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## AN INTERDISCIPLINARY APPROACH TO ENVIRONMENTAL PROTECTION: LEGAL, ECONOMIC, TECHNOLOGICAL, AND PHILOSOPHICAL CONSIDERATIONS

### ABSTRACT

Effective environmental protection demands an interdisciplinary approach. It should rest on the foundation of legal regulations setting out rules for the use and protection of natural resources with the principle of sustainable development. People need these resources for survival but they contribute to their degradation. To secure the basic rights of people, the environment and economic growth, effective environmental protection is a must. This paper aims to present the relations between legal, economic, technological instruments and the factors affecting the dominating standard of social awareness which affects ethical choices in the scope of environmental protection. This analysis served to develop a model that integrates these elements for the purpose of effective environmental protection. In a nutshell, effective environmental protection cannot be attained through legal instruments alone; they must be coordinated – the use of the best available techniques – with adequate economic tools and ethical standing of the society.

**KEYWORDS:** *environmental protection, interdisciplinary approach, law, economic instruments, ethics*

## INTRODUCTION

Environmental protection is a matter of paramount importance for both human life and economic growth. It rests upon a set of clearly defined principles enshrined in international law. At the heart of this framework is the principle of sustainable development. Formulated at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, it unites three fields of law: human rights, environmental law and economic law (Kenig-Witkowska, 2011, p. 112). Sustainable development has laid the groundwork for the formulation of principles such as prevention, precaution, an integrated approach and subsidiarity (“polluter pays”). In turn, these concepts have shaped the entire system of environmental law which lays out the rules for the use and the protection of wildlife and the abiotic environmental resources such as water, air and soil. The system places a particular emphasis on the measures of protection and rationing. They tackle the problems from two sides. Firstly, they restrict access to natural resources by obliging businesses to obtain the relevant permits; secondly, they reduce pollutant emissions through a framework of environmental standards and environmental remediation. However, the establishment of a legal system alone is insufficient to ensure effective environmental protection if unassisted by adequate economic and technological instruments. Examples of valuable devices in this area include ecotaxes, a system of environmental fees, subventions, and state-of-the-art technologies which uphold the highest environmental standards and assume a holistic approach to environmental protection (BAT). Nowadays, respecting and fulfilling the imperative of environmental is becoming – with ever greater conspicuity – one of the global issues of our time. The attainment of this goal is largely contingent on the cultural factors which determine the relations between the natural environment and man (society). Therefore, the search for potential solutions should transcend the technology realm to include a revision of the way we think and define our values and our place in the world; a reassessment of our understanding of human development, its nature, purpose and sense, not only through the lens of rational and instrumental criteria but also, or even primarily, as a matter of ethics. Consequently, scientific and technological expertise should be supplemented with a synthetic reflection

aimed at identifying the interdependencies between man and nature and perform their holistic analysis. Social awareness and environmentally ethical behaviour have become the subject of a philosophical debate which brings to the fore the importance of integrating legal, technical, economic and ethical instruments in relation to environmental protection. Even though some authors did investigate interdisciplinary environmental protection, their analyses only covered a fraction of the issue, focusing chiefly on the aspects related to law (Bonar, 2001; Adger et al., 2003; Szymańska & Zębek, 2014), education (Namiesnik, 1999; Semerjian et al., 2004; Schmitz et al., 2012; Iwińska et al., 2018), economy and sociology (Winnicki & Głowiak, 1978; Sej-Kolasa, 2009; Pereira, 2015), philosophy (Tošić, 2006) and ethics (Carter, 2020; Batavia et al., 2020) in the context of sustainable development or in reference to ecosystems and global climate changes (Kammen, 2013; Zielinski et al., 2018).

These considerations have yielded the following research hypothesis: effective environmental protection requires the integration of efficient legal regulations, adequate economic instruments, technological solutions and social awareness that, when properly moulded, translates into ethical choices. This paper aims to present the relationship between legal, economic and technological instruments, together with the culture-forming factors that affect ethical positions on environmental protection.

## **ENVIRONMENTAL PROTECTION AND THE LAW**

### ***SUSTAINABLE DEVELOPMENT AS THE FUNDAMENTAL LEGAL PRINCIPLE FOR ENVIRONMENTAL PROTECTION***

The Rio Declaration of 1992 defined the ideal of sustainable growth as a strategy of environmental, social, technological and organisational transformations aimed at the attainment of a reasonable and steady level of social welfare which may be sustained for many generations without fear of destroying natural resources or ecosystems (UN Conference, 1993). The definition points to the human right to the environment, the right to economic growth

and the right of the environment to proper functioning. Indeed, together with the right to live, people enjoy the right to the environment, as foreseen by the Universal Declaration on Human Rights adopted by the Third Session of the UN General Assembly on 10 December 1948 in Paris. The human right to the environment is reflected in Article 3 thereof. It sets forth that “Everyone has the right to life, liberty and security of person” (UNESCO, 1948). However, this right should be considered jointly, for human life is contingent on the access to natural resources in the right volume and quality. To echo the Rio Declaration, we may say that human beings are entitled to a healthy and productive life in harmony with nature.

