Study on general awareness regarding the problem of environmental degradation

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Abstract

In my paper, I particularly investigate the current level of awareness on the problem of environmental degradation. The analysis reveals some aspects that may be viewed as general conclusion at national level and may be useful for environmental policies in order to obtain higher results and to induce a correct behaviour practiced by part of the citizens and, consequently, more easily propagated among the Romanians. In addition, the paper discusses some of the main difficulties for integrating the environmental aspects within the theory and practices of economic development.

Keywords: environmental degradation, general awareness regarding environment, economic perspectives on environmental degradation

Introduction

The process of development can be translated into the ascension of the whole economic, social, political, cultural, and environmental system. These dimensions are interlinked, meaning that a lower or higher level of some parameter influences, in a positive or negative manner, not only the system, but each of its other sides. In other words, if one aspect is not approached in the political strategy, remaining therefore uncovered and not encouraged to progress, the level of development in a region, in a country or in a cluster of countries from one part of the world would not be capable to grow. This type of development, "that sustains human progress not just in a few pieces for a few years, but for the entire planet into the distant future", is required in The Brundtland Report – "Our Common Future" (WCED, 1987, p. 4)[1]. So, the final objective of development is the general welfare of the

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[1] Starting from identifying the most important elements of world development capable to offer an appropriate perspective of the general realities, specific indicators have been settled and measured. Having them as the starting point, it is possible to formulate a concrete perspective of the level of development in the countries where such indicators were analyzed. In this way, it is reconfirmed and reinforced the idea that development, as a general concept, includes, in its area of understanding, aspects related not only to the economic dimension, but also to the social, environmental and political ones. For example, the first indicator from the list of World Development Indicators measured by the World Bank (with its latest updated data on June 2017, http://wdi.worldbank.org/tables) is WV.1 Size of the economy, including seven sub-indicators related to economic dimensions: Population; Surface area; Population density; Gross national income, Atlas method; Gross national income per capita, Atlas method; Purchasing power parity gross national income; Gross domestic

present generations, as well as of those to come; in this way, development can be only a sustainable one (Pohoață, 2003, p. 13). More than that, Lafferty and Langhelle (1999) consider that sustainable development has to be treated as "an ethical code for human survival and progress", being compared to "other high-minded ideas such as democracy, freedom and human rights" (Sharma and Ruud, 2003, p. 205).

Economists have to distinguish between expansion (a term referring to the short run), economic growth and development (Pohoață, 2003, pp. 10-11). The most common trend is to consider the first two concepts (i.e., expansion and economic growth) and to neglect the last one when political priorities are established. This trend has persisted for entire decades and it has to be approached within a larger perspective of orientation over the long run. The change is imposed by the realities of our days, which appear as continuous alarm signals at different levels (starting from the environment and continuing with moral values, poverty, pollution, consumerism etc.), transmitting that the chosen paths are not the correct ones (WCED, 1987; Tilbury, 1995; Brown, 2001; Socolow, 2004; Friedman, 2010; European Commission, 2014). In this context, some adjustments related to the identified main global issues, including the environmental ones, become mandatory. To advance understanding of the need for integrating environment in the economic development, the article investigates both the theoretical issues and the general awareness related to this challenge. Consequently, this paper especially intends to investigate the level of general awareness regarding the problem of environmental degradation through: 1) clustering a number of countries from all over the world in terms of general awareness related to the environment and trying to extract some conclusions from this grouping and 2) analysing Romanians' openness to environmental problems and formulating some possible responses for attaining a higher level of awareness.

1. Difficulties in integrating environmental aspects within the theory and practices of economic development

Worth mentioning is that, as a mandatory component of development, sustainability was defined, in The Brundtland Report, as "the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). First, economists reinterpreted this definition as one that intended to suggest that the

product. Also utilized in this economic perspective, WV.2 Global goals: ending poverty and improving lives; WV.3 Global goals: promoting sustainability; WV.4 Global goals: strengthening partnership; WV.5 Women in development are other indicators that resume the level of development from different perspectives: social, environmental, political, and cultural.

recommended development path was the one "where human well-being or welfare does not decline over time" (Atkinson, 2000, p. 30). Unfortunately, this type of well-being was treated and analysed exclusively from one perspective – the economic one[2], neglecting the others that impact on people's state of being (i.e., the environmental and social dimensions)[3].

The lack of integrating the environmental issues among the economic facts means cumulative losses of natural capital that has required and still costs large sums of money for the global community (Bartelmus, 2009; Woetzel *et al*., 2017). These costs are related to the damages caused by this absence of integration, to the need of repairing the damages produced or of counteracting their negative effects. The situation can be even worse because, under certain conditions, the natural resources are impossible to be replaced or fixed, so that the damages are irreparable and the costs are huge. An appropriate understanding of the economic and environmental significance of these costs should lay at the basis of the expected change, in terms of attitude, behaviour, and attention paid to environmental protection and to the importance of prioritizing it, even with financial costs over the short run[4]. More, environmental policy can help meet Europe 2020 Strategy's overall objectives of moving to smart, sustainable and inclusive growth that will transform Europe into a knowledge-based, resource-efficient economy (Europe 2020 Strategy, 2010). Greening the economy reduces environmental costs by a more efficient use of resources, while new environmentally-friendly technologies and techniques create employment, give a boost to the economy and strengthen the competitiveness of European industry (EU Commission, 2014, p. 16)[5].

[2] The traditional economic approach is met when economists adopt the one-dimensional position for establishing a certain reality, placing the economic perspective in the center of the whole society and not taking into account the other aspects that interlink and impact each other. Brown (2001, p. 3) recommends the recognition of the fact that the economy is not the center of our world, an assumption able to create the premises of economic progress, while improving, at the same time, the general human welfare. Accordingly, it has become manifest that taking into consideration only one aspect of a society and trying to formulate principles and rules only from this narrow perspective distorts reality and influences it in a negative way.

[3] Consequently, when measuring the health condition of a nation, the most widely used indicator is the gross domestic product, that is "the government's measure of the final value of all goods and services produced and consumed on the market each year" (Goodstein, 2005, p. 85). However, if the aim is to investigate even an economic perspective over the long run, at least four problems, widely mentioned in the socio-economic literature (Goodstein, 2005, pp. 85-86), should be considered, namely: 1. GDP does not include the value of non-market production; 2. GDP does not subtract the costs of growth i.e. externalities – pollution, congestion, defensive expenditures ("the money spent to protect oneself from a deteriorating environment"); 3. GDP does not account for the depreciation of the (natural and physical, human-made) capital used up in production; 4. GDP reflects the general perspective from an "average" point of view, not revealing the real situation of a common, typical person – the "median" one.
The solution is to identify a more complex indicator capable to reflect a larger perspective upon reality, including the three main aspects of sustainability, i.e. the economic, social and environmental dimensions, viewed over a long run perspective.

[4] Gowdy (2010, p. 14) explains that "there is a long history of antagonism between traditional neoclassical economists and those advocating a more pluralistic approach to economic theory and policy. The debate has been less fruitful than it might have been, because of the failure of many on both sides to be specific as to what is being criticized and defended".

