological resources (World Commission on Environment and Development, 1987, para. 32)” (Gómez Baggethun, 2021, p. 146).

By contrast, we suggest here that, in order to maintain and improve the balance between the human economy and the natural economy, the path to be pursued is not, to court, that of Green growth, but, more appropriately, that of encouraging a return to the more general precautionary principle. That is to say, it is advisable to move towards human action (in the economic sphere, but also all fields of science) that is guided by the precautionary principle<sup>10</sup> (but one could say, given the gravity of the environmental crisis, by the duty of precaution). As Amato Mangiameli (2021) recalls, in the European legal space this principle is set out in Article 191 (pursuant to Article 4 of the TCE) of the Treaty on the Functioning of the European Union (together with the principles of preventive action; of correcting the source of damage caused to the environment as a priority, that of the “polluter pays”). With reference to this normative provision, Amato Mangiameli (2021) writes: “As to the environmental principles enshrined therein, the precautionary principle is undoubtedly the fundamental principle, a principle that requires the adoption of preventive measures in the event of a threat, or risk of injury, to the protected assets (mentioned in paragraph 1), when there are scientific uncertainties regarding the existence and extent of possible risks to the environment and health. In other words, it requires prudence in behavior and moderation in action, as required by moderate anthropo- and bio-centrist theoretical orientations” (Amato Mangiameli, 2021, pp. 60–61).

This principle is also present in the UNFCCC itself, mentioned above, (which is another of the official documents produced by the United Nations Convention on the Environment and Development<sup>11</sup>), in Article 3, point 3, where it reads “The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost”.

After primarily inviting political decision-makers to reduce the causes of climate change, these words on the one hand focus on the economic factor of measures to combat climate change, but on the other, explicitly refer to the fact that climate protection brings benefits not only for individuals or states, but “global benefits”. From a legal point of view, this makes us understand that there is a necessary interconnection between individuals of the human species, between individual human beings and the climate, and also between the components of the “climate system”, to which Carducci (2021) also refers. On this point he writes: “The climate therefore is not a reality extraneous to human action, since human action is part of it within the “climate system”. However, its juridical classification cannot be reduced to that of the environment, or nature or energy ... The components of the climate system can be treated separately by the law and labeled with the appropriate terms (“environment”, “nature”, “energy”, etc), according to the space-time in question. From the natural-physical point of view, however, they remain part of an interconnected independent space-time whole, the “climate system”,

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<sup>10</sup> In the field of international law, the precautionary principle, in its most explicit form, was introduced by the Rio Declaration, which is the document resulting from the work of the United Nations Conference on Environment and Development (Rio de Janeiro, 3–14 June, 1992). In this document, the precautionary principle is recorded in Principle 15, which states: “In order to protect the environment, the States will largely adopt a precautionary approach in accordance with their abilities. If there are threats of serious or irreversible damage, the lack of a complete scientific report cannot be used as a reason for postponing costly initiatives capable of preventing environmental degradation”.

<sup>11</sup> The United Nations Conference on the environment and development also called “Earth Summit”, mentioned several times in this article, was a turning-point in the development of world environmental policies. It was attended by 172 countries and 108 Heads of State, as well as thousands of NGO delegates involved in the Conference themes. The official documents that have emerged from the work of the Conference are the following: the aforementioned Rio Declaration and Declaration on Climate Change (UNFCCC-United Nations Framework Convention on Climate Change); Agenda 21; Convention on biodiversity; Declaration of principles for the sustainable forest management.

which includes the atmosphere (the earth's gaseous part, with temporal variation on a daily scale), the biosphere (the part with flora, fauna and human beings, with scales of temporal variation that differ for each living species), the cryosphere (glaciers and poles, with temporal variation on a scale of hundreds and thousands of years), the hydrosphere (oceans and lakes, with temporal variation on a scale of tens and hundreds of years), the lithosphere (the earth's crust, with a scale of temporal variation of tens and hundreds of millions of years)" (Carducci, 2021, p. 53).

## 5. The right to the climate: The environmental emergency as a problem of intergenerational justice

On the other hand, recently there has been more and more talk about the right to the climate. This demand for a new right is also part of the anthropocentric vision that, between the rights of nature and the rights to nature, chooses to recognize and protect the latter.

One of the authors who has recently spoken about demand for the new right to climate is Pisanò (2021). Putting the emergence of this new climate right within what was defined by Viola and Trujilo (2014) as the bottom-up trajectory of rights<sup>12</sup>, he stated that: "In this more general picture we must also place the conceptualization of the possible recognition of a subjective right to the climate. If, in fact, one accepts the idea that at the basis of rights, there are claims justified by particularly strong reasons and if, therefore, behind every human and/or fundamental right recognized by positive law there are claims already justified by particularly strong reasons, every possible reflection on the possibility of recognizing a subjective right to the climate, as a human and/or fundamental right, must necessarily involve the reconstruction of the reasons of those who "claim" the recognition of the right in question (the claimers) and from their classification as particularly strong moral reasons" (Pisanò, 2021, p. 266).

In the case of the recognition of a specific right to the climate, the moral reasons in favor revolve around the fact that there is an undeniable climate emergency and that the time available to remedy this emergency, as also seen with Carducci (2021), is now very limited. Following Carducci (2021) and Pisanò (2021), the foundation of this new law does not lie in the expectation that climatic variability can be prevented (in fact, it is inherent to the rhythms of the planet's evolution and constitutes the natural physiological state of the Earth, and is not pathological). Instead, it lies in the desire to prevent climate-altering anthropic actions, which by replacing or adding to the natural causes that determine climate change, aggravate the environmental crisis and cause permanent damage to the present and (above all) future generations, with whom there is a natural interconnection. In saying this, we do not want to state that the recognition of a climate right alone is decisive for the climate issue, since as Pisanò (2021) writes "The future (relatively near) recognition of the right to climate will probably not solve the climate issue by itself because the effective protection of the right in question will always depend on the existence of courts (especially regional ones) that have the power to enforce it and on the drafting of specific policies to combat climate change, the exclusive prerogative of the political decision maker" (p. 282). In conclusion, we simply want to argue here that the recognition of this new specific right to climate may coincide with one of the many legal steps<sup>13</sup> that can lead to the mitigation or (possible) solution of the environmental emergency currently underway.

One final comment. From what has been said so far, it appears to be precisely the natural interconnection between individuals, and between individuals and the ecosystem mentioned above, that makes it possible to understand (especially with reference to the relationship between human beings and the climate system) that the actions to contain climate change coincide in fact with actions inspired by a principle of intergenerational justice (Menga, 2016, 2021). The latter principle is being widely discussed today, also as a consequence of its implicit inclusion in our Constitution<sup>14</sup>. This principle has

<sup>12</sup> The bottom up trajectory of emergence of rights, in a nutshell, provides that the latter, starting (as a demand) from below, from citizens, or from organized pressure groups (Legal mobilization), are brought before the national or international Courts in order to be recognized as effective rights. This is based on the fact that these new rights are considered morally sustainable and that they can be recognized as new specific rights as they are part of abstract, generic, already existing rights.

<sup>13</sup> An example of a political-legal transition that goes in this direction, in the European regional context, is undoubtedly the European Parliament resolution on the Green Deal of 15 January 2020. Here, in point 2, we read, in fact, that "all people living in Europe should be granted the fundamental right to a safe, clean, healthy and sustainable environment and to a stable climate, without discrimination, and that this right must be delivered through ambitious policies and must be fully enforceable through the justice system at national and EU level". See [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0005\\_IT.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0005_IT.html).

<sup>14</sup> Reference to the Constitutional Law 11 February 2022, n. 1, which specifically provides that the protection of the natural environment is also implemented in the interest of future generations.

been present at the level of international law for some decades: remember, for example, the United Nations Educational, Scientific and Cultural Organization Declaration on the Responsibilities of Present Generations towards Future Generations (UNESCO, 1997). With reference to climate change, and to environmental protection more generally, this principle requires that a condition be reached that allows the human species, over the generations, to continue living in an intact and healthy natural environment, also through its particular legal protection, aimed at preventing, for example, climate-altering actions that can irremediably modify it for the worse. It is targeted, again, as also stated in Article 5 of the UNESCO document mentioned above, to ensure that the generations living today are called upon to work “In order to ensure that future generations benefit from the richness of the Earth’s ecosystems, the present generations should strive for sustainable development and preserve living conditions, particularly the quality and integrity of the environment — therefore they — ... should ensure that future generations are not exposed to pollution which may endanger their health or their existence itself” (UNESCO, 1997, Article 5, points 1 and 2).