The principle of sustainable development is inextricably linked to ecological justice (Bosselman & Grinlinton, 2002, p. 115-118; Ciechanowicz-McLean, 2016, p. 123), a concept which accentuates the importance of equal access to a clean, quality natural environment for all people, regardless of their nationality, religion, race, material status or any other factor (see also Rosicki, 2010; Papuziński, 2014). Ecological justice concerns itself with securing natural resources for present and future generations alike (intergenerational justice) (Karpus, 2016, p. 136-138). These resources should serve not only to satisfy the necessities of life but also to enable economic growth, which translates into enhanced living standards and a higher quality of social life. Furthermore, ecological justice involves the environment’s right to a natural balance. In other words, environmental resources should be used in a way that does not surpass their capacity for production and regeneration. In the framework of international law, environmental protection encompasses all acts and omissions aimed at preserving the natural balance through the elimination of all adverse consequences and tendencies affecting the environment (Kenig-Witkowska, 2011, p. 135). Thus, the legal perspective on the natural balance concerns the relationship between man and the environment. For instance, the legal definition of natural balance (natural equilibrium) frames it as a status where, in a specific area, an equilibrium occurs between the interactions of man, the elements of living nature and the system of habitat conditions created by abiotic natural features (Art. 3.32, Environmental Protection Act, 2001). However, the Rio Declaration observes that the enforcement of this law and the improvement of the quality of life require the following: the establishment

of environmental law, a supportive and open international economic system, promotion of responsible demographic policy, the elimination of warfare and the eradication of poverty (Kozłowski, 1993, p. 111-114). For this reason, the Rio Declaration laid the foundations for international environmental law, centred around the principle of sustainable development, which inspired the later frameworks of national regulations adopted across the world (Ciechanowicz-McLean, 2004, p. 145).

The principle of sustainable development is enshrined in many acts of European law, including the Treaty on European Union (TEU, also referred to as the Maastricht Treaty, signed on 7 February 1992) which sets the main goals of the European Union through the lens of sustainable and balanced development, which is the attainment of an equilibrium between the social, economic and environmental dimension in the process of economic growth. Thus, sustainable development has dominated the entire EU policy, as confirmed by successive international agreements such as the Amsterdam Treaty of 1997, the Nice Treaty of 2001, and finally the Treaty on the Functioning of the European Union (TFEU). With the development of a legal framework, the principle has evolved and turned into the bedrock of environmental law. Sustainable development has engendered the principles of (1) prevention, which seeks to eliminate environmental losses at the level of planning with the use of available knowledge and procedures for impact assessment and monitoring; (2) precaution, which expands the principle of prevention and requires to take precautionary measures even when the environmental impact has not been assessed in full; (3) “polluter pays”, which obliges the polluter to reimburse the damage arising from pollution and bear the costs of environmental remediation; (4) subsidiarity, which allows smaller units to protect the environment and leverage their capacity to identify the most pressing social needs in this regard; (5) integrated approach, or the holistic consideration of the environment, for proper protection covers all elements of the environment in a comprehensive manner; (6) high level of environmental protection with the use of the optimal legal and organizational instruments; (7) the rectification of environmental damage at source, which imposes the obligation to fix the consequences of pollution at the site (Rosencranz, 2003, p. 313).

### *ENVIRONMENTAL LIABILITY*

Effective environmental protection demands a sense of responsibility for nature and its remediation. Potential causes of ecological damage include the destruction of protected habitats and species, chemical contamination, major disruptions (such as noise and vibrations), microbial infestation, illegal hunting, water abstraction altering the volume of surface waters, chemical discharges from industrial plants, lorries, or tankers (also in accidents), water impoundment which significantly affects the ecological potential of the water, chemical and oil leaks, landfill leachates and heavy metal contamination from faulty gas treatment systems in waste incineration plants (EC, 2019).