[5] Referring to the macro-level and trying to emphasize the benefits of a sustainable approach, an example of positive attitude put into practice, related to environmental protection and efficiency of resources, is Denmark. The first step was

1.1. Main difficulties in integrating environmental aspects within the economic theory and practices

The lack of integration has as primary sources the specific difficulties related to the economic theory and practice. Thus, the first obstacle in integrating the environmental aspects within the theory and practices of economic development is to respond to this question: *What is the maximum level of production that does not affect the environment?* (Pohoață, 2003). The climate is continuously changing, exceeding the natural and normal variations, the changes being caused by the human activities related to large-scale production. As Friedman (2008, p. 40) mentioned, our present societies have built a very inefficient environment with the major efficiency met by generations along time[6]. It is assumed that economic development means production growth. In its turn, this growth means pollution. The environment has a limited capacity to absorb it. So, the equilibrium must be established.

The second difficulty of including the environmental aspects within the theory and practices of economic development is to integrate the social value within the concept of efficiency (Pohoață, 2003; Lafferty and Hovden, 2003; Gomez-Baggethun, 2014), viewed as the ability to produce as much as you can with minimum resources. Accordingly, efficiency refers especially to a quantitative dimension and to the economic aspect. However, the concept of efficiency should be also analysed versus the non-economic (cultural, social, ethical, spiritual) values. The concept of "value" is defined by Millennium Ecosystem Assessment (MA, 2003) as "the contribution of an action or object to user-specified goals, objectives, or conditions", and we have to underline that all the effects induced by a specific action must be included within its area in order to obtain the real image of that action's value. Therefore, when an economic action is measured in terms of value or efficiency, the components of the social and environmental effects it causes must be carefully analysed, for determining the exact value of the action. Unfortunately, the common way to determine the value of an economic decision is to take into consideration only the economic/financial issues and not the other effects caused by it.

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the taxation for a more expensive energy, capable to determine savings in the households and thus increase efficiency. This position was the result of political will (Friedman, 2008, p. 25). Although the expected impact of this political position appeared as the fail of national competitiveness, as Connie Hedegaard asserts, national economy has registered a growth equal to 70%, while energy consumption has been maintained to the same level all this time, and the unemployment rate has been reduced (in time) to less than 2% (Friedman, 2008, p. 25). The fact that Denmark was part of the pioneer group of countries that focused on solar and wind energy generated an important export industry (for example, 1/3 of all wind turbines from all over the world are produced here) and a positive impact on the creation of workplaces (Friedman, 2008, p. 26).

[6] Schaefer (2004, p. 186) draws some not very encouraging conclusions related to the integration of the dimensions of sustainability in the strategy of economic entities, observing that, in his case study, the environment, social responsibility and even sustainability, as a larger concept, were not perceived as a source of competitive or commercial advantage.

So, the perceived value is deformed and, over the long run, the absence of a correct approach provokes damages both on individual and societal levels. Also, some dimensions of human well-being - such as freedom of choice, human rights, and intrinsic values - cannot be measured in terms of money so that the monetary assessments can capture only partially the real total value (de Groot *et al*., 2010, p. 13).

Other difficulties for integrating the environmental aspects within the theory and practices of economic development can be synthesized as follows: difficulties in assessing the natural resources and in establishing their correct price and value; difficulties in building up and organizing a market for the environment; difficulties in changing the perception that only profit is the final end of the production process and not the human being and his/her well-being; difficulties in establishing the type of causality between environmental and economic variables; lack of knowledge and awareness in environmental aspects (Brown, 2001; Pohoață, 2003; European Commission, 2014).

1.2. Perspectives related to possible solution for integrating environment within the theory and practices of economic development

As Brown (2001, p. 3) suggests, while economists observe only the explosive economic results, ecologists perceive the reality of an economy that destroys the environment, producing long-term problematic consequences. More optimistic, Atkinson (2000, p. 3) sustains that "the conflict between welfare now and into the future can be reconciled by prudent management of a nation's portfolio of assets and by bringing the private costs of economic activity in line with its wider social costs" (Atkinson, 2000, p. 35). Lorenzoni *et al*. (2000, p. 57) also mention that the negative effects, like pollution, provoked by the economic actions can be possibly corrected "if society and environment are seen as two, intimately co-evolving systems", where co-evolution refers to "the constant and active interaction between a living organism and its environment" (Norgaard, 1984, 1994 in Lorenzoni *et al*., 2000, p. 57). In other words, integrating the environmental aspects within the theory and practices of economic development means to humanize and ecologize the economy (Pohoață, 2003, p. 65).

This task is not only for economists, but also for ecologists (Brown, 2001, p. 2). These two types of specialists have to work together and formulate policies that fit both economic and environmental objectives, once known that a stable, supportive and close relation between economy and environment is essential for a sustainable economic development. In other words, approaching

the actual issues of our society by integrating the environmental aspects within the theory and practices of economic development has become a must with no alternative[7].

As Friedman (2008, p. 30) advocates, the basis of global and national security and of the economic interest is the focus on greening our countries and, in this way, our world. Our duty is to take position and to fight for our common future. In this case, the fight is about protecting the environment and the natural resources. This has to be assumed with the awareness that, if we do not change our economic paradigm and the way of rationing the practical economic problems, continuing to put profit in the centre of all actions, the standards of living, the ecosystems, the economies and citizens' political choices will be endangered[8]. This threat comes from the most important issues of our hot, flat, and crowded world, as they are identified by Friedman (2008): 1) the higher and higher demand for energy and the poorer and poorer natural resources; 2) the large amount of financial capital transferred to the countries rich in earth oil and, consequently, to their dictatorial systems; 3) the continuous and irremediable climatic changes; 4) the lack of sufficient energy and the inequality related to this aspect in the entire world, that divides the planet between countries that possess electricity and have access to economic development and the ones that do not have electricity over large geographical areas and, in this way, are condemned to isolation and poverty; 5) the accelerated loss of biodiversity.

Paying attention to these specific problems, "we need to replace the rational economic man with a science-based model of human behaviour and the model of the perfectly competitive firm with the one that includes competitive institutions, cultural norms, and biophysical transformations" (Gowdy, 2010, p. 14). Schaefer (2002, p. 179) realized a case study that showed that dealing with environmental soundness and starting to integrate environmental and social issues in the management strategy need to be a continuous and integrating process. It also evidenced that the environmental issues were associated and not viewed in a separate way with the health and safety policies. The

[7] As Atkinson (2000, p. 31) suggests, what is required is a "pluralistic approach". An appropriate economy for the environment, an eco-economy, as Brown (2001) calls it in his book, "Eco-economy". Building an Economy for the Earth requires economic policies based on the principles of ecology. Environmental and economic considerations are complementary, like the two sides of the same coin (EU Commission, 2014, p. 16). Protecting the environment requires fundamental change in the direction of economic progress and institutions of government policy, a change compatible with a continuous economic growth.

