

SUSTAINABILITY CONCEPT: WE AGREE TO DISAGREE

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Abstract

Sustainability (S) and Sustainable Development (SD) are two inter-related concepts, which describe the way a society is developing, towards a better and more durable life for its citizens. Sustainable Development Indicators (SDIs) represent an agreed way of measuring the attained level of sustainability and are applied mostly to the three main dimensions of the SD: economic, social and environmental. Various arguments were developed over the years, arguing which of the three dimensions is more relevant to the sustainability and sustainable development, leading eventually to several lists of SDIs. By comparing these SDI, this paper intends to explore the effect driven by the emphasis put by states and organizations into any of these particular dimensions, and to observe if the SDIs lead to unity of effort or if they are subject to disagreement.

Keywords

sustainability, sustainable development (SD), SD indicators (SDI)

Introduction

The concepts of sustainability and sustainable development were used worldwide in a variety of circumstances, developed over the importance endorsed to the main dimensions of the sustainable development: economic, social and environmental.

The World Watch Institute report (1985) noted that collective actions taken worldwide by the mankind are potential contributions to changes in natural systems, and supports the need to rethink the future, in particular by adopting adjusted economic, social and environmental policies.

"Sustainable development" concept was mentioned in the UN Brutland report (1987) as "the development that is sustainable when it meets the needs of the present without compromising the development of future generations". Over the time, the views have taken various forms with the emphasis shifted from the economic to the social and environmental dimensions of SD.

To manage the complexity of the issues included in the concept of sustainability, Genus (2014) pleads for the need for the transition of the governance towards achieving this goal, through a series of actions, norms and beliefs that have the potential to institutionalize sustainability at different levels.

First steps were taken at the Rio Summit in 1992, when the need for SD indicators was agreed and a set of generic indicators was established, revised and agreed worldwide, with goals for each SD dimension and specific actions for implementation, as well as a set of indicators to monitor (UN, 2015). The European Union developed its own set SD indicators (EC, 2015), to monitor the EU Sustainable Development Strategy (EU SDS), published by Eurostat as a report every two years. Romania, as EU Member State, as a result of EU Directives implementation, developed a national (IDDR) and a regional (IDDT) set of SD Indicators.

This paper aims to observe the main viewpoints sheltered under these concepts, with emphasis on the sustainable development, and to assess the consonance between them, using sustainability indicators assumed at the national, European Union and United Nations level.

Convergence of joint activities, undertaken at national and international levels to implement the concepts of sustainability and sustainable development, is a key factor in coordinating development efforts of the society, in the spirit of protecting nature and resources, whilst increasing the overall social wellbeing. As mentioned by Robinson (2004), the risk generated by the inducement of a general enthusiasm in the theoretical understanding, in the society involvement and social responsibility that, without a real support from the politicians and governments, could lead to concept deficiency, the loss of the momentum and failure to meet the proposed targets.

Sustainability and sustainable development are based on the realities of a changing world and reflect a shared global goal, the implementation of which could sustain future generations. If the actions taken for the implementation do not generate the desired results, the results could transform the two concepts into a utopia.

In this paper, a comparison of the SD indicators is performed and the results will be represented, in accordance with the degree to which they support the dimensions of the sustainable development concept. The results will show if the efforts converge towards an overall agreement, or if there is a gap between statements and actions, at the international and national level.

1. Literature review

Sustainability and sustainable development are two concepts, associated to the overall development of the mankind, to which is referred mostly in three main dimensions: economic, social and environmental. Over the last four decades various ideas were developed, arguing on the importance that should be placed on each dimension, leading to the creation of different views and interpretations of the two concepts, yet being acknowledged that sustainability should lay at the intersection of all three dimensions.

In the 1970s and 1980s, social and environmental dimensions were the most common among researchers, with the population and resources jointly integrated. Thus, Daly (1973) considers sustainability as the conditions that ensure the existence of mankind on Earth indefinitely, but conditioned by the stagnation of population growth, reduced consumption and more evenly distributed welfare. Brown (1981) also links sustainable society to the use and conservation of resources, population growth and its standard of living, while Odum (1983) defines sustainability in terms of the capacity of the population being supported by local resources, including when the natural environment is affected by turbulences.

Most of these issues were mentioned in the UN Brundtland Report (1987) that, besides the first internationally agreed definition of sustainable development, arose some risks mankind should avoid, in order to achieve its sustainability: overpopulation and the rate of explosive population growth; the growing gap between developed and poor countries, as the last use their natural resources to pay their financial debts; resource shrinkage, increased greenhouse gases in the atmosphere, ozone depletion, deforestation and soil erosion. The report also highlights the link between sustainability and sustainable development, in the sense that industries which rely on intensive use of natural resources (contrary to the concept of sustainability) have the highest growth (economic dimension of the concept sustainable development), while being the most polluting (environmental dimension).