In Europe, environmental liability is governed primarily under Directive 2004/35/CE (ELD) aimed at “prevention and remedying of environmental damage”. It concerns the adverse impact on protected species and natural habitats (wildlife), land (soil) and water. The directive establishes the European liability framework underpinned by the “polluter pays” principle. Essentially, the framework places the liability on “operators” involved in a professional activity. The Directive obliges member states to designate the competent authorities responsible for environmental protection. These authorities should identify the polluters and ensure that the agents causing environmental damage or creating an imminent threat of such damage take the necessary preventive or remedial measures or bear their cost. Art. 2 (10) of the Directive defines the “preventive measures” as any measures taken in response to an event, act, or omission that has created an imminent threat of environmental damage, with a view to preventing or minimising such damage. In turn, remedial measures mean any action, or combination of actions, including mitigating or interim measures to restore, rehabilitate or replace damaged natural resources and/or impaired services, or to provide an equivalent alternative to those resources or services as foreseen in Annex II (Art. 2\_11).

In the event of environmental damage or imminent threat thereof, operators must take immediate action to prevent the threat or mitigate its consequences, to inform the competent authority of the event and the preventive measures implemented and to fix the damage by implementing the restoration plan and the actions specified by the competent authority (EC 2010). To fix the

damage, the operator needs to take remedial measures, which vary according to the type of incident. In the case of land damage, the directive requires the operator to have the land decontaminated until it no longer poses any significant risk of adversely affecting human health. In the case of damage to water, protected species or natural habitats, the directive imposes the obligation to restore the situation to the baseline condition. Natural resources or services must be regenerated or replaced by identical, similar or equivalent natural resources and/or services at the site or an alternative site if need be. Annex II to the directive defines the methods for remedying damage to water and natural habitats (EC, 2010). In the case of damage or imminent threat to water, protected species or natural habitats, remedial options may take three forms: primary, complementary or compensatory. Primary remedial measures at the site include all steps taken to restore the damaged resources and/or impaired services to or towards baseline condition. Complementary remedial measures include all steps taken in relation to the damaged resources and/or impaired services if the primary remedial measures did not result in fully restoring them to the desired condition. Compensatory remedial measures include all actions taken to compensate interim losses in natural resources and/or services which occurred from the date of damage occurring until primary remediation has achieved its full effect.

Environmental liability may be considered in three categories: administrative, civil and penal. The first category concerns the administrative liability regime which mandates environmental decisions. In particular, these resolutions oblige operators to restrict their adverse impact on the environment and restore the situation to the baseline condition. Any detrimental activity may be conducted only upon the acquisition of administrative decisions awarding relevant permits for the extraction of natural resources in the volume surpassing general use, pollutant emissions (emission standards), the use of an installation which needs to meet the relevant environmental standards, mineral exploration and extraction, waste production and processing (recovery and treatment), tree removal, etc. Importantly, the decision may be issued only upon the evaluation of the adverse environmental effects of the project as at the planning level. The evaluation uses the environmental impact assessment system established under the Aarhus Convention (1998) – which specifically

guarantees public participation in environmental protection (the principle of public participation) – and implemented under the assessment directive No 2014/52/EU. Thus, these legal instruments serve to both regulate the use of environmental resources (quantitative protection) and prevent damage (qualitative protection).

In turn, civil liability rests on the assumption that the environment must be protected as a common good. Its framework comprises a system of claims for the cessation of unlawful activity that threatens or damages the environment. Finally, penal liability concerns sanctions for the non-compliance with the required standards of environmental protection. Notably, it involves the establishment of a system of criminal penalties for infringements upon environmental law. European law regulates environmental offences in Directive 2008/99/EC, which obliges member states to provide for criminal penalties in their national legislation for serious infringements of provisions of Community law on the protection of the environment. Article 3 lists the acts which constitute a criminal offence when unlawful and committed intentionally or with at least serious negligence. They concern the use of hazardous substances and ionising radiation, waste, nuclear materials, ozone-depleting substances, as well as the operation of a plant in which a dangerous activity is carried out, killing or trading specimens of protected wildlife species, or deterioration of a habitat within a protected site (Radecki, 2010, p. 218).