[8] In a world that is becoming hotter, flatter, and more and more crowded, the task of elaborating instruments and, in this way, of laying the basis of the societal system, including its sources of energy and the moral and ethical values that have to become rules for a civilized and developed world, is the greatest challenge of our generation (Friedman, 2008, p. 13). Reform is the only reliable path capable to assure proper conditions of life both for us and for the next generations. This assumption, although apparently exaggerated, is as correct as it can be. Global resource depletion and pollution oblige us to recognize that the existing patterns of development and resource utilization are not sustainable, any longer.

integrative above-mentioned aspect refers to this issue, revealing the deep understanding of the sustainability concept with its three main components: environmental, social and economic.

2. Current level of awareness on the severity of environmental degradation and of its limits

In the world we are now living, certain realities cannot be neglected anymore and decisive steps must be taken for finding proper solutions and for efficiently responding to these persistent problems. One of them, the continuous degradation of the environment, with all its negative consequences, must be approached from a strategic point of view, starting, this time, by placing the environmental problems on the centre of the debates, and the profit and economic prosperity over the short run only on the second place. The present global and regional reports are systematically asking countries to assume that the environmental problems really exist and that they cannot be solved by themselves, but only by the awareness and implication of all citizens and all public actors with decisional power. In this context, it is useful to analyse the level of general awareness related to this aspect. The present paper particularly investigated the current level of awareness on the severity of the problem of environmental degradation. Consequently, its aim was to answer some questions, such as:

- Is the environment included in the list of the most serious problems of the world?
- Should protecting the environment become a priority, even if it may cause slower economic growth?
- Is the level of general awareness regarding the environmental problems influenced by certain factors?
- Which are the factors that determine different levels of awareness and openness for solving the environmental challenges in Romania?

2.1. Methodology

At the basis of our analyses, developed for responding to these questions, lays the study realized by a global network of social scientists investigating the changing values and their impact on social and political life, entitled *World Values Survey*[9]. Besides other types of social and economic issues, the study also analyses some environment-related aspects and the actual environmental issues, as they are perceived by the citizens from different countries. 6 different periods of time (1981-1984; 1990-

[9] Available at: www.worldvaluessurvey.org.

1994; 1995-1998; 1999-2004; 2005-2009; 2010-2014) are considered in the analysis of quite similar issues, for a possible evaluation of the changes which the values suffer over time.

Firstly, we have analysed the countries from the European Union included in the *World Values Survey 2010 – 2014:* Cyprus, Estonia, Germany, Poland, Romania, Slovenia, Spain and Sweden, along with, for obtaining a more general perspective, all the 60 countries included in this study for the same period. We have selected two relevant issues from the survey regarding the environmental problematic issues (*Most serious problem of the world* and *Protecting environment vs. Economic growth*) and have investigated the percentages of respondents that gave the following responses: V1: *Environmental pollution is the most serious problem of the world* and V2: *Protecting the environment should be a priority, even if it causes slower economic growth and some loss of jobs*.

Secondly, we have proceeded to country grouping according to these two variables – V1 and V2 - for all the 60 countries included in the *World Values Survey 2010 – 2014*. The method used is the *K-Means Cluster Analysis run* in SPSS. This procedure attempts at identifying relatively homogeneous groups of cases based on the selected characteristics. The aim of this clustering is to observe whether the selected countries have a common trend related to: similar culture, geographical position or stage of development and also to establish which countries are included in the same cluster as Romania and, in this way, occupy almost the same position (adopted by their citizens) regarding the environmental problems and the availability to give up some economic advantages.

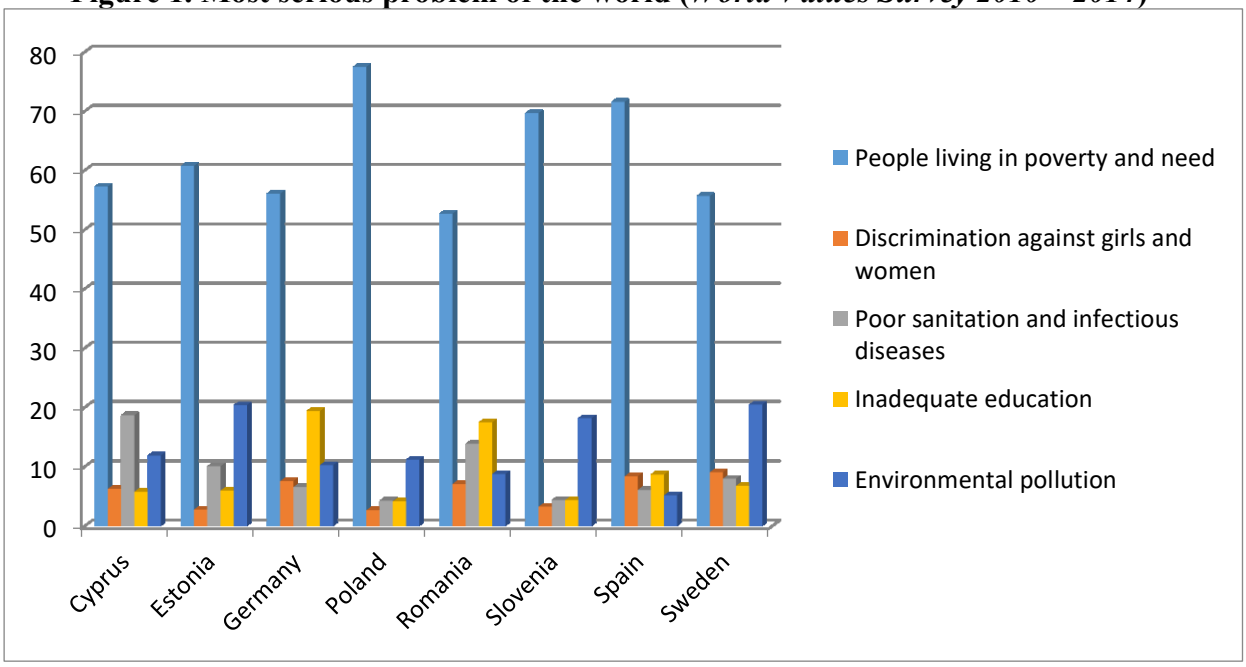
Thirdly, for a clearer perspective on the facts linked to and which may be the cause of considering the environment as *the most serious problem of the world* (V1) and for choosing *protecting it as a priority, even if it causes slower economic growth and some loss of jobs* (V2) in Romania, we have selected some cross-variables with different items. Different percentages of respondents (who asserted that *the environment is the most important problem* and supported its protection, *even if this may cause slower economic growth*) correspond to each item of these variables. The distinct values may reveal some causes determining the importance given to the environment, thus permitting some conclusions that may be further materialized as recommendations for environmental and economic policies. The analysis was made on-line on *World Values Survey Data analysis tool*[10], which gives the possibility to directly investigate each variable of the survey and also to choose other variable from the study and to cross by it the main variable.

[10] You can find out more at: http://www.worldvaluessurvey.org/WVSOnline.jsp.