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# CRIMINAL PROTECTION OF THE ENVIRONMENT AS A FUNDAMENTAL HUMAN RIGHT IN THE PERSPECTIVE OF A RESILIENT POLICY

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**Keywords:** Environment, Protection, Criminal Law, Human Rights

## 1. The criminal policy of environmental criminal law

The theme of the environment and its protection, has acquired, over the last few years, a specific weight increasing in the global political and legal debate (Caravita, 1990; Catenacci, 1996; Giunta, 1997; Rota, 2000; Ramacci, 2003; Lo Monte, 2004; Siracusa, 2007; Palmieri, 2019) where the environment is, gradually, imposed as an asset whose protection is necessary, not only because it belongs to man, both as an individual and in the social formations in which his personality is manifested<sup>1</sup>, but also as a fundamental asset whose balance is an indispensable condition for present and future generations<sup>2</sup>.

Long ignored by criminal law doctrine, it was only towards the end of the last century that criminal protection of the environment was approached with due attention (Hassemer, 1996; Stella, 2002; Amarelli, 2016) in order to try to offer adequate answers to the many complexities that the “environmental question” brings with it<sup>3</sup> (Rotolo, 2018). It is also a sign of a radical change in the cultural approach in the way of understanding the environment in the modern risk society<sup>4</sup> in which industrial, economic, and technological development base the fear of ecological disasters (Siracusa, 2007).

However, the awareness of the importance of the criminal protection of the environment as a prerequisite for the protection of life, health, and public safety, has not been accompanied by equally satisfactory regulation<sup>5</sup>. As is well known, criminal legislation in this field is characterized, first of all, by a complex legislative stratification and by an overabundance of incriminating provisions, mostly structured on recurrent schemes of abstract and presumed danger, marked therefore, to an excessive anticipation of the penal protection, that they denote a little orthodoxy to the traditional dogmas (Catenacci, 1996, 2015). This has had as a result the creation of indeterminate incriminating cases with evanescent offensive content (Siracusa, 2007).

## 2. The heterogenesis of ends: The constant search for a notion of environment relevant to criminal law

These difficulties depended, first of all, on the lack of a unified concept of the environment as an object worthy of criminal protection<sup>6</sup> (Fiorella, 1993; Lo Monte, 2004; Manna, 1997; Plantamura, 2007; Siracusa, 2007; Catenacci, 1996; Ruga Riva, 2011a).

On the purely axiological level, for a long time, the protection of the environment by criminal law fluctuated between anthropocentric and ecocentric theories (Luther, 1989; Bosselmann, 1987; De Santis, 2012); the first qualified the environment as an instrumental object for the protection of final assets such as life, health, the protection of the landscape, the historical and artistic heritage of the country, which risked, however, to make the environment lose its connotation of legal property

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<sup>1</sup> With regard to the relationship of interest of the subject with the objects over which he exercises his lordship, see Moccia (1988) and Hassemer (2000).

<sup>2</sup> For an interesting reconstruction of environmental protection for future generations, see Epiney (2010) and Scholz (2010).

<sup>3</sup> The environmental issue has emerged above all as a result of the industrialization process that has brought out the problems of environmental pollution.

<sup>4</sup> On the relationship between criminal law and modern risk society, see Beck (1986), Militello (1988), Perini (2010), and Piergallini (1997).

<sup>5</sup> For further information on criminal environmental policy lines, please refer to Patrono (1996).

<sup>6</sup> The belonging of the environment in the catalog of interests worthy of criminal protection has long been invoked in doctrine.

in the classical sense, pre-existing to criminal protection (Siracusa, 2007; Bernasconi, 2008)<sup>7</sup>; the ecocentric theory, instead, attributing an intrinsic value to the biosphere, have always considered the environment as a direct object of criminal protection, but regardless of the consequences “reflected” that the phenomena of aggression to the environmental property could cause on the human person (Catenacci, 1996; Siracusa, 2007)<sup>8</sup>.

The alternative, from the axiological point of view, between the different meanings of the environment is not irrelevant compared to the strictly normative (Uhlmann, 2014); adherence to one or the other of the described approaches has, over time, influenced the choices of legislative policy in the sector increasingly based on the protection of an asset marked by intrinsic structural complexity and a multidimensional character<sup>9</sup> (Siracusa, 2007), with all the related implications for the structuring of criminal offenses.

However, the difficulties in identifying a unitary concept of environment, especially useful for criminal law purposes, also derive from the absence, from a purely terminological point, of a clear and unambiguous notion (Palmieri, 2019).

In fact, until very recently, the environment was not expressly mentioned among the fundamental principles of our Constitution, although it has never been unknown its role as a legal asset of constitutional value (Manes, 2005; Palmieri, 2019) through the reference to the landscape protection of the landscape, referred to in Article 9, para. 2, Const., read in conjunction with Article 32 Const., which protects health, structurally dependent with Article 2 Const., as well as Article 117, para. 2, lett. s) Const., which, in terms of the division of competencies, reserves the protection of the environment to the exclusive legislation of the State (Colavecchio, 2005).

From the integrated reading of these constitutional references, the notion of the environment has often been identified in the “protection of human settlements and the quality of life and the protection of it would coincide with the government of the territory and with the defense of individual and collective health”<sup>10</sup> (Siracusa, 2007). Ultimately, a multifaceted (Siracusa, 2007; Catenacci, 1996; Giunta, 1997) and polysense notion (Giunta, 2008).

The same discourse also in the supranational context where the environment is not an immediate object of protection but is indirectly considered as a means of ensuring respect for the inviolable rights of the individual, through an evolutionary interpretation, by the Judges of Strasbourg, Article 2 ECHR, in terms of the protection of the right to life, as well as Article 8 of the European Convention on Human Rights (ECHR), regarding the protection of private and family life (De Sadeleer, 2012), historical entangled normative of the right (individual) to the healthy environment (Mazzanti, 2019).

### 3. The enforcement of European derivation

Despite this, in the European context, environmental protection has, over time, achieved an assertive recognition thanks to Article 3, para. 3 of the Treaty on European Union (TEU), which shows that the Union is working for sustainable development, based on a high level of protection and improvement of the quality of the environment; this principle is reaffirmed by Article 11 of the Treaty on the Functioning of the European Union (TFEU), according to which “the needs related to environmental protection must be integrated into the definition and implementation of Union policies and actions, in particular with a view to promoting sustainable development” and by Article 37 of the Charter of Fundamental Rights of the EU under which “a high level of environmental protection and the improvement of its quality must be integrated into Union policies and guaranteed in accordance with the principle of sustainable development” (Mazzanti, 2019).

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<sup>7</sup> According to Siracusa (2007), the anthropocentric conception, reducing the environment “to little more than a collective interest and an instrument in the hands, which can only be protected according to further interests” (p. 36), can only involve the adoption of a “mediated protection model, having as its object only the administrative functions of governance and based exclusively on offenses” (p. 37) of abstract danger. Otherwise, see Bernasconi (2008).

<sup>8</sup> Catenacci (1996) argues that an excessively ecocentric perspective risks leading to a sort of “ecological fundamentalism”. Otherwise, Siracusa (2007) proposed a model of “moderate ecocentrism”, which reconciles the protection of the environment with the conduct of human activities.

<sup>9</sup> The environment is a collective property with widespread ownership.

<sup>10</sup> Constitutional Court, sentence No. 210/1987: “the environment must be safeguarded as a fundamental right of the person and a fundamental interest of the community; it is a legal asset”.

And, in fact, Europe has derived the main penalty constraints for our legislation in this area. Reference is made to Directive 2008/99/EC (Faure, 2017; Öberg, 2011; Directive 2008/99/EC and the Lisbon Treaty: Towards a New Face of Italian Environmental Criminal Law) — preceded by EU Framework Decision, n. 80/2003 (Plantamura, 2009) — which marked the central role of criminal law in the environmental sector (Siracusa, 2008; Lo Monte, 2009; Plantamura, 2009; Vergine, 2009), imposing the provision of specific incriminating hypotheses, even for legal persons (Articles 6–7), for malicious conduct “or at least negligent” (Article 3) dangerous or harmful to individuals and the environment as well as the need for sanctions to be “effective, proportionate and dissuasive” (Article 5) (Mazzanti, 2019).