## ENVIRONMENTAL PROTECTION AND TECHNOLOGY

### *TECHNOLOGICAL DETERMINISM*

The notion of technological determinism goes hand-in-hand with the culture of technocracy. Dating back to the second half of the 18<sup>th</sup> century, the birth of technocracy may be linked to the invention of the steam engine by James Watt in 1765 (Kowalczyk, 2019, p. 92-93). In the ideological dimension, the origins of technocracy are closely tied to Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations* published in 1776 (Smith, 1776). Smith presupposed that it is not the land but the capital that should determine the

increase of wealth. In his mind, the free-market systems should rely on the self-regulating competition mechanism or the “invisible hand” that will eliminate the incompetent and reward the manufacturers of quality cheap products in popular demand (Postman 1995, p. 53). Smith’s ideological framework provided the inspiration for modern free-market systems. However, the modern global economy cannot be described as an orthodox free-market system, as clearly demonstrated by the aid packages for failing enterprises and other steps taken by national authorities in the face of the coronavirus (Covid-19) pandemic in the period from the second quarter of 2020 onwards. Moreover, it is worth noting that the activity taken in conditions of free competition focuses on cost reduction. Such a focus may be an important factor inclining enterprises (in particular, the global tycoons exploiting the achievements of globalization and reducing costs through offshoring, which involves the outsourcing of some production stages to developing countries) to unethical conduct that interferes with the ecosphere. Currently, concern for respecting the natural balance and the tenets of sustainable development is expressed by leading Polish economists, including Professor Jerzy Hausner. The aims of his civil initiative called the Open Eyes Economy may be encapsulated in the following eloquent quote: “[...] we identify our movement as the ‘economy of values’, as opposed to ‘the economy of greed’ (Hausner, 2018, p. 8).

The next decades of the 20th century witnessed further elaboration of the concept of technological determinism, which was introduced by Thorstein Veblen in 1906. It was later presented in the 1950s by Harold Innis in his books entitled *The Bias of Communication* and *Empire of Communications*. Innis made observations regarding the clear cause-and-effect association between informational technologies and civilisational changes (Kowalczyk, 2019, p. 111). Another partisan of radical technological determinism was the Canadian researcher Marshall McLuhan, who formulated the following thesis: “[...] a string of ground-breaking innovations in information technologies which inspired social change. The first great innovation was the print which, in the long run, led straight to the Industrial Revolution. The next revolution is brought about by electronic media, which will spark social changes of equal calibre” (see McLuhan, 1962, 2003; Goliński, 2011, p. 71).

Nowadays, the echoes of technological determinism reverberate clearly in the debate on digital transformation and its impact on the global community in the context of respect for the ecosphere. The experience of lockdown in the initial months of the coronavirus pandemic in the second quarter of 2020, the change to other forms of work such as remote work, and the potential persistence of this tendency in the future may all be vital reference points in the discussion on sustainable development.

### ***MODERN DILEMMAS OF SUSTAINABLE DEVELOPMENT***

Respect for the natural environment is a concern voiced by multiple organisations uniting national leaders across the globe. Within the European Community, violent changes related to digital transformation (including the challenges for the transport and mobility sector) and their reconciliation with the need to prevent environmental degradation has come under the scrutiny of the 2019–2024 European Commission presided by Ursula von der Leyen. Under her leadership, the Commission drafted the European Green Deal, one of the six strategic priorities of the European Community for the years 2019–2024. The other five areas concern the improvement of digital competence and the implementation of new technologies, including artificial intelligence (“*A Europe fit for the digital age*”), the reduction of economic imbalances between various regions of the Community (“*An economy that works for people*”), the strengthening of the strategic importance of the European Community in world politics, including economy, diplomacy and security (“*A stronger Europe in the world*”), cultivation of the respect for the rule of law, civil rights, and consumer rights (“*Promoting our European way of life*”), the advancement of citizens’ involvement in the decision-making process regarding the Community and the development of effective mechanisms for combating misinformation and hate speech (“*A new push for European democracy*”) (EC, 2019–24).

According to the tenets of the *European Green Deal*, the fight against climate change and environmental degradation, which count among the gravest threats to Europe and the entire world, requires the adoption of an action plan for transforming the EU into an economy where:

- there are no net emissions of greenhouse gases by 2050,
- economic growth is decoupled from resource use,
- no person and no place is left behind (EC, 2019).

Specific actions foreseen in the strategy include investments in eco-friendly technologies (in accordance with the assumptions adopted in *Best Available Techniques – (BAT) Reference Document for the Management of Waste from Extractive Industries in accordance with Directive 2006/21/EC*), support for industrial innovation, the introduction of cleaner, cheaper and healthier forms of private and public transport, reduced emissions in the energy sector, increased energy efficiency of buildings and cooperation with international partners to improve global environmental standards (EC, 2019).

It is equally important to define the specific areas of the European Green Deal, including the preservation of biodiversity, research aimed at ensuring a more sustainable food chain, the establishment of conditions for sustainable farming, the search for alternative and more ecological energy sources, the development of more sustainable and eco-friendly production cycles, the construction of energy-efficient buildings and the renovation of existing structures to economise on energy costs, the promotion of more sustainable modes of transport (including self-driving vehicles and alternative fuel vehicles), the elimination of pollution, and net-zero emissions of greenhouse gases by 2050 (EC, 2019).