2.2. General awareness regarding the problem of environmental degradation

Starting from the above-mentioned ideas, an important aspect regarding the environment is related to its inclusion in the list of *the most serious problems of the world*. We can observe that, on the average, the most important problem of the world is perceived as being the *poverty* and the people experiencing it. 61.98% of the European respondents declared that, in their perception, *people living in poverty and need* represent the most serious problem of the world. This percentage – of 56.5% - is higher than the one of the respondents from all over the world (60 countries). In Romania, 52% of the respondents considered poverty as the most critical matter of the entire world.

Figure 1. Most serious problem of the world (*World Values Survey 2010 – 2014*)

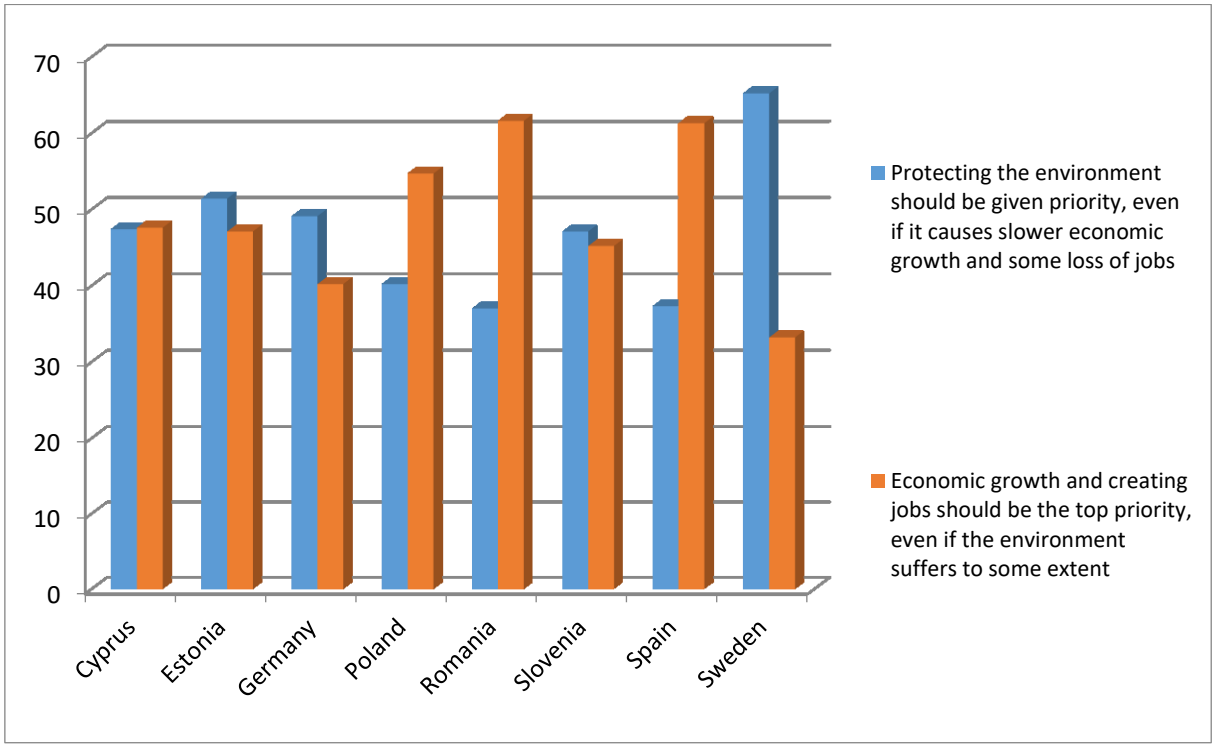


Source: authors' representation

This first option is followed by the *environmental pollution* one, with 13.18% European respondents and 12.7% of the total respondents mentioning it as the most important problem of the world. It is true that the percentages of respondents have different and significant levels (with an intercept equal to 48.8% at European level and equal to 43.8% of all respondents), but it is important to observe that pollution is considered to be the second most important challenge of the world. This means that people are aware of the importance of the environment for their general welfare and of the fact that its neglected protection is causing negative effects all over the world. Connecting the two most serious problems of the world, it has to be mentioned that poverty is assumed as a major source of environmental degradation - in the words of Brundtland Commission: "… poverty itself pollutes

the environment… Those who are poor and hungry will often destroy their immediate environment in order to survive… poverty itself is a major global scourge" (WCED 1987, 28). In other words, the two aspects are interlinked and less poverty may translate into less environmental degradation. It is important to notice that, in general, Romanians are not especially aware of environmental pollution, only 8.7% of them giving this response.

Figure 2. Protecting environment vs. Economic growth (World Values Survey 2010 – 2014)

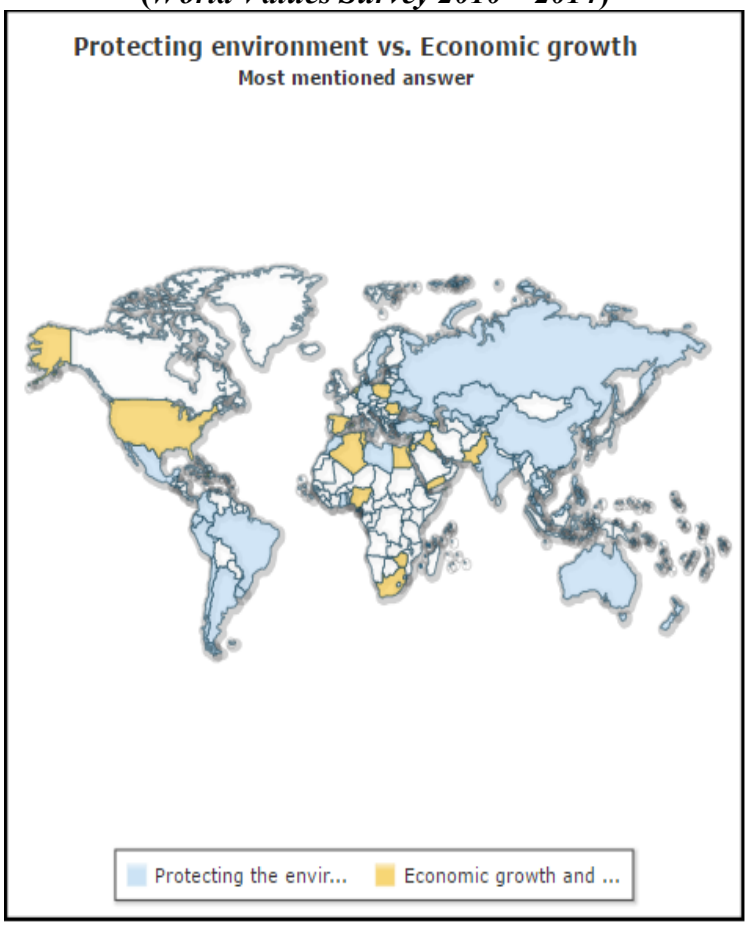


Source: authors' representation

Observing the general current problems of the world, manifested in latest years, a great amount of literature has been dedicated to the continuous degradation conditions related to environment, pollution, to the poverty in certain parts of the world, to the general waste of natural resources, access to water sources and even to land and pastures. De Groot *et al*. (2010, p. 4) associate the environmental problems with both poor information and institutional failures (related to the benefits of the natural resources and the need of their preservation). Sharma and Ruud (2003, p. 209) also support the idea identified in the literature, explaining that "a reason for the failure of environment and social regulations is the inability of governments to reconcile the apparent conflict with desired economic outcomes. The problem is often seen as one of jobs versus the environment and the economic dimension is given greater importance". This statement is confirmed by the level of

environmental degradation met all over the world, and by people's becoming more and more aware of the negative effects caused by their behaviours.