The objective pursued by the European legislator has been to achieve more effective protection of the environment, placing particular emphasis on criminal sanction, “which demonstrate a social disapproval of a qualitatively different nature compared to administrative penalties or a compensation mechanism under civil law” (Directive 2008/99/EC, p. 1).

However, the enforcement of Union law on environmental protection has resulted, in individual Member States, in a factor of overcriminalization that ended up giving primary importance to the dissuasive capacity of the use of punishment considered the greatest tool for the prevention of offenses to the environment, in disregard of the instances underlying the “*extrema ratio*”.

#### 4. The current situation of environmental national legislation

It is well known that our legislation has transposed Directive 2008/99/EC into two tranches: initially through the introduction, by the Legislative Decree No. 121 of 7 July 2011 (Manna, 2011), of two new offenses for the protection of wild flora and fauna (Article 727bis c.p.)<sup>11</sup>; and of the protected habitats (Article 733 bis c.p.), and then, after a fairly recent law No. 68 of 22 May 2015 on Provisions Relating to Crimes against the Environment, of the criminal assumptions currently contained in Title VI bis of the criminal code, including environmental pollution (Article 452 bis c.p.), environmental disaster (Article 452 quater c.p.), culpable crimes against the environment (Article 452 quinquies c.p.), to name a few.

This law also introduced a series of rules relating to aggravating circumstances, sanctions, and ancillary measures — including confiscation, also for equivalent, of unjustified values, measures to restore the state of the places, accessory penalties punishment ex-Article 32quater c.p.— and hypothesis of repentance.

The applicability of the rules on corporate crimes was then established, which resulted in the change of Article 25 undecies of Legislative Decree No. 231/2001 (Ruga Riva, 2016).

The new legal framework has been added to the existing criminal law in this field, which consisted mainly of a system of indictments based on a long series of criminal offenses of a contraventional nature, aimed at repressing criminal behavior in the absence of authorization, non-compliance prescriptions or exceeding of threshold values<sup>12</sup>, contained in a mass of sector regulations<sup>13</sup>, then merged into the Single Text of the Environment (Legislative Decree No. 152 of 6 April 2006). However, despite the legislator’s effort to bring together the relevant legislative provisions in a single text, the criminal law, to protect the environment, was far inadequate to deal with the most serious facts to the detriment of the ecosystem (Ramacci, 2012), representing an emergency reform intervention<sup>14</sup>.

This latter feature is objectively common to the latest reform intervention. Even if the legislator has gone beyond the traditional recourse to the offenses of an abstract danger in favor of the criminal configuration (of concrete danger and damage) of the new types of crime, seems to have given priority to an eco-centric perspective, punishing the consequences of offensive conduct to public safety only indirectly<sup>15</sup>.

<sup>11</sup> Therefore, opting, contrary to European regulations, for a structure of criminal protection of the environment centered on offenses of abstract danger (Ruga Riva, 2011b; Siracusa, 2008).

<sup>12</sup> On the subject of environmental authorizations in the context of integrated waste cycle management, see Tortora (2014).

<sup>13</sup> A first intervention in environmental matters, with specific reference to the protection of water, took place with the law of 10 May 1976, No. 316 (Merli Law) and with the law of 24 December 1979, No. 650 (Merli bis Law), which was followed by a series of interventions regarding the waste (Presidential Decree September 10, 1982, No. 915 and the law of 9 November 1988, No. 475).

<sup>14</sup> For a comprehensive overview of the emergency legislation, see Moccia (1997).

<sup>15</sup> Of different opinion in doctrine, see Catenacci (2015) and Bloy (1988).

If, on the one hand, the sanctioning push above seems to be placed abstractly in harmony with European dictates, on the other hand, the new incriminating cases are in tension with a series of constitutional principles in criminal matters, including the principle of strict legality, taxativeness/determination (Article 25, para. 2, Const.), offensiveness (Articles 13, 25, para. 2, 27, para. 3, Const.), guilt (Article 27, para. 1, Const.), attributable to a defect in legislative technique, at times incomplete and at times marked by extreme anticipation of criminal protection, which rendered ineffective the perception of the precept by the associates ineffective (Rotolo, 2018), and consequently frustrated the function of punishment in terms of social integration<sup>16</sup>.

## 5. The failure of the environment criminal policy

Indeed, it is a fact that the lines of the most recent environmental protection measures introduced in Italy have not ensured a more efficient protection of ecological resources (Catenacci, 2005; Amarelli, 2016).

In fact, the failure of the environmental criminal policy depended, in the first place, on the adoption of schemes of incrimination specific to the criminal law of risk (Catenacci, 2015), which have reduced the offensive characteristics of environmental cases to presumptions of danger faded into the pure sanctioning formalism (Rotolo, 2018). All this, combined with the conviction that the use of criminal sanctions is the main way to ensure adequate protection of the environment, has generated a system steeped in excessive cases with respect to the purposes of protection and structured on an extreme anticipation of criminal protection, very far from the constitutional face of the criminal offense (Bricola, 1973).

The current environmental criminal law does not take into account the guarantee standards typical of the criminal law of the fact being in evident friction in the first place with the principle of the legal reserve: the rule is defined by *relationem* through referrals to further administrative rules, this has impoverished the precept in terms of the material disvalue of the event (Rotolo, 2018). This has created great difficulties with regard to the establishment of the causal relationship that inevitably reverberates also in terms of guilt, especially at the point of the knowability of the precept, with the consequent undermining of the personality principle of responsibility, a distinctive and founding trait of the whole area of criminal law (Forti, 2003).

Even the introduction, with the law on eco-crimes in 2015, of the most serious criminal hypotheses, does not seem to have solved the problems reported, where regulatory intervention has essentially translated into a general aggravation of sanctions that was ineffective if not counterproductive. Perhaps the enforcement suggested by the European Union should have resulted in the adoption of remedies identified not in the deterrent function of the penal sanction which, on the contrary, does not necessarily translate into greater effectiveness of protection (Faure, 2004), especially in the absence of an equally concrete control of the conducts prodromal to the realization of the most serious offenses (Rotolo, 2018).

If, then, we consider that the last reform intervention was not accompanied by an overall reorganization and rationalization of the criminal law of the environment, representing, therefore, an expression of those recent “compulsive” (Manna, 2015) trends of the legislator, then we realize that the entire regulatory system is flawed. The current system gives way to respect for guarantees and is antithetical to the modern prospects for resilient policy that currently represent a renewed opportunity for proper governance of sustainable development. These are the premises.

## 6. The need for an express recognition of the human right to the environment

In order to overcome these difficulties it is necessary, first of all, to express recognition of the human right to the environment in the national and supranational constitutional charters in coherence, moreover, with the indications coming from the United Nations (UN) that, with a recent resolution No. 48/13 of 8 October 2021 has expressly recognized, and for the first time, the environment between human rights, as an interconnected value with other fundamental rights such as food, water, and life.

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<sup>16</sup> On the function of punishment as social integration, see Moccia (2006).

In fact, the recognition of the intrinsic value of the environment as an expression of the dignity of the individual, whose lack of protection constitutes a violation of a fundamental human right, is in line, among other things, with the interpretative evolution of the European Court of Human Rights which laid the foundations for the affirmation of a “human right to the environment” (De Sadeleer, 2012; Saccucci, 2010).

As noted (Vannata, 2020; Negri, 2014), in many judgments the ECHR has qualified the environment as a value “subjectively characterizable” as an integral and inseparable part of the sphere of individual rights and freedoms of the person functional to the full development of rights protected by the ECHR<sup>17</sup> — in particular, those referred to in Article 2 and 8 — whose actual enjoyment depends on the quality of the environment.

In this way, the Court has elevated to human rights subjective situations connected with matters not included in the Convention, including, for example, the environment (Mazzanti, 2019), within the context of the process of interpretation that in the literature is called greening of the human rights (Boyle, 2006; de Sadeleer, 2012).

In addition to the evolutionary orientation of the judges of Strasbourg, and some international courts (Coomans, 2003; Appyagiei-Atua, 2005), and, despite the great attention to the issue of the environment in harmony with the framework that emerges from the policy of the Union (Di Stasi & Martone, 2016), there are not many countries in a European framework that contemplates in its Constitution the human right to the environment.

Among these, Portugal and Spain are certainly leaders in whose Constitutional Charter — respectively Article 45 of the Spanish Constitution and Article 66 of the Portuguese Constitution — the environment is expressly included among the fundamental rights. France, on the other hand, although it has not yet explicitly included the environment among the constitutional fundamental rights, has introduced, in the preamble of the constitutional text — in which the French people solemnly proclaim their fidelity to human rights — an express reference to the *Chart de l’environnement* of 2004, which counts the environment among the fundamental rights of the individual.