## **ENVIRONMENTAL PROTECTION AND SOCIAL AWARENESS**

### ***THE CHARACTER AND THE SIGNIFICANCE OF THE PHILOSOPHICAL PERSPECTIVE ON ENVIRONMENTAL PROTECTION***

Within the traditional division of the fields in philosophy, environmental protection may be discussed on at least several interconnected levels. On the plane of ontology, philosophy attempts to define the character of being (ontic

status) of nature as a whole and its distinct forms, striving to grasp the conditions and dependencies which determine their existence. Nowadays, ontology brings to the fore the condition of ecosystems and the biosphere, of which man is a part. The focus falls on answering the questions about the essence of nature, the mechanisms of its changes, and what (or who) is man in relation to nature. To what extent does man belong to nature and relies on it as one of its species? To what extent and in what sense does man transcend his existence as a part of nature by creating an anthroposphere? The answers to these problems determine the status of nature in our value system which, needless to say, plays a crucial role in consolidating the approach to the natural environment.

Upon the determination of the ontological model, we may proceed to the philosophy of knowledge to develop the most pertinent research tools to study the being in question. Epistemology justifies the need for new branches of knowledge on environmental threats and methods for their counteraction. In this regard, it aims for an interdisciplinary synthesis of science and humanities (Dołęga, 1999, p. 17-18). The goal is vital, especially as most environmental offences result from a lack of awareness, i.e. knowledge of the functioning of nature and the consequences of human activity.

As we attempt to define the significance of the natural environment as a value, we enter the realm of axiology. The discussion in this area is of crucial importance for any normative culture since they are all continuously developing their hierarchies of values. To this end, they must resort to multiple evaluation criteria, including utilitarian, ethical, spiritual, and material considerations. The combination of these arguments adds up to a standard of awareness dominating in the given culture, understood as the entirety of the ideas and opinions expressed in the relevant historical period on the topic of nature and the role of man (society) in its framework (Górka et al., 2001, p. 31-33). The development of a dominating axiological model translates into practical activity. The model becomes an important premise for legitimising the purposes of human activity and assessing its results. At this point, it is worth mentioning that among the main sources of the modern-day ecological crisis is an axiological crisis, particularly in relation to the dominance of values based on short-time, selfish, utilitarian pursuits to increase economic gain (Sen, 2011, p. 24-35). These are accompanied by the hallmarks of a consumerist democracy:

excess and wastefulness. Both take their toll on the face of the world, with the natural environment being their prime victim. In this perspective, it is especially important to examine the foundations of our philosophies of nature management implemented so far and to seek a common denominator for the integration of economic criteria and environmental requirements within a business activity. There is a need to revisit traditional measures of efficiency and search for new axiological grounds setting the direction of change in law, manufacturing, consumption, lifestyle, etc.

The era of globalisation has brought about a gradual convergence of cultures, as manifested by the dissemination of technological advancements, the adaptation of economic mechanisms to the rules of the free-market economy and the increased importance of international legislation. However, despite the shift toward homogenisation, we can still speak of cultural differences shaped throughout history and manifested in the approach of man to nature. They are particularly conspicuous in the fairly solidified division into the biocentric cultures of the East and the anthropocentric cultures of the West. The discrepancies between these systems originate largely from the religious background which pervades human awareness – especially at the symbolic level – affecting self-identification and attitude to the surrounding world.

In western cultures, the approach to the natural environment has been informed mainly by anthropocentric contents. In this framework, man is the crown of all creation, the source of all values, the measure of all things. Therefore, the perception of the world and the formulation of standards should be subordinate to men and their needs (Seed, 1994, p. 316). This approach stems from the ontology of the Antiquity and the Middle Ages, from the ideal of science from the Early Modern period, and from the ideal of progress that dominated the Enlightenment. Progress correlates with an appreciation for the technocratic model of progress based on the pursuit of the incessant growth of production and consumption of material goods and services.

The anthropocentric approach may be traced back to the classics of Greek philosophy. Aristotle argued that “*if nature makes nothing incomplete, and nothing in vain, the inference must be that she has made all animals for the sake of man*” (Aristotle, 1964, p. 20-21). The Judeo-Christian tradition cemented the view of man as the “crown of creation” by recommending people

to subdue the earth. Admittedly, the Book of Genesis contains passages that urge respect for nature, framing people in the role of gardeners or hosts rather than explorers. Yet, these contents have never played any major role in the philosophical interpretations of the biblical message. Exceptions to this rule include the reflection of Saint Francis of Assisi and the modern currents of ecological ethics pursued by such thinkers as Albert Schweitzer, Aldo Leopold, Arne Naess and Henryk Skolimowski.