Figure 3. Protecting environment vs. Economic growth – Most mentioned answer (*World Values Survey 2010 – 2014*)



Source: *World Values Survey 2010 – 2014* online data analysis

Focus on environmental issues has as roots the places where cumulative losses in ecosystem services started to appear, which obliged the society to pay attention to them and to find specific solutions (de Groot *et al*., 2010, p. 4). The results of the *World Values Survey 2010-2014* on this issue certify the boosting level of awareness, observing that 47.1% of all respondents from the 60 countries included in the analysis and 44.9% of the European ones consider *that protecting the environment should become a priority, even if it causes slower economic growth and some loss of jobs*. In Romania, 57.9% of the respondents opted for the alternative: *economic growth and new jobs should be the top priority, even if the environment suffers to some extent*, underlying that, when the respondents do not have formal education, this percentage grows up to 71.5%. These high percentages of people that put on the first place the creation of new jobs reveal a series of problems that our national economy is

facing and provoke the classical debates met in the literature related to economic growth in less developed countries and to the environmental measures that have to be imposed to these countries.

As shown in Figure 3, the geographical extension of this awareness is quite high, countries predominantly opting for environmental protection. We must assume that this is the first step in the action of protecting nature and its resources and also that high differences appear between words, attitudes and behavioural patterns. However, even if this first step is an important achievement for saving what can be still saved, it is recommended to advance to the next step, with the certitude that people are able (at least at declarative level) to back up the fight against environmental degradation. De Groot *et al*. (2010) also mention that the awareness on the importance of the environment and of its components for human welfare is growing. However, although this fact reflects a reality, *the loss of biodiversity and degradation of ecosystems* still continue at large scale, requiring changes in the perceptions on the environment and on its benefits, in the manner it is valued and treated by humans in their economic and social activities (de Groot *et al*., 2010, p. 4).

2.3. Grouping of countries in terms of general awareness on environmental aspects

The 60 countries included in the World Values Survey 2010-2014 were divided into eight clusters with different levels of awareness and openness to the environment, taking into consideration the two investigated variables: V1: *Environmental pollution is the most serious problem of the world* and V2: *Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs* (see Table 1).

Data of Table 1 show that the first cluster includes the countries with a high orientation to environmental problems (between 36.2% and 39.5%) and a high availability to prioritize environmental protection (between 48.2% and 60.6%). It includes 2 Asian countries in the third stage of development – Taiwan and South Korea. The other Asian developed country – Japan – is an exception among the 60 countries taken into analysis in the *World Values Survey 2010-2014*, being the only country of the second cluster with the highest orientation to consider environmental pollution as the most serious problem of the world (41.3% - significantly detaching itself from the other countries in this respect), but a low availability to prioritize environment protection (22.7% - almost the lowest one with the exception of two undeveloped countries in the first stage of development – Haiti and Rwanda). Contrary to this, Haiti (belonging to the eighth cluster) registers a very low orientation to environmental problems (1.7%), appearing as the country that does not significantly

associate the environment with the most important problems of the world, and showing the lowest availability to prioritize environmental protection (3.8%).

The third cluster is formed of the countries with the lowest orientation to environmental problems (0.4% - 14.2%) and a medium to high availability to prioritize environmental protection (45.7% - 54.5%). It includes countries in each stage of development (5 countries in the first stage of development, 4 countries in the second and 2 countries in the last stage, according to *The Global Competitiveness Report 2016-2017*). As one may observe, Germany, Argentine and Cyprus are part of it, along with other Asian and African countries with very different cultural patterns and different competitive levels, including Palestine, Ghana, Kazakhstan, Libya, Morocco, Pakistan, Tunisia, and Turkey.

The fourth cluster is preponderantly composed of countries in the second stage of development, most of them from America, but also from Asia, Europe and Australia. These countries are described as being low- to medium-oriented to environmental problems (5.8% - 10.9%), but registering the highest availability to sacrifice some jobs and to assume a slower economic growth for the sake of environmental protection (58.4% - 73.6%).

Romania is part of the fifth cluster, described as having a low orientation in considering environmental pollution as the most serious problem of the world (1.2% - 10.9%) and a low to medium availability to prioritize the protection of environment, even if it may affect economic growth and provoke some job losses (22.1% - 38.1%). It can be observed that this cluster is preponderantly formed of countries in the first stage of development (8 countries from 13, the others being 1 in the third stage - Spain and 4 in the second stage). Related to their geographical position, these countries are especially from Africa and Asia (10 countries), but also from Europe (Romania and Spain) and from America (Trinidad and Tobago).

The sixth cluster is the one with a medium orientation to environmental problems (10.3% - 21.8%) and a medium availability to prioritize environmental protection (30.5% - 47.7%). This is the cluster of the European countries, as it is mostly formed of countries from Europe, apart from those of Asia and Australia. All stages of development are present here, but especially the third (4 countries) and second ones (5 countries), only 2 countries being in the first stage.