## **7. The constitutional reform on environmental protection: Law No. 1 of 2022 amending Articles 9 and 41 Cost.**

Even in Italy, recently, the environment has become a full part of the fundamental rights provided for in the Constitution. In fact, after a long parliamentary process<sup>18</sup>, Constitutional Law No. 1 of 11 February 2022 was approved, by a two-thirds majority of the members, with “Amendments to Articles 9 and 41 of the Constitution on Environmental Protection”, in force since 9 March 2022.

Constitutional reform in the field of environmental protection was time, claimed. With this law, first of all, a new third paragraph was added to Article 9 Cost., which currently provides that the Republic, alongside the landscape and the historical and artistic heritage of the nation, “protects the environment, biodiversity and ecosystems, also in the interest of future generations”, also establishing that “the law of the State governs the methods and forms of animal protection”. The law has also amended Article 41 Cost. in a matter of exercise of the initiative economic. The constitutional legislator intervened in the first paragraph of the Article providing that private economic initiative cannot be carried out in such a way as to damage health and the environment, as well as to safety, freedom, and human dignity; in the third paragraph, on the other hand, “environmental purposes” were included alongside the social purposes towards which public and private economic activity can be addressed and coordinated.

It is a reform of historic significance because, not only, and for the first time, the first part of the Constitution on fundamental principles is amended for the nation, but it also filled an important gap related to the presence of the term “environment” among the cardinal principles of the constitutional framework.

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<sup>17</sup> Court of EDU, decision 9 of December 1994, *López Ostra v. Spain*, ric. n. 16798/90; Court of EDU, decision 30 of November 2004, *Öneryıldız v. Turkey*, ric. n. 48939/99; Court of EDU, decision 9 of June 2006, *Fadeyeva v. Russia*, ric. n. 55723/00, Court of EDU, decision 7 of April 2009, *Branduse v. Romania*, ric. n. 6586/03.

<sup>18</sup> The Chamber of Deputies had approved the text, in the first resolution, on 12 October 2021, in the same text of the Senate, which approved it in a second resolution on 3 November 2021, with a majority of two thirds of the members. Finally, the Chamber definitively approved the bill, also with a two-thirds majority, on February 8, 2022.

Although there are many uncertainties regarding the recent reform constitutional, both for the meaning to be attributed to the expression future generations with respect to the adjacent concept of “sustainable development” — not included in the constitutional tense — and with the allocation of competencies between State and Regions on the protection of biodiversity, there is no doubt that the constitutional place of the environment among the fundamental human rights represents an important innovation also from the point of view of criminal protection.

In fact, the explicit recognition of the environment in the Constitution, although it can seem superfluous<sup>19</sup>, represents the basis for assigning a renewed centrality to the environment — now a legal asset of express constitutional importance — and the subject of a more marked representation for the future legislator in the context of balancing with other opposing interests.

## **8. Short conclusions and *de jure condendo* perspectives: New extra-criminal intervention strategies in the perspective of a resilient policy**

However, the recognition of the environment as a fundamental constitutional right worthy, therefore, also of criminal protection, must not involve the provision of specific incrimination obligations, should rather lead to a thorough reflection on the most appropriate tools of protection, more efficient and effective, in line with the principles of sustainable development, therefore, not only and almost exclusively criminal protection.

Especially with the express recognition of the “human right to the environment” in Article 9 Cost., it is more urgent than ever a strong rethinking of the classic models of criminal intervention in the perspective of increased awareness of the harmful effects of pollution on the life and physical integrity of associates, but also on the welfare of future generations.

It would therefore be desirable to expand the strategies through the use of alternative models of protection more consistent with the proposed by the *extrema ratio*, which may suggest the adoption of concrete policies aimed at disincentive to the massive and careless use of criminal instruments, reserving the activation of the penal intervention to the only particularly serious offenses to the environment.

This does not mean that criminal law must inevitably fall back on environmental risk; but it is desirable to envisage a model of responsible criminal protection that does not give in to respect for the guarantees enshrined in the Constitution in order to avoid the risk of transmutation of the same criminal law of the environment into a right purely symbolic and exclusively preventive (Siracusa, 2007).

Protection, therefore, on the one hand, is effective, and on the other, necessary, avoiding the use of the criminal sanction often understood in merely distressing terms. In this sense, criminal law should not be understood as a model of enforcement of preventive strategies, whereas, on the contrary, should be seriously pursued through the choice of adequate models of incrimination that do not anticipate beyond measure the threshold of criminal intervention (Siracusa, 2007); either through a work of rationalization of existing regulations which, among other things, increase environmental damage (Mazzanti, 2019).

All this is in order to overcome the limits of the current criminal legislation and return them seriously in view of the pursuit of criminal political purposes aimed at the expansion of natural resource management strategies, through an approach interdisciplinary also based on ethics and sustainability, which can identify a balance between the protection of the environment and the requirements posed by the performance of production activity.

On the assumption that environmental crime is fuelled by a set of synergistic factors (entrepreneurial, business, exploitation of the conditions of need), extra and pre-penal regulatory mechanisms should be intensified by, for example, adopting a renewed, rational and non-demagogic environmental policy which focuses on crime prevention and respect for fundamental rights.

Perhaps the point from which to start again is represented by the perspective of the enterprise, attended that it is just from the industrial activity that derives the greatest dangers and damages to the environment.

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<sup>19</sup> For some time, doctrine and jurisprudence, have supported the environment as a constitutional value through the reference to Article 9, para. 2, and 32 Const. (Constitutional Court, sentence No. 167/1987, No. 191/1987 and No. 210/1987).

In this regard, resources should be invested — especially those from the European Union — in appropriate governance programs risks through, for example, the establishment of mandatory national, and regional plans, and environmental impact assessments aimed primarily at the companies, forcing them to adopt compliance programs to prevent the consequences prejudicial to the environment. In this regard, it would be appropriate to set up, in every industry, a technical evaluation body to verify the adaptation of the company to specific organizational standards that concern only the environmental impact, whose non-adoption should be severely punished, for example, by the closure of the plant or the interruption of the production activity; a sanction mechanism, therefore, not necessarily and only criminal, but that it is able to put the company in front of obligatory operational choices to ensure, in the long term, compliance with environmental regulations, in the belief that a balance between the environment and industrial and economic development is not impossible (Siracusa, 2007).

Ultimately, what we suggest is an interdisciplinary methodological approach based on the concept of environmental resilience — understood as the ability of the system to face change by continuing its own development — to be realized also through targeted social and cultural awareness campaigns in the perspective that the environmental asset is a fundamental human right in constant evolution.

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# SUSTAINABLE GREY/GREEN DIGITAL TECHNOLOGY: ACTIVE AGEING TECHNOLOGIES AND ENVIRONMENTAL CHALLENGES

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**Keywords:** Active Aging, Sustainability, Digital Technologies, Environmental Challenges

## 1. Introduction

This chapter aims to reflect on digital technology issues related to elderly people according to the concept of sustainability in evidence of climate and environmental challenges.

What is sustainability technology? (Mulder et al., 2011). It is not so easy to clarify, understand, and put in clear categories the multidimensional concept of sustainability, one of the most often quoted definitions of sustainable development comes from the United Nations (UN) World Commission on Environment and Development: sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Hajian & Kashani, 2021, p. 1).

Nowadays that definition appears not so sufficient to achieve the contemporary challenges, it must be criticized the idea that sustainability is just needs and not for example, feelings and emotions (Urbani, 2021b), furthermore development is a controversial concept (Bisogni et al., 2011), development is often connected to economic aspects and growth, but it is more heuristic underlines the generalized improvement of living conditions and not just economic expansion connected by gross domestic product (GDP).

Sustainability is also often connected to environmental issues, but the environment is just a sphere to conceptualize sustainability, the social sphere, economic sphere, cultural, and political are equally important to understand and describe that concept. It is possible to assert that sustainability is one of the great challenges of our time. It brings together several global problems from pollution to the space in which we live: poverty, climate change, depletion of natural and mineral resources, ecological crisis, and global inequity.

Sustainable development appears as a vague concept that emphasizes the interconnection of the many challenges that the world faces. Without a rather generic concept of sustainable development, the global challenges would just be competing issues in the public domain. Nevertheless, the issues under the sustainable development umbrella often compete in the public arena. Very often specific topics related to sustainable development are presented as being the expression of sustainable development.