The adoption of the anthropocentric perspective shatters the integrity of the world, orienting it towards a dichotomous vision of nature and the human realm. This direction is taken by Thomas of Aquinas, who builds his ontology upon the thought of Aristotle and accentuates the exceptional place of man amongst other beings. In the hierarchical structure of beings proposed by Thomas of Aquinas, man is classified below God and the angels (pure intelligence), yet above the animals, plants and material objects. Such a chain of dependencies justifies the dominance of man over nature, which becomes a resource to be used.

Thus, Christian theodicy cares little for the suffering of animals and failed to consider ecological evil. In its framework, nature is only a background for human activity, while other beings are replaceable and insignificant in the light of moral subjectivity. Both moral and natural evil are only discussed in relation to man. Man may be the ruler of nature and transform it at will. His growth is measured with criteria such as efficiency, control and power over the natural environment. Human activity, focused on the pursuit of welfare, sets the direction for “the modern age” which is mostly oriented at ensuring pragmatic usefulness. In this perspective, the natural environment becomes a resource which man may exploit with virtually no reservations.

The ethical problems determined by anthropocentrism revolve around the man-and-man and man-and-society relations. Ethics of this sort does not provide sufficient principles for defining the relations between man and nature in line with the principles of equality and reciprocity. If we weigh the needs and interests of man against the needs and interest of the biosphere, anthropocentric ethics will commend resolutions benefitting the former. Although it may not necessarily lead to anti-ecological instrumentalism, ethics of this sort has insufficient measures to prevent its rise. Thus, it cannot guarantee

effective protection of the natural environment, especially in its current precarious condition.

Starting from the 18<sup>th</sup> century, natural resources were generally exploited through industrial activity. It was industry that sparked new needs, inspired new aspirations, stances, and life goals. Their attainment and satisfaction were inextricably linked to economic growth. The ideal of progress heralded by the enlightenment philosophers became a key category in sociological and economic theories. It went hand-in-hand with the belief in infinite natural resources, the cult of reason and faith in the cognitive abilities of the human race. Science was supposed to break all taboos, including the taboo of nature. People opened their minds to the deep conviction that power and technology grant them the right to affect and control nature. Science succumbed to the paradigm of positivism and empiricism which presumes that what falls beyond the realm of scientific knowledge is either unknowable or non-existent. The phenomena of the physical world took the spotlight. The mechanistic approach combined with technocratic thought fostered success in the field of technology and highlighted production growth, which was hailed as the remedy to social and economic problems. Indeed, the achievements of the Industrial Revolution initially inspired hope and faith in human genius. Yet, with time, people started to notice the threats related to the development of industrial society. In the second half of the 20<sup>th</sup> century, and particularly in the 1980s, many papers challenged the purpose of progress, understood primarily as further economic growth (See Krasnodębski, 1991; Marcuse, 1991; Sen, 2002). The faith in automatic social liberation, supposedly brought about by the advancements of science and technology – collapsed. People started to warn that the next great threat succeeding the tragedies of totalitarian regimes may be consumerist utopia (Hochschild, 2003, 208), the unrestrained power of capital, “growing rich” as the life goal and a moral value.

As a result of the instrumental approach to the natural environment, which reached its apex in the 19<sup>th</sup> and the 20<sup>th</sup> centuries, the subjugation of nature has become a threat to people themselves. When technological progress gave people the power to transform nature on an unprecedented scale, some started to call for a re-examination of the relationship between man and other forms of life. More and more conspicuously, this postulate is now turning from

a possibility into a necessity. Today, regardless of the philosophical concept and its sources, the broadly understood protection of life rests on a departure from the tradition of anthropocentrism and the great chain of beings. The leading currents in modern thought highlight the ontological premises for the development of a harmonious bond between man and other beings. Human superiority stops being an argument justifying the exploitation of nature. Even if we accept that man is indeed superior, this view is ceasing to underpin the egocentric ethics of human domination. Instead, it places people under a special obligation to care and stay responsible for the world where they are living. This approach requires a fresh look at the moral duties related to the proper functioning of man in the surrounding environment. The fulfilment of these duties does not hinge on the formal commands and prohibitions or economic motivations alone; it is achieved through the firm belief that nature needs our care. We can hardly expect an anthropologically-oriented culture to satisfy the postulates of the ecological movements to acknowledge that beings other than man are moral subjects – in a similar scope and degree as human beings – even though they have been denied this status thus far.