Table 1. Grouping of countries in terms of awareness on environmental issues

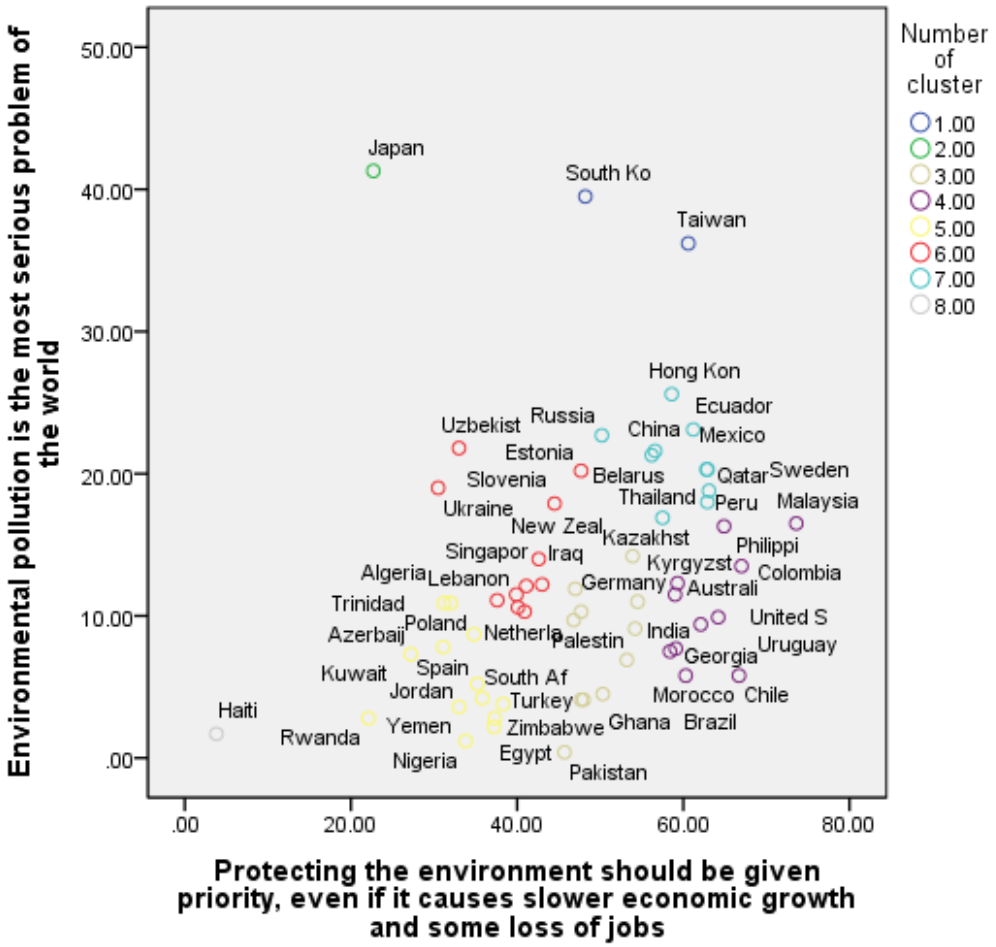
Number of cluster	*The most serious problem of the world is environment pollution* (V1)		*Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs* (V2)	
	V1 min	**V1 max**	**V2 min**	**V2 max**
Cluster 1	36.2%	39.5%	48.2%	60.6%
	High orientation to environmental problems		**High availability to prioritize environment protection**	
	Taiwan, South Korea			
Cluster 2	41.3%	41.3%	22.7%	22.7%
	Highest orientation to environmental problems		**Low availability to prioritize environment protection**	
	Japan			
Cluster 3	0.4%	14.2%	45.7%	54.5%
	Lowest orientation to environmental problems		**Medium to high availability to prioritize environment protection**	
	Argentina, Cyprus, Palestine, Germany, Ghana, Kazakhstan, Libya, Morocco, Pakistan, Tunisia, Turkey			
Cluster 4	5.8%	16.5%	58.4%	73.6%
	Low to medium orientation to environmental problems		**Highest availability to prioritize environment protection**	
	Australia, Brazil, Chile, Colombia, Georgia, India, Kyrgyzstan, Malaysia, Philippine, United States, Uruguay			
Cluster 5	1.2%	10.9%	22.1%	38.3%
	Low orientation to environmental problems		**Low to medium availability to prioritize environment protection**	
	Algeria, Azerbaijan, Jordan, Kuwait, Nigeria, **Romania**, Rwanda, South Africa, Zimbabwe, Spain, Trinidad and Tobago, Egypt, Yemen			
Cluster 6	10.3%	21.8%	30.5%	47.7%
	Medium orientation to environmental problems		**Medium availability to prioritize environment protection**	
	Armenia, Estonia, Iraq, Lebanon, Netherlands, New Zealand, Poland, Singapore, Slovenia, Ukraine, Uzbekistan			
Cluster 7	16.9%	25.6%	50.2%	63.1%
	Medium to high orientation to environmental problems		**High availability to prioritize environment protection**	
	Belarus, China, Ecuador, Hong Kong, Mexico, Peru, Qatar, Russia, Sweden, Thailand			
Cluster 8	1.7%	1.7%	3.8%	3.8%
	Very low orientation to environmental problems		**Lowest availability to prioritize environment protection**	
	Haiti			

Source: own representation using *World Values Survey 2010 – 2014* online data

The seventh cluster is formed of countries with a medium to high orientation to environmental problems (16.9% - 25.6%) and a high availability to prioritize environmental protection (50.2% - 63.1%), in all stages of development (3 in the first stage, 5 in the second stage and 2 in the last one),

belonging to Asia, America and Europe. China is part of it, emphasizing its high willingness to protect the environment, even with some financial and job losses. This means that Chinese citizens are aware of their huge environmental problems that affect the quality of their life every moment and are eager to take position, even with some sacrifices.

Figure 4. Grouping of countries in terms of openness to environmental problems



Source: own representation, using *World Values Survey 2010 – 2014* online data

In conclusion, the highest orientation in considering environmental pollution as the most serious problem of the world is met in the Asian countries, preponderantly in the developed ones (e.g., Japan, Taiwan, South Korea). Also, the highest availability to protect the environment, even with some economic losses, is registered both in American and Asian countries, with the highest percentage of respondents - equal to 73.6% - in Malaysia. Among the countries considered in the analysis, Romania registers a low orientation towards environmental problems and a low to medium availability to prioritize environmental protection, similarly with some other countries from all over the world and in all stages of development, but especially in the first stage of development - from Africa and Asia.

Also, it is part of one of the largest clusters among the eight groups of countries formed, if taking into consideration the awareness of their citizens to environmental problems. Therefore, it may be stated that Romania follows the most common trend of world's undeveloped and developing countries, so that an increased general awareness must be promoted in order to overcome the environmental deficiencies. In this situation, a deeper analysis related to the causes that may impact and determine a higher level of general awareness related to this aspect in Romania is also useful, if not mandatory.

2.4. Romanians' openness to environmental problems. Possible responses for reaching a higher level of awareness

For a clearer perspective related to the facts related to and which might cause the situation that *the environment is the most serious problem of the world* (V1) and for choosing *protecting it as a priority, even if it causes slower economic growth and some loss of jobs* (V2) in Romania, we have selected some cross-variables. The crossing variables with items that determine different percentages of people who see the environment as the most serious problem of the world or prioritize its protection are: 1) age, 2) employment status, 3) educational level attained, 4) sector of employment, 5) sex, 6) care for environment being important to the respondent, 7) the importance of doing something for the society, 8) level of integration in the local community, 9) nature of tasks from the job, 10) level of family savings, 11) materialistic or post-materialistic orientation of individuals, 12) level of freedom in domains like gender equality and public speech, 13) distance from the "sacred" sources of authority in institutions of order (army, police, courts) (see Table 1).

A separate analysis of these parameters shows that (firstly) age influences the prioritizing of environment and its pollution among world's problems, such as people living in poverty and need, discrimination against girls and women, poor sanitation and infectious diseases, inadequate education. Taking into consideration the seriousness and significance of all these global challenges, choosing *environmental pollution as the most important problem of the world* (V1) and prioritizing *its protection even it causes slower economic growth* (V2) represent a big step in the fight against the damages done to nature and to its resources. However, if considering the high level of damages that the economic activities have provoked and are still provoking, we can conclude that these results are not as satisfactory as they should be, great efforts being still needed for attaining a higher awareness related to environmental degradation. The youngest Romanians tend to give more attention to environmental aspects than the oldest ones, because they are more open to certain problems, even if they do not necessarily and directly affect them. Also, they are more inclined to have a long-run

perspective and to sacrifice the present for a cause that does not influence their immediate reality. In other words, the percentages of respondents considering that *the most serious problem of the world is environmental pollution* (V1) are progressively decreasing as the respondents are older. The same situation is met for the ones considering that *protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs* (V2). Accordingly, analysis of the two investigated issues related to environmental problems, for the group with respondents up to 29 years, shows that the percentage is equal to 14.3% for the response related *to the most serious problem of the world* (V1) and to 36.3% for the one related to *protecting environment vs. economic growth* (V2) while, for the group up to 50 years and more, it decreases to 6.5% (for V1) and 32.9%, respectively (for V2). As a conclusion, the environmental campaigns must have as the main target group the younger people, more willing to allocate time and other types of resources for supporting this type of actions. The fact that the golden-agers are not very oriented to give priority to the environmental problems is confirmed for the second time by the low percentages of retired people (5.5% for V1 and 30.3% for V2) considering *the environment the most serious problem of the world* and *prioritizing it in spite of the economic losses*. The self-employed ones tend to offer the greatest support to this kind of global challenge, with percentages equal to 11.8% (for V1) and 47.8% (for V2), respectively.