The mainstream behavior looks at digital technologies in an enthusiastic way, but technologies have played an important role in creating the problems that we face, and they will also play an important role in solving them. It needs to escape from binary and Manichaeic vision and emphasize concepts such as responsibility (Jonas, 2014), awareness, and empowerment, at least digital technologies are tools, what makes them sustainable are a series of elements that must play together and in a coordinated way.

## 2. Backgrounds

In European Union countries, including Italy, the aging of the population will be a problem at the heart of national and international policies. The elderly will be among the categories most exposed to climate change and ecological crises. Digital technologies may be part of the answer, but they must be sustainable and responsible: economically, socially, environmentally, and politically.

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How can sustainable digital policies for the elderly be developed? What significance can we give to digital technologies for the elderly?

It is necessary to decolonize an imaginary that sees the elderly as a passive actor, a burden for society, and not able to activate processes of empowerment. Research on the elderly shows they are not passive (Urbani, 2016), but they play a fundamental role in the economic and civil life of the countries of the European Union. The elderly, for example, help families with financial aid and assistance to minors and sick people, but they are also involved in voluntary activities (De Sario et al., 2012).

Regarding technology and the elderly, it is possible to decline the concept of sustainability in those words: affordable, usable, meaningful, engaged, and informed.

So, digital technologies could really help elderly people in facing social, environmental, and health challenges, but devices and software dedicated to the elderly must be affordable for a big audience, it is necessary to avoid the first category and second category of elderly with specific public interventions.

Usability is also a key concept in sustainable access to information and communications technology (ICT) for the elderly, usability means user-friendly devices and software, but also reducing digital gaps.

Technology solutions must be meaningful for seniors, something very significant for their lives, to achieve sense and meaning people need to be engaged and informed with democratic processes.

In the informed process, it is necessary to communicate with elderly people in a democratic and simple way avoiding unnecessary words in foreign languages and spreading complex concepts with reduced difficulty. It is important in emphatic and active ways that technologies and consequent impacts must be considered as a priority.

### **3. Remarkable questions**

At the global level, there are currently two clear priorities influencing policy, management, and scientific debate: sustainability and digitization (Brenner & Hartl, 2021, p. 1).

The complexity and speed of digitalization, matching with the fundamental challenge of achieving sustainable development goals, propel those agendas (George et al., 2016; United Nations [UN], 2016). Despite nascent academic interest in how digitalization has positive as well as negative potential for sustainability (Del Río Castro et al., 2021; Seele, 2016; Seele & Lock, 2017), a profound understanding of the relationship between these megatrends among individual actors is still lacking (Boone et al., 2017; Song et al., 2017). It is vital to shed light on this relationship as perceptions of digitalization concerning various facets of sustainability determine how diverse actors respond to those imperatives (Dubey et al., 2018; Brenner & Hartl, 2021).

This chapter analyzes the dimensionless concept of sustainability in relation to digital technologies aimed at the elderly by attempting some readings and some relevant focus for the socio-geographical and scientific debate in general. To do this, crucial questions were asked to guide the investigation into the relationship between digital technology sustainability and its possible meanings and impacts on the elderly.

What meaning can we give to digital technologies for the elderly? Or rather what meaning do older people attribute to digital technologies?

The contact with digital technologies represents for the elderly a moment of empowerment that benefits not only from the point of view of the acquisition of new skills but also social and psychological, a general well-being that concerns the senior world. It can be said that the ICT world represents an aspiration for positive change for the elderly, but this change is also accompanied by fears and fears of not being adequate or of being victims of scams linked to the world of new digital technologies. So, the meaning is that attribute is ambivalent, opportunity and well-being on the one hand against fears of inadequacy and scams. How can you implement the first part and reduce the negative influence of the second? The processes pass through a democratization of access, but also adequate training and information calibrated on the elderly and potentially processes of peer education for the specific target able to guarantee economies of scale and purpose. It should be noted that

the world of the elderly is varied ranging from the over 65 strongly schooled, to the over 80 and beyond with low schooling, effective and efficient policies should be tailored to measures for different groups.

How to develop sustainable digital policies for the elderly? The problem refers to the previously identified dimensions of sustainability: affordable, usable, meaningful, and engaged. Priority must be given to how the identified significant reductions in sustainability (which can clearly be identified from the others) are made operational. Verifiable processes must be identified, established, and monitored at different times for each of the identified dimensions.

#### 4. Reflections, criticisms and conclusion

The elderly as passive subjects appear more as stereotypes than empirical data (Urbani, 2016). The elderly provide in the Italian context, families, and peer groups with both financial aid and free-time care work, which liberates energy and opportunities that can be spent on the labor market (De Sario et al., 2012). The elderly at the same time are indeed fragile subjects, but this fragility must not become a stigma, but an element of awareness for effective and efficient policies. It is clear, that the world of seniors will be among the most affected by climate change and environmental crises, as the health of most people is partly compromised, there should therefore be an awareness of this problem among older people, which does not seem entirely obvious to date (Urbani & Piana, 2017). Digital technologies can certainly help to mitigate climate and environmental problems, but the conditions must be respected so that the same technology is sustainable at various levels for the users and that it is developed in agreement and harmony with the end users. Finally, it would be good to recall the role and responsibility of the public decision-maker who must take responsibility for the sustainable development of technology for the elderly by integrating the solutions offered by the market and interacting with the market with a vision of public development that to date appears too unbalanced in logic, fair and legitimate market, but inadequate to ensure access and sustainability for the large audience of the elderly.

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# THE DEVELOPMENT OF INTERNATIONAL TRADE LAW AND THE RESPECT FOR THE ENVIRONMENT'S CONSTRAINT

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**Keywords:** Environmental Protection, Sustainable Development, World Trade Organization, Multilateral Cooperation

## 1. International and environmental agreements: The 21st century's invisible challenges

Globalization, technological changes, and the creation of global value chains have had a dichotomous impact on economies and societies. While, they have created huge efficiency gains, fueling sustained and trade-led economic growth in many parts of the world, helping to lift millions of people out of poverty, on the other hand, they have led to growing inequalities leaving behind entire communities and produced environmental damage that is perhaps irreversible, because it is not duly regulated. The inability of governments, often not sufficiently responsive to changes in economic dynamics and to operate adequately to mitigate the negative impacts on population and environment, has, indeed, led to requests for de-globalization and an increase of internalized and isolationist reactions.

For years, the international community has been increasingly attentive to the close connection that binds commercial development, on the one hand, and the issue of environmental protection on the other. In a world characterized by a constant increase in environmental concerns and a growing liberalization of world trade, the international community has committed to protecting the environment in harmony with the development of an open, fair, and non-discriminatory multilateral trading system. Trade and environmental policies can, indeed, play a role of mutual support, in favor of sustainable development and there must be no necessary incompatibility between economic performance and respect for the environment.

In this regard, it should certainly be noted that all countries have the right to define and implement their own environmental policies through the measures deemed most appropriate to protect the internal environment. However, the differences between state environmental policies should not justify the use of countervailing duties or export refunds as a means of compensating for the costs resulting from stricter environmental standards. Consequently, since all countries must consider themselves responsible for solving international environmental problems, the most effective response to these problems cannot be recourse to unilateral trade measures of a state nature, but the adoption of multilateral international agreements, widely shared.

Following the principles contained in the Declaration of the United Nations Conference on the "Human Environment", adopted in Stockholm on June 16, 1972, and taken from the Rio Declaration on Environment and Development of 1992, particular attention should also be given to the specific situation and needs of developing countries, as regards commercial and environmental issue.

The adoption of international measures to promote sustainable development can allow those who are responsible for environmental policies, both nationally and internationally, to take into consideration the need for environmental protection. All this involves, in the long term, a rethinking and reform of the current multilateral trading system which will have to address issues such as the revision of the World Trade Organization's (WTO) rules, multilateral environmental agreements, and new environmental policy tools such as the trade of dangerous substances. The privileged forum in which these objectives could be discussed is the established Trade and Environment Committee, which, as will be seen, was established in 1995 within the WTO.

The so-called 13 Goals adopted by the United Nations in the 2030 Agenda, entitled "Promoting Actions, at All Levels, to Fight Climate Change", also impacts the main issue that awaits humanity for

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the next decades even if lost time represents already today a boulder on the achievement of sustainability goals for which there seems to be no remedy. The risk is that the delay already accumulated prevents a full and widespread awareness raising and, paradoxically, the current COVID-19 monothematic in relation to public discussion risks to generate further delays in the mobilization necessary to ensure a future for the only Planet we have.