It seems that the development of pro-environmental awareness may be easier in the framework of a biocentric philosophy. This approach has its roots in Hinduism and Buddhism, which have laid the groundwork for a system of beliefs characteristic of the cultures of the East. Pervaded with the faith in the principle of oneness in life, they both regard man as an integral, but not the supreme part of nature. This approach is conducive to the pursuit of harmonious relations with the natural environment, complemented by respect and compassion for all forms of life. In the pantheist perspective adopted by the religions of the East, the spiritual principle that governs the universe pervades every fragment of reality. Thus, all creatures carry the element of the divine Absolute. This belief encourages the protection of all creatures and manifests itself through the cultivation of three basic virtues: *maitri* – friendship towards other beings; *ahinsa* – doing no harm; *kasuna* – compassion (Kalinowska, 1994, p. 63).

The modern current of deep ecology borrows from biocentric ideas to legitimise the need to pursue a vision of justice based on the equality of all beings. In this spirit, the contemporary Protestant philosopher Jürgen Moltmann seeks

to complement the Universal Declaration of Human Rights from 1948 with the Universal Declaration of Rights of Nature. The new declaration shall acknowledge that living and non-living nature has the right to exist, which involves the right to survive and grow; that nature has the right to protect all ecosystems, species and populations in their mutual internal references; that living beings have the right to preserve and develop their genetic potential, to have their species survive, and to reproduce within their respective ecosystems (Moltmann, 1995, p. 534).

Finally, we should recognise that bearing responsibility not only for one's own life but also for the future of the coming generations and the entire planet is a distinguishing feature of *homo sapiens*, a condition of their dignity and a boundary of their freedom. This approach is compatible with the category of "unconditional responsibility" mentioned by Emmanuel Lévinas. Unconditional responsibility leaves no space for questions such as: What is in it for me? To what extent are other beings deserving of my effort and sacrifice? May I expect their reciprocity? Lévinas calls for selfless responsibility, which especially burdens the powerful in relationship with the weak and a person with many choices in relations with those that have none (Pluta, 1998, p. 146-147).

The tenets of ecological justice provide a friendly foundation for the development of ethics that expands from the sphere of interpersonal relations into that of non-human beings. This ethics negates the dichotomous division between man and the natural world, legitimises the need to protect all forms of life by heralding their universal right to exist. This right should apply to all beings, not excluding those at the lowest step of the evolutionary ladder, because: "So-called simple, lower or primitive species of plants and animals contribute essentially to the richness and diversity of life. They have value in themselves and are not merely steps toward the so-called higher or rational life forms" (Devall & Sessions, 1995, p. 100). Reverence for all manifestations of life is at the heart of the thought of the modern Polish eco-philosopher Henryk Skolimowski. His postulate – the veneration of life – is derived from the vision of the world as a perfect, evolving, harmonious sanctuary permeated with awareness. The universe develops with the main aim of creating new beings – of even greater complexity, intelligence and sensitivity. Thus, people should also evolve primarily as "sensitising beings" (Skolimowski, 1991, p. 26).