The level of education attained is also an important factor determining the option for environmental issues as society's challenges, the observation to be made being that those with university-level education and academic degrees register highest percentages (13% for V1 and 53.6% for V2, respectively). This group is followed by the previous level of education - complete secondary school: university-preparatory type (9.1% for V1 and 30.5% for V2, respectively) and, by the complete primary school level, with a percentage equal to 1.6% for V1 and 18% for V2, respectively. In other words, the more educated the respondents are, the more inclined are they to give priority to environmental problems. So, specific investments in education may impact on the level of supporting environmental causes. Similarly, a method of cultivating environmental awareness is proposed by Chawla (2002, 11), who discusses the capability of children to learn active and responsible citizenship, in which the environment aspect can be included, through opportunities to practice it. It is the duty of the public actors to introduce such activities in the formal education of children in schools, but not only. Other possibilities are related to the organization of different events/actions in which children should be involved, thus having the possibility to practice, since childhood, some principles regarding environmental protection. "The inclusion of children and youths represents a

new frontier in policy development, but one vital for the success of long-term goals for sustainability" (Chawla, 2002, pp. 12-13).

Other variable that registers different levels of options related to the environmental problem is the sector of employment of respondents - the more oriented to the environment being the employees from the private non-profit organizations (14.8% for V1), followed by the ones working in governmental or public institutions (10.9% for V1) and by those in private business and industry (7.7% for V1). The situation is slightly different when the problem is put in the other way, *protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs* being most selected by the employees from the public sector (37.9%), followed by the ones from private business and industry (37%) and by those from private non-profit organizations (26.3%). Therefore, it is essential to encourage all sectors of employment, but, as it can be seen, also the institutions with decision power that are not registering a high level of awareness related to environmental problems. Traditionally, the important campaigns related to nature and to its protection, initiated by public actors and by those that have as main objectives protection of the environment, must take into consideration and encourage, besides the support of the external groups, the one of the people that work nearby them, in related public institutions, who could also have a word to say in this respect and thus substantially contribute to promoting actions' success. Gender also has implications in the selection of the responses, females supporting more the social problems of the world and less the environmental ones (6% for V1 and 32.3% for V2, respectively) than males (11.5% for V1 and 32.3% for V2, respectively). Strengthening of local community attachment determines a higher care for the community, for its health and welfare in general and, in this way, a higher implication in environmental protection (7.9% of responses of those who see themselves as part of their local community, compared to 4.9% of those who strongly disagree with this). Having more creative and intellectual tasks determines a higher orientation to environmental problems. The percentage of respondents with mostly routine tasks is equal to 3% for V1 and 30.8% for V2, respectively, comparatively with the ones that have non-routine tasks (13.3% for V1 and 44.3% for V2, respectively). Similarly, the percentage of people with mostly manual tasks (7.3% for V1 and 27.2% for V2, respectively) is lower than of those performing intellectual tasks (13.2% for V1 and 47.1% for V2, respectively). The comfort of having the possibility to save money also improves the availability to support environmental problems (from 6% for V1 and 30.9% for V2, respectively, in those that spent their savings and borrowed money to 10% for V1 and 35.9% for V2, respectively, in those that have saved money). This is related to the fact that people mostly concerned with material needs and physical and economic security are less willing to consider pollution as the most serious

problem of the world (5.8%) and to prioritize protecting of the environment (27.4%) than the ones that stress the aesthetic and the intellectual, and cherish belonging and esteem (13.2% for V1 and 55% for V2, respectively). Other aspects that seem to influence the priority given to environmental problems are related to: 1) *priorities for freedom of speech and people's say in national, local and job affairs*, observing that the difference is from 7.2% for V1 and 29.4% for V2, respectively, in those who do not cultivate such principles and that place environmental problems on the first place to 10.9% for V1 and 55.9% for V2, respectively, in those that attend them; 2) *people's freedom in the domain of gender equality, support of women's equal access to education, jobs and power*, with percent differences from 7% for V1 and 15.1% for V2, respectively, in those that do not support gender problems to 12% for V1 and 51.6% for V2, respectively, in those who do support it; 3) *people's distance from sources of authority in the domain of order institutions such as army, police, courts etc.* - people that have confidence in public institutions are more available to support environmental causes (13% for V1 and 31.1% for V2, respectively) than the ones that do not have confidence in them (5.8% for V1 and 27.1% for V2, respectively).

Table 2. Percentages of respondents that put on the first place the environment, on the basis of other crossing variables in Romania (*World Values Survey 2010 – 2014* online data analysis)

Nr. Crt.	Crossing variable		Percentages for the response *The most serious problem of the world is environmental pollution:*	Percentages for the response *Protecting environment:*
1.	***No crossing variable*** – all respondents		8.7%	34.8%
2.	***Age***	*Up to29 years*	14.3%	36.3%
		Up to 30-49 years	8%	36%
		Up to 50 years and more	6.5%	32.9%
3.	***Employment status***	*Self-employed*	11.8%	47.8%
		Full time	9.6%	37.7%
		Part time	10%	36.1%
		Retired	5.5%	30.3%
4.	***Highest educational level attained***	*No formal education*	4.9%	18.8%
		Complete primary school	1.6%	18%
		Complete secondary school: technical/vocational type	8.8%	42.2%
		Complete secondary school: university-preparatory type	9.1%	30.5%
		University-level education, with degree	13%	53.6%

5.	***Sector of employment***	*Government or public institutions*	10.9%		37.9%
		Private business and industry	7.7%		37%
		Private non-profit organizations	14.8%		26.3%
6.	***Sex***	*Male*	11.5%		37.4%
		Female	6%		32.3%
7.	***Looking after the environment is important to this person, to care for nature and to save life resources***	*Very much like me*	10.5%		39.2%
		Not like me	3.7%		18.5%
8.	***It is important to this person to do something for the good of society***	*Like me*	11.6%		34.2%
		Not like me	5.4%		24.9%
9.	***Protecting environment vs. economic growth***	*Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs*	14.3%		-
		Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent	5.4%		-
10.	***I see myself as part of my local community***	*Strongly agree*	7.9%		35%
		Strongly disagree	4.9%		50.5%
11.	***Nature of tasks: manual vs. intellectual***	*Mostly non- manual tasks*	13.2%		47.1%
		Mostly manual tasks	7.3%		27.2%
12.	***Nature of task: routine vs. creative***	*Mostly non-routine tasks*	13.3%		44.3%
		Mostly routine tasks	3%		30.8%
13.	***Family savings***	*Save money*	10%		35.9%
		Spent savings and borrowed money	6%		30.9%
14.	***Post-materialist index***[11]	*Post-materialist*	13.2%		55%
		Materialist	5.8%		27.4%

[11] The index refers to the materialistic or post-materialistic orientation of individuals. Materialists are mostly concerned with material needs and physical and economic security. In contrast to this, post-materialists strive for self-actualization, stress the aesthetic and the intellectual, and cherish belonging and esteem (Held *et al*., 2009).