It is in this scenario that the WTO's deliberative and monitoring function must be reaffirmed which, currently, is seriously compromised by the insufficient transparency of legislation and trade practices of the members, as well as by the fact that issues such as environmental degradation or climate change are often still considered a taboo. The new challenges represented today by the acceleration of climate change, the loss of biodiversity, and environmental degradation, therefore push the adoption of new development models through which the green transition will have to go hand in hand with the objectives of social equity.

## **2. World Trade Organization and interactions between trade and environment: The need for multilateral cooperation**

In establishing the WTO in 1995, the multilateral trading system's contracting parties explicitly recognized that their economic and trade relations, in the context of a new organization, should be conformed to the goal of sustainable development (Adlung & Mamdouh, 2018). The same parties, already at the ministerial conference<sup>1</sup> (Di Turi, 2016), held in Marrakech in 1994 at the end of the Uruguay Round<sup>2</sup>, decided to create a Committee on Trade and Environment (CTE) within the WTO. This Committee, which inaugurated its work in early 1995, was instructed to identify the relationship between trade and environmental measures, in order to promote sustainable development and to recommend changes in the multilateral trading system.

The establishment of this international organization represented an important confirmation of what had already been foreseen in the United Nations Conference on Environment and Development (UNCED) in 1992 where it was stated that, in order to achieve sustainable development, it would no longer be necessary to consider objectives of environmental, economic and social policies separately. For this purpose, the Governments had agreed to implement an action program, Agenda 21<sup>3</sup>, through which, a wide range of environmental and development objectives were set and provided an efficient framework to promote sustainable development and to establish a global partnership between nations: a partnership based on the principle of a common but differentiated responsibility of countries that takes into account individual levels of development<sup>4</sup>.

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<sup>1</sup> The Conference is the main the WTO's body with general competence and is composed by members from all member States. By virtue of Article 4.1 of the Agreement establishing the WTO (structure of the WTO), it is competent "[to] carry out the functions of the WTO and take actions necessary to this effect. The Ministerial Conference shall have the authority to take decisions on all matters under any of the Multilateral Trade Agreements ...". From a combined reading of this provision with para. 1-2 of Article 3 of the Founding agreement relating to the functions of the WTO "1. The WTO shall facilitate the implementation, administration and operation, and further the objectives, of this Agreement and of the Multilateral Trade Agreements, and shall also provide the framework for the implementation, administration and operation of the Plurilateral Trade Agreements. 2. The WTO shall provide the forum for negotiations among its Members concerning their multilateral trade relations in matters dealt with under the agreements in the Annexes to this Agreement. The WTO may also provide a forum for further negotiations among its Members concerning their multilateral trade relations, and a framework for the implementation of the results of such negotiations, as may be decided by the Ministerial Conference", the Conference is a "political" addressing body for the Organization's activities.

<sup>2</sup> The Uruguay Round was the eighth round of multilateral trade negotiations (MTNs) conducted under the General Agreement on Tariffs and Trade (GATT), which ran from 1986 to 1994 and involved 123 countries as "contracting parties". The negotiations and the process were concluded with the signing of the final act of the Marrakesh Agreement in April 1994 in Marrakesh, Morocco. The round led to the creation of the WTO, with the GATT remaining an integral part of the WTO agreements. The Uruguay Round was, without a doubt, the biggest trade negotiation ever, and it may have been the biggest negotiation ever. It has established rules and principles to cover all global trade, from banks to consumer products. The topics of the negotiations, the broadest of any round of the GATT, were tariffs, non-tariff measures, tropical products as a priority area, products based on natural resources, textiles and clothing, agriculture, review of GATT articles, safeguards, Tokyo Round agreements and agreements, subsidies and compensatory measures, dispute resolution, trade-related aspects of intellectual property rights, trade-related investment measures and the functioning of the GATT system (FOGS), see <http://www.omc.org>.

<sup>3</sup> The Agenda 21 is a broad and articulated action program as the result of the United Nations Conference on Environment and Development of Earth Summit, held in Rio de Janeiro in 1992. It is a sort of manual for the sustainable development of the planet "from now to the 21st century", see <http://unric.org>.

<sup>4</sup> Refer to note 2. In the Agenda 21's preamble, assistance to developing countries should be increased to cover the additional costs of their initiatives to tackle global environmental problems and accelerate sustainable development. Chapter 2 of the Agenda states that one of the general objectives that governments will have to pursue in this context is "to ensure that

This objective is based on the belief that an open multilateral trading system can foster a more efficient use of natural resources both in economic and environmental matters and help to reduce pressures on the environment itself. In the wake of the principles affirmed in Agenda 21, and subsequently in the new Agenda 2030 (Costanza et al., 2016)<sup>5</sup>, also the WTO has stimulated the member States to embrace trade and environmental policies that could be mutually beneficial and thus promote sustainable development, but, so far, achieving very poor results. Indeed, it cannot be ignored that, since its creation in 1995, the WTO has failed to conclude a single round of trade negotiations worldwide, thus losing the opportunity to achieve concrete results. The Doha Round<sup>6</sup>, for example, which began in November 2001, should have ended by January 2005: fifteen years later, members are still debating whether it should continue<sup>7</sup>.

For the first time since its constitution, indeed, only in 2013 the Bali agreement signed, and unanimously approved, related to a series of issues aimed at simplifying trade, allowing developing countries more options to guarantee security food, increasing trade and development aid for least developed countries (Guerrieri, 2009). Historic agreement or a compromise that, for many, was a partial response to some of the least developed countries' requests to unblock the stalemate in the Doha Development Round (Zedillo, 2007), which should have linked trade policies to choices of redistribution of wealth (Guerrieri, 2006).

In addition to the so-called Bali package, the WTO has unfortunately produced few other noteworthy agreements, except for the Trade Facilitation Agreement (TFA), which entered into force in February 2017<sup>8</sup>, and the 2015 decision to eliminate subsidies to agricultural products' exports (Export Competition Ministerial Decision, 2015; Anania & De Filippis, 1996; Anania, 2013). Meanwhile, members of the organization have collaborated on a series of broader regional trade agreements that address pressing issues such as the digital economy, investment, competition, the environment, and climate change.

The international instruments mentioned, supported by WTO's concrete harmonizing action aimed at eliminating obstacles and distortions in the commercial sector, could instead increase the general

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international trade and environmental policies mutually support each other". In particular, governments have pledged to promote dialogue between communities in the sectors of trade, development and the environment and to encourage the activities of international institutions concerned, to better understand the relationship between trade and environmental policies. Agenda 21 also underlined the need to take into account the specific situation of developing countries undergoing this process and to ensure their full participation in international trade.

<sup>5</sup> "The 2030 Agenda agreed by the United Nations General Assembly represents an important achievement in the development of shared goals for all humanity. The SDGs, the Sustainable Development Goals, have been approved by all member states of the United Nations and include the economic, social and environmental pillars of sustainable development. However, they lack an overall goal, a priority scale, and an aggregate index of effective progress towards that goal. It could be argued that such an aggregate indicator is not necessary or possible and that the pursuit of individual objectives will be sufficient to achieve the results of sustainable development. This could be true if the goals were independent of each other and if everyone had an equal contribution to the same goal. Obviously, this is not the case, especially in the context of the very diverse situations in each country ... We believe it is necessary to develop an underlying model based on system dynamics to evaluate interactions and synergies over space and time, including stocks and flows, causes and effects. It is also necessary to develop a framework of political reforms and social changes that make it possible to achieve the SDGs nationally and globally. In today's interconnected world, the SDGs cannot be achieved without sustainable well-being on a global level" ([www.sdgs.un.org/goals](http://www.sdgs.un.org/goals)).

<sup>6</sup> The Fourth Ministerial Conference of the WTO took place in Doha, Qatar, from 9 to 14 November 2001. The aim of the Conference was to "launch" — not "conclude" — a trade negotiation aimed at allowing for greater opening up of markets and a renewed system of multilateral rules to support and relaunch world trade. The work program outlined in the Doha Declaration — commonly referred to as the Doha Development Agenda as it placed the needs of developing and least developed countries at the center of its objectives — enumerated 21 issues subject to future negotiations or work and set a timetable for each sector. However, this timetable was not respected.