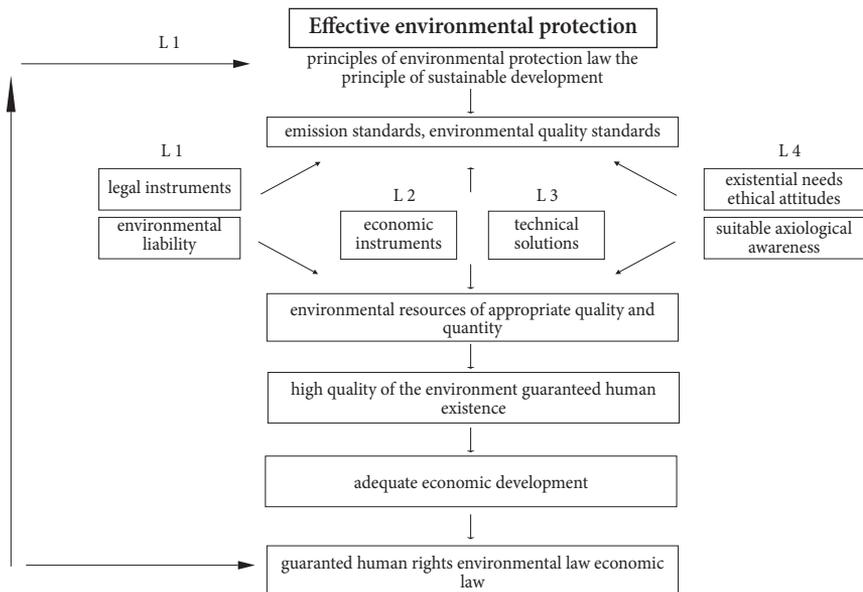
## CONCLUSIONS

The environment is a universal good. People constitute a part of it and cannot live outside its bounds. Yet, it cannot be denied that they also exert the largest impact on the state of natural resources. In the legal dimension, the relations between people and the environment concern the human right to live, and thus to access the natural resources, which is enshrined in international law. The right to live grants access to the resources not only for the satisfaction of the basic necessities of life but also for touristic and economic purposes. Lawful exploitation of resources must comply with the principle of sustainable growth in a way that permits both economic growth and the regeneration of resources for the needs of future generations. The legal system of environmental protection rests on emission and environmental standards, a series of legal and economic instruments that support environmental protection and technological solutions. All of these instruments are employed to protect natural resources against pollution as degradation. Moreover, they serve to remedy the damage caused to the environment. In accordance with technological determinism, technology plays a decisive role in shaping the social structure and value system. Technology may take its toll on the environment but, on the other hand, it champions the process of restoration and regeneration of the degraded resources. Sustainable development, whose overarching goal is the respect for environmental emissions, is the firm focus for institutions such as the European Commission in the European Green Deal. This strategy foresees that Europe shall become climate-neutral by producing net-zero emissions of greenhouse gases by 2050.

Considerations of the shape of the modern social, political and scientific struggles relating to the relations between man and the natural environment would be incomplete without a philosophical perspective. Philosophy provides an abundance of concepts that may be applied in an ontological, religious, pragmatic, psychological or ethical context. That is why the philosophical view of environmental protection allows for a multilateral and comprehensive reflection that provides a deeper insight into nature, grasps its essence and exposes the intricate net of its relations and dependencies to formulate and test a range of hypotheses using the broadest possible spectrum of cognitive arguments. With this approach, we can discuss the mutual influence of people and their

socio-natural environment in the light of the need to transform the scientific and technological civilisation, with its corresponding model of the economy, towards respect for the laws preserving the balance of the global ecosystem.

As the importance of risk in the modern world rises, there is a growing need for its forecasting. For instance, assessing the risk of a natural catastrophe becomes a vital component of rationality (Beck, 1996, p. 17). In the age of uncertainty, it seems right to update Pascal's wager: when some predict an imminent disaster, and others reject their predictions, the safer bet is to listen to the doomsters (Bauman, 2012, p. 271). In this context, Hans Jonas declares the superiority of negative forecasts over positive ones by formulating the imperative of survival as the categorical imperative for a civilisation based on technology (Jonas, 1996, p. 61). Nowadays, the situation of risk is a challenge that may be addressed by the promotion of axiology that transcends our dominating standard of instrumental rationality. Even though it does foster efficiency, instrumental rationality needs to be combined with normative reflection to assess the legitimacy of goals and values according to new, pro-environmental criteria. Furthermore, the right level of technological culture should be combined with the right level of responsibility, sensitivity and the quality of the political culture.



In view of the foregoing, the relations between man and the environment may be discussed in the aforementioned categories: legal, technological, economic and philosophical. However, we should not forget about two pragmatic issues of fundamental importance: 1) people need natural resources to survive; 2) human activity contributes to their degradation. Therefore, to ensure their proper functioning, people have a cardinal obligation to protect resources such as water, air, soil and wildlife. Effective environmental protection demands an interdisciplinary and multi-layer approach that combines expertise from many branches of science (which may be regarded as levels): Level 1 – Law, Level 2 – Economy, Level 3 – Technology, Level 4 – Philosophy. The relations between the levels are shown in Fig. 1. For effective environmental protection, all of them need to be integrated.

Atop the hierarchy is the law (L1), founded on the principle of sustainable development (which combines the rights of people, the environment and economic growth). The law sets forth emission standards and environmental standards to protect natural resources. The respect for these standards is enforceable upon the integration of the legal instruments L1 (environmental liability – administrative, civil, and penal – which comprises a framework of permits, EIAs, licences and a system of criminal penalties) with the economic instruments L2 (ecotaxes, environmental fees, subventions) and adequate technological solutions (BAT) informed by such concepts as technological determinism (L3). Furthermore, it hinges on the necessities of human life dependent on technological progress and an ethical approach towards the environment – an appropriate axiological awareness (L4). The implementation of levels L1 through L4 is sufficient to secure environmental resources in the right quantity and quality. This, in turn, ensures the high quality of environment indispensable for the survival of the human race and economic growth. The final result is the protection of the rights of people, environment and economic growth, which is at the heart of sustainable development – the goal underpinning environmental law.

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