15.	***Emancipative values – 4: Voice subindex***[12]	*0-0.1*[13]	7.2%		29.4%
		0.9-1	10.9%		55.9%
16.	***Emancipative values – 2: Equality subindex***[14]	*0-0.1*	7%		15.1%
		0.9-1	12%		51.6%
17.	***Scepticism index***[15]	*0-0.1*	13%		27.1%
		0.9-1	5.8%		31.1%

Source: *World Values Survey 2010 – 2014* online data

As a validation measure, we wanted to see whether the respondents declaring that *doing something good for the society* and *looking after the environment is important to them*, *to care for nature and to save life resources* are also considering that *the environment is the most serious problem of the world* and tend to prioritize it, even if it causes slow economic growth and some loss of jobs. This type of support proves their availability to be involved in and to support the actions made for improving the protection of nature and the level of saving life resources. People considering that *it is not important for them to do something good for the society* and *to look after the environment* viewed this aspect as the most important problem and opted for its protection even if it may cause slower economic growth, even if in a lower percent compared to those assuming that these actions are important for them. Consequently, the percentages of respondents are the following: 1) 5.4% of them stated that *it is not like me to do something good for the society*, but also selected the environment seen as *the most serious problem of the world* compared to 11.6% of those mentioning that *it is like me to do something good for the society* and also selecting the environment seen as *the most serious problem of the world*; 2) 3.7% of respondents stated that it is not like me to look after the environment, but also selected the environment seen as *the most serious problem of the world* compared to 10.5% of those mentioning that *it is like me to look after the environment* and also selecting *the environment seen as the most serious problem of the world*. For *the protection of environment with possible job losses*, the percentages are: 1) 24.9% of respondents stated that *it is not like me to do something good for the society* compared to 34.2% of those mentioning that *it is like me to do something good for the*

[12] Index measuring aspects related to people's voice (priorities for freedom of speech and people's say in national, local and job affairs) (WVS variables description).
[13] Scaling: Multi-point scale, ranging from a theoretical minimum of 0, when the least emancipative position is taken on all items, to a maximum of 1.0, when the most emancipative position is taken on all items. Intermediate positions are given in fractions of 1.0 (WVS variables description).
[14] Index measuring aspects related to people's freedom in the domain of gender equality (support of women's equal access to education, jobs and power) (WVS variables description).
[15] Index measuring aspects related to people's distance from "sacred" sources of authority in order institutions (army, police, courts) (WVS variables description).

society and 2) 18.5% of respondents stated that *it is not like me to look after the environment* compared to 39.2% of those mentioning that *it is very much like me to look after the environment*.

In other words, the respondents that perceive as important for them to do something good for the society and/or to look after the environment tend to be more aware of the environmental problems and of its protection, despite the fact that their option determines certain losses over the short run.

Conclusions

Besides the general criticism on economists' inability to predict the future, their lack of commitment with the real world and their preference for mathematics over people (Snyder *et al*., 2017), the main economic inaccuracies related to sustainable development are: 1) the one-dimensional position is the most common one in the traditional economic theory, appearing as a narrow approach that distorts reality and influences it in a negative way; 2) human welfare is measured in terms of GDP and its continuous growing is estimated as an indicator of general development; 3) economists do not work in interdisciplinary teams (with ecologists or/and sociologists), therefore they do not have unified point of views and, accordingly, their different theoretical and practical reasoning determine different perspectives that produce damages in the society. These errors are interlinked and have as root the fact that the final objective of economic actions is usually only the profit or the efficiency, seen as the ability to produce as much as you can with a minimum quantity of invested resources, without taking into account the other (environmental, social, cultural etc.) effects of these actions.

Integration of the environmental aspects within the theory and practices of economic development involves specific difficulties, such as: to establish which is the maximum level of production that does not affect the environment; to integrate the social value in the concept of efficiency; to assess the natural resources and to establish their correct price and value; to build up and organize a market for the environment; to change the perception that only profit is the finality of the production process and not the human being and his/her well-being; to establish the type of causality between the environmental and economic variables.

Analysis of these difficulties and also of the current environmental problems manifested all over the world evidences that, nowadays, the severity of environmental degradation and of its limits has not attained a high level of awareness. Anyway, it is important to observe that environmental pollution is considered to be the second most important problem of the world. This means that people are aware of the importance of the environment in the societies and of the fact that disregard of its

protection is causing negative effects all over the world. As already mentioned in our analysis, Romania registers a low orientation towards environmental problems and a low to medium availability to prioritize environmental protection, in line with some other countries from all over the world and in all stages of development, but especially in the first stage of development - from Africa and Asia. Also, it is part of one of the largest clusters of the eight groups of countries formed by taking into consideration the awareness of their citizens on environmental problems. The conclusion to be drawn is that Romania follows the most common trend of world's undeveloped and developing countries, so that an increased general awareness must be promoted in order to overcome the manifested environmental deficiencies.

The analysis also revealed some aspects that may be viewed as general conclusions at national level and may be useful for environmental policies. Firstly, the environmental campaigns should have as their main target group especially the younger people, who are more willing to allocate time and other types of resources for supporting such actions. Secondly, the level of education is important as, the more educated the respondents are, the more inclined are they to give priority to environmental problems. So, specific investments in education may impact on the level of supporting the environmental causes. Thirdly, it is also essential to encourage all sectors of employment to fight against pollution and against other environmental deficiencies, including the institutions with decision power that do not register a high level of awareness related to environmental problems. Fourthly, strengthening the local community attachment determines a higher care for the community and for its health and welfare in general and, in this way, a higher involvement in environmental protection. Fifthly, other aspects that seem to influence the priority given to environmental problems are related to the priorities for freedom of speech and people's say in national, local and job affairs; people's freedom in the domain of gender equality, support of women's equal access to education, jobs and power; people's distance from sources of authority in the domain of order institutions such as army, police, courts etc. In other words, these are important foundation elements for the policies aiming at improving the environmental conditions at national level. Starting from them, it will be easier to obtain higher results and to induce a correct behaviour practiced by part of the citizens and, consequently, more easily propagated among the Romanians. It would be interesting and equally useful to see whether Romania follows the common trend and to extend such conclusions to a general perspective, valid for most countries of the world, capable of revealing a particular perspective within a certain national context.

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