<sup>7</sup> The causes of the impasse in the Doha Round are not simply substantial, nor do they depend solely on the fact that the WTO may have put "too much meat in the fire", deviating excessively from its traditional "core business": facilitating market access. We must add the non-trivial objective of seeing each country signed a "single package" concerning, more or less, everything concerning trade on a world scale, according to an either-or formula, which has no allowed to make progress and instead contributes to the accumulation of delays, while the only area in which progress is made, in practice, remains that of the judicial settlement of disputes. It should be considered, indeed, that the binding decisions of the Dispute Settlement Body of the WTO (abbreviated DSB from the English Dispute Settlement Body) are no longer based on the consent of all the States concerned and, in addition, provoke heavy reprisals in terms of restrictions on market access if they are not respected. Finally, the growing participation of developing countries has significantly changed the balance within the WTO.

<sup>8</sup> The Trade Facilitation Agreement (TFA) entered into force on February 22, 2017, has been ratified by 115 member states of the WTO, including the European Union, and contains important obligations also for developing states. The TFA has of fundamental importance, for the first time in 21 years an agreement was concluded in the WTO. Trade facilitation began to be talked about as early as 1996 at the first ministerial conference of the WTO, when a special working group was established for the first time. The activities then reached their peak in Bali in 2013 with the birth of the TFA. The agreement, concluded within the WTO, is part of the category of multilateral trade agreements and provides for provisions exclusively in customs matters (see <http://www.wto.org>).



efficiency of the world economic system, allowing countries to specialize in those sectors in which they enjoy competitive advantages, including advantages based on their environmental conditions. Among the positive effects of trade liberalization on the environment there could also be the simplification of international distribution of clean technologies from an environmental point of view, of services and goods, and a greater availability of resources for environmental protection, for individual companies and governments. Furthermore, by increasing the level of income and improving standards of living, trade could promote and respect environmental values.

On the contrary, in the absence of coordinated international strategies for sustainable development such as guaranteeing the integration of environmental protection needs in all the policies concerned and the internationalization of environmental costs, in the medium and long term, the negative environmental impacts could, instead, be exacerbated by policy interventions aimed at achieving short-term economic benefits (i.e., the development of highly polluting export-oriented industries). In the absence of concrete measures to address these potential negative impacts, economic activities, enhanced by trade liberalization, could increase the pressure on the environment and natural resources (i.e., water resources, agricultural land, timber, and seafood).

This is why the impact of trade on the environment depends, above all, on environmental policies and sustainable development strategies that will be implemented not only nationally, but internationally. There is no linear relationship between economic growth and impact on the environment and, on the contrary, it will be difficult to achieve ecologically sustainable development in the absence of economic growth in the long term.

However, there is nothing automatic in this movement towards ecologically sustainable development. While it is true that economic growth in itself generates additional resources that can be devoted to reducing pollution and protecting the environment, this will only be fully possible if adequate international cooperation exists.

In addition to the potential impact on international competitiveness, existing differences between national environmental policies can lead to trade conflicts and, even if WTO members have the right to take measures to protect the environment within their territory, such measures must not be discriminatory or arbitrary and they must not, however, incorporate any disguised restrictions on international trade. On the other hand, as regards environmental policies relating to global or transboundary environmental problems, countries can resort to trade restrictions to solve those environmental problems that have a partial or total impact outside their jurisdiction. However, outside the context of a Multilateral Environmental Agreement (MEA<sup>9</sup>), this must not represent an attempt to unilaterally influence the environmental policies and practices of another country. MEAs will therefore have to resort to trade restrictions only when it is necessary to ensure the efficiency of these agreements and the achievement of their environmental objectives. If a different principle were accepted, the scope of trade measures under an environmental agreement would be practically unlimited.

The MEAs together with the Montreal Protocol on substances that deplete the ozone layer, the Basel Convention on the control of transboundary movements of hazardous wastes<sup>10</sup> and their disposal, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)<sup>11</sup>, show that, under the right conditions, concerted trade measures can be a useful and, above all, effective tools at international level. In this regard, to avoid legal uncertainties, it is essential that

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<sup>9</sup> Multilateral environmental agreements (MEAs) are agreements between three or more states that help address specific environmental problems at the national, regional and global levels. Examples include the pollution of rivers and seas that are part of different countries (e.g., the Mediterranean Sea or the Great Lakes in the United States and Canada) and air pollution. These kinds of environmental questions must be multilateral action to be effective and MEAs set the rules that describe what each country should do. The best known MEAs are those that address global problems, such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Convention on Biological Diversity.

<sup>10</sup> The Basel Convention on the control of transboundary movements of hazardous wastes and their disposal, which entered into force on 5 May 1992, is the main international treaty for the regulation of transboundary movements of hazardous and other wastes. The treaty was signed following a period in which, in industrialized countries, the increase in the costs of disposing of toxic materials soared. The waste traders then began to export their cargoes to developing countries, taking advantage of the lack of specific environmental legislation in those same countries and causing an emergency situation that emphasized the urgency of regulation on an international scale, see <http://eur-lex.europa.eu/legal-content/IT/TXT>.

<sup>11</sup> The Washington CITES was drafted following a resolution adopted in 1963 during a meeting of the members of the World Union for Conservation of Nature (IUCN). The text of the Convention was finally agreed at a meeting of the representatives of 80 countries in Washington DC, the United States of America, on 3 March 1973 and, on 1 July 1975, it entered into force. It is ratified in Italy with Law No. 874 of 19.12.1975 and is currently also governed by Regulation EC/338/97. CITES is an international agreement to which states voluntarily join.

the WTO Committee on Trade and the Environment outlines a clear and logical structure aimed at defining the use of trade measures established by MEAs within the multilateral trading system.

However, a multilateral trading system already includes a wide range of environmental provisions: the negotiations conducted during the Uruguay Round have favored the inclusion of environmental issues in the multilateral trading system and the agreement establishing the WTO provides for, in its preamble, that relations between WTO members in the commercial sector and economic activities are conducted to raise living standards and increase the production and trade of goods and services, allowing for optimal use of resources following the sustainable development goals, seeking to protect and preserve the environment, improving the means necessary to carry out these actions.

Thus, the WTO will continue to play a central role in discussions among its members, seeking to agree on a model to incorporate measures adopted following an MEA into WTO's rules. Any agreed solutions will have to offer flexibility to environmental negotiations, in terms of judging the legitimacy of the environmental objectives and the type of commercial measures. Similarly, the relationship between the trade provisions contained in the MEAs and those contained in the WTO's agreements should be articulated in such a way as to avoid the perception that the latter may take precedence over the former. It will therefore be necessary to find a system that would allow the WTO system in practice to accommodate trade measures adopted under the provisions of an MEA, while at the same time establishing control measures to avoid the application of unnecessary restrictions on WTO members, especially those who have not joined the MEA, preserving their right to discourage any protectionist abuse by using effective and efficient conflict resolution mechanism. On the other hand, WTO members who have joined the MEA will not have to resort to the WTO dispute settlement mechanism in order to circumvent or disavow obligations accepted by joining the MEA.

Indeed, as never before in recent years, all these developments have shown how in the sector of trade and the environment there is a complex intertwining of connections that require urgent attention and a sense felt of responsibility on the part of all international community members and of the multilateral trading system.

The evolution of the approach to the problem of development, in its particular meaning of sustainable development — such as economic, environmental, or social — has demonstrated the importance of close participation between the competencies of international institutions (Maggi, 1999) — UN, WTO, EU, etc., — which, up to now, has not, however, completely met the expected answers placed in them (WTO, 2017).

New goals should therefore forecast, under international responsibility, a system of responsibility and distribution of poverty, which will be effective, concrete, and transparent, able to reaffirm the importance of international trade, as a vehicle for economic growth, also plays in reducing poverty and inequalities between states.

Achieving these goals requires an ambitious action plan, however, and the WTO will have to regain the full capacity to reform, taking advantage of its skills: the challenge will be to overcome its own problems that are weakening the multilateral trading system, (in particular the disruption of supply chains caused by the coronavirus crisis), as well as affecting conflicts between developing and developed countries.

Therefore, before the proliferation of bilateral and regional agreements, the WTO will have to leverage a multilateral system with a commercial dispute resolution mechanism that goes beyond the so-called “economic patriotism” invoked by many countries (Evenett, 2021), especially the less developed ones.

### **3. Developing countries and economies in transition in the trade and environment debate**

Within the framework of international trade development thus outlined, developing countries and those with an economy in transition express specific concerns in the debate on trade and the environment. While significant steps have been taken since the United Nations Conference on Environment and Development towards a better understanding of the links between trade, environment, and development, many developing countries and economies in transition continue to look with apprehension at the growing demand for stricter environmental standards by industrialized countries.

In addition to awaiting a change in the production and consumption patterns of developed countries, these countries also fear that the high level of environmental standards may hinder their market access opportunities.

As regards the environmental aspects of common interests, it is appropriate for countries to reach an agreement on priorities, commitments, and burden sharing, differentiating common rules and responsibilities according to the level of development.

With regard to market access, the least developed countries (LDCs) represent a potential source of environmentally friendly technologies and products if we consider that in many cases the goods that LDCs destined for export are produced in compliance with environmental needs, using, for example, organic rather than synthetic raw of production. It will be necessary to ensure that, when the products originating from LDCs have a proven environmental advantage over other products, these countries can benefit from market awards assigned by consumption models, more and more careful to respect the environment, existing in developed countries. A lot of agreements reached under the Uruguay Round provide the basis for special treatment of developing countries and, in particular, of less developed countries with regard to improving market access and preferential access. It should also be stressed that the strategy defined in Rio, in particular in Agenda 21, highlights that the integration of environmental issues into all other policies is a necessary step for sustainable development and is an essential element to accelerate the developing countries and economies in transition's long-term development perspectives.

After the Uruguay Round, but also in the framework of previous MEAs such as the Montreal Protocol, new strategies have been developed to encourage developing countries to adopt alternative technologies. These incentives, which take into account the different responsibilities of developing countries, will be able to play an important role in facilitating the adaptation of these countries to new practices of international trade.

This is also true for multilateral donors (such as the World Bank) who must ensure that sustainable development is the central objective of their policies and programs, by intensifying and deepening the integration of environmental aspects into programmatic implementation (Halifax Summit, 1995, para. 26). In addition, organizations such as the International Organization for Standardization (ISO), which is currently developing new environmental standards, should be encouraged to extend their support to developing countries and economies in transition in defining these new standards.

The existing stress between trade and environmental policies depends on the fact that, while the international trade regime aims at a substantial reduction of tariffs and obstacles to trade, the environmental measures linked to trade can be considered consistent with the provisions of the multilateral trading system when they comply with certain basic commercial requirements, such as the principles of non-discrimination between exporting countries and between domestic and imported products (Article 1 of the General Agreement on Tariffs and Trade, GATT<sup>12</sup>). However, the GATT rules do not apply concretely any constraint related to the possibility for countries to implement adequate policies to protect their environment from damage deriving from internal production activities or from the consumption of internally produced or imported goods.

It can, therefore, be concluded that trade regulations allow countries to take all necessary measures to protect the environment within their territory, providing that they are not discriminatory, or arbitrary and do not imply hidden restrictions on international trade.

#### **4. Perspectives of the international debate on trade and environment: The WTO's reform and G20**

The WTO appears to be on the path of long-awaited reform. Ngozi Okonjo-Iweala, Nigeria's former Minister of Finance and World Bank's former number two was elected to the top of the WTO, the first woman and the first African to hold the position of general director. The first woman ever to govern the WTO and promote a "greener" economic system, Okonjo-Iweala, a Nigerian naturalized from

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<sup>12</sup> The General Agreement on Tariffs and Trade (GATT) is an international agreement, signed on 30 October 1947 in Geneva, Switzerland, by 23 countries, to establish the foundations for a multilateral system of commercial relations with the aim of promoting the liberalization of world trade.

the United States, 66 years old, was appointed to the top of the WTO supported by most of the organization's member countries, including the United States (Casola, 1999).

The WTO's new director has gained everyone's support with the promise to update the global trade rules to our century's challenges: climate change, circular economy, fight poverty, and growth of clean technologies. As she wrote on Twitter after his election: "Forget Business as usual!" (Ngozi, 2021).

But it will be a hard task since the WTO could become a battleground on climate policy, with a possible new trade war on the horizon (Di Donfrancesco, 2018). Possible conflicts within the WTO, regarding climate action and the will to accelerate the ecological-energy transition, will arise on two fronts.

The first is that of CO<sub>2</sub> taxes at national borders: Europe aims to introduce a carbon "adjustment" mechanism (Carbon Border Adjustment Mechanism [CBAM]), to make imports of certain products pay for carbon dioxide emissions and, so, guarantee that all companies, in Europe and foreign, can compete with each other with the same environmental rules, by virtue of a carbon price on imports aimed at pursuing climate objectives and closely linked to the European ETS (Emissions Trading Scheme) market. The United States and Great Britain expressed their consent to introduce carbon pricing measures, while countries such as Russia and Australia disagreed; China's role remains to be clarified. The conflict is represented by the possibility that the carbon price at the borders hinders the free competition so dear to the WTO, causing diplomatic as well as legal difficulties.

The second stress into WTO is the European proposal to remove tariffs on specific products that contribute to achieving environmental objectives such as climate mitigation: clean technologies for renewable energy (solar panels, wind turbines, and so on) are an example of products that can directly contribute to reducing CO<sub>2</sub> emissions. A proposal for an agreement (Environmental Goods Agreement [EGA]) had already been advanced but it ran aground in 2016, as no agreement was found on the list of goods to be considered with a high environmental value.

In the WTO context, there has been a convergence among many member countries in reaffirming that trade measures must be compatible with sustainable development and that the system itself must be better "calibrated" on these needs.

However, differences remain open (especially between the North and the South of the world) with regard to the existing global environmental protection agreements and the WTO system: it is different, indeed, acting through declarations of principle or establishing a formal link and putting the theme under the auspices of the WTO sanctions system.

A step forward was instead marked by the recent session of the G20 (Tentori, 2021) dedicated to global trade during which the "Sorrento Declaration" was approved, a document that will guide the hoped-for reform of the WTO and which should have been discussed in Geneva, Switzerland, from 30 November to 3 December 2021 on the occasion of the 12th Ministerial Conference postponed due to the health emergency.

The Sorrento meeting proposed an international trade strategy that is at the service of people, planet, and global prosperity, "People, Planet, Prosperity", to strengthen a multilateral trading system based on precise, non-discriminatory rules, transparent, predictable, and sustainable with the WTO at the center and which adequately responds to the technological revolution and the green transition. The G20 Trade's objective was to "facilitate a positive outcome of the 12th Ministerial Conference of the World Trade Organization at the end of November and give political impetus to a reform of the WTO" (Trade and Investment Ministers of the G20, 2021) which is also fundamental to mitigate the impact of the last pandemic and get better and faster recovery.

The leaders have, indeed, confirmed the objective of the Paris Agreement which provides that the global average rise in temperatures remains below 2 degrees from pre-industrial levels. On the other hand, there is no reference to 2050 as a deadline for zeroing emissions; a still generic commitment under which the G20 countries' leaders should stop financing new coal plants abroad by the end of this year. Finally, the final document of the G20 underlines the importance of respecting the commitment to support the ecological transition in developing countries and accompany the most vulnerable countries in adapting to climate change. It will be necessary to verify if, then, these funds will be disbursed.

As mentioned, the session of the G20 held in Sorrento prepared the subsequent 12th Ministerial Conference of the WTO (MC12) in which a topic that is currently still very controversial, among the new themes of international trade, would be addressed, namely the interaction between commercial

regimes, on the one hand, and regimes aimed at preserving the environment and promoting sustainable development, on the other. The Conference was, however, postponed to 26 November 2021, by the General Council due to travel restrictions imposed by several governments as a result of the spread of a particularly transmissible strain of the COVID-19 virus. Currently, no date has been set for rescheduling the Ministerial Conference which, for the second time, has been postponed due to the pandemic emergency.

The crucial challenge that the WTO therefore has to face does not end only in a change in the global institutional architecture, but it will consist in the construction of a different paradigm of an equitable, ecological, supportive human community, in balance with nature, avoiding the proliferation of bilateral agreements that precede regulatory solutions to be imposed on the next multilateral table in Geneva.

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In the current context of increasing environmental and social awareness, sustainability emerges as a crucial theme that requires an interdisciplinary and innovative approach. This volume aims to explore this complex subject through a variety of contributions from academics and scholars from different disciplinary areas, providing an overview of the challenges and opportunities related to sustainability. From understanding climate phenomena to designing public policies, from analyzing economic models to the role of law in promoting and regulating sustainable practices, from research on neurodegenerative diseases to the psychological implications of resilience, the volume contributes to reflecting on key issues in the field of sustainability.

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