Diesendorf (2000) argues that "sustainability" and "sustainable future" are regarded as targets of the process called "sustainable development", while UN (2012) presents the concept of sustainability as a pillar of sustainable development, with its associated dimensions: economic, social and environmental, whose final objective is "to promote harmony between human beings and between humanity and nature."

While Norgaart (1994) argues that "it is impossible to define sustainability in an operational manner, with a level of detail and control used in the logic of modernity", Robinson (2004) presented the risk that, by being able to interpret the meaning of the definition and taking advantage of lack of clear tools of measurement, opportunists to declare themselves as "green", "socially responsible" or "environmentally friendly", while their actions having the opposite effect, without being exposed.

Lele (1991) argues that sustainable development is meaningless as a concept, if it is assimilated to notions as "change and sustainable development" (as a permanent process of change, without clear objectives), "sustainable growth" (growth and consumerism, as opposite to a general recognition that the planet has limited resources), or "successful development". Holmberg (1992) argued that a system is sustainable if it ensures a stable base of resources that avoid over-exploitation of renewable resources or of ones which adjust the natural environment, to maintain biodiversity, the stability of the earth's atmosphere and other ecosystems' features.

Sustainability and sustainable development is presented by Gallopin (2003) from a systematic perspective, with input variables, system's internal state and output variables, with deterministic or probabilistic functions determined for a specific period of time. He claims that different situations of sustainability may be discussed: sustainability of input variables (primary resources), sustainability of the system (e.g. protection of an ecosystem), or sustainability of the output variables and not of the system itself (e.g. agricultural yield of a land and not protecting it).

From an economic perspective, Pirages (1977) noted that sustainable economic growth is one which "can be supported by social and physical environment for a predictable period of time," while Tivy and O'Hare (1982) argue that, in terms of resources, sustainable yield is "resource management for a maximum continuous production, supported by the natural recovery of the stock". From the same economic perspective, Weitzman (1976) claimed that the economic growth objective is not the maximization of gross domestic product (GDP), but improving human welfare and quality of life. From his perspective, the GDP is a means to measure the consumption and costs and not the real benefits of the economic activity, thus endorsing the social dimension of the sustainability. His argument is also supported by Ekins (1992), who argues that human welfare is not only determined by the consumption of goods and services (economic dimension), but also by the human capital and social capital (social dimension) and natural capital (environmental dimension), neither of which is intrinsically linked to the GDP. Nourry (2008) takes this view even further, asserting that in developed countries, individual welfare remains constant or even decreases, even to an increased GDP.

In the view of Brown et al. (1987), economists have reached a point of difference in the expression of the concept of sustainability, some of them considering economic growth as a key element of sustainable economy, as opposed to those who believe that zero or fixed growth is essential. Holmberg (1992) considers that an economic system is sustainable if it can produce goods and services on a permanent basis, while maintaining a flexible level of governance and an acceptable external debt, to avoid extreme sectorial imbalances, or that could adversely affect the agricultural or industrial production.

In terms of implementation, Spangenberg (2011) claims that the science of sustainability is an interdisciplinary effort, addressing the relationship between human activity and the natural environment, with the aim of transforming the sustainability into an operational tool, with the necessary planning and implementation tools for achieving its ultimate goal. He also noted that science for sustainability aims to strengthen dialogue between society and science, as a tool to identify the sustainable solutions for the natural environment to reach a certain state in the future.

2. Economic and firm sustainability

It could be observed that the economic dimension, as a driver for growth, human welfare and development of society, has an important role in maintaining the balance between the social and environmental dimensions of SD. From this perspective, in order to identify the way ahead on the path of sustainable development, it is important to analyze both the macroeconomic (economic sustainability) and microeconomic (company sustainability) dimensions.

Evaluation criteria and tools for measuring economic performance have been improved over time, and the current system is implemented worldwide, with strict rules and a permanent control. But is the neoclassical economics the model that could meet the challenges of the contemporary society, at least declaratively moving towards the desired outcome, or an evaluation or even a different development is required?

As Lele (1991) recalled, the economic development per se cannot qualify as a sustainable development, economic growth requiring the association with the social development and environmental protection, as referred in Brundtland (1987). In this regard, Robertson (1997) claims that both the market – to ensure people's needs in a sustainable environment, and the state – as a regulator of the efficiency of the economy and business environment, social justice and sustainability environment will continue to be important.

To be sustainable, economic activity should be consistently supported by the resources so as to ensure their continuation in the future. According to the OECD (1995), efficient allocation of resources between generations is difficult to estimate, because the degradation of the current environment and the benefits of the environmental services have unknown costs, and because the structure of future demands, substitutes available and technological development cannot be accurately foreseen.

For that reason, supplemented by the fact that resources are insufficient and some may not be substituted, Legg (1999) argues that they should be combined so that the aggregate utility function is maximized over time, which in his opinion represents the dynamic aspect of the sustainable development.

In the view of Söderbaum (2014), main sustainable development challenge is the very neoclassical economics, which assumes that any action can be traded in monetary terms and, therefore, cost-benefit analysis focuses on this dimension. He argues the need to accept non-monetary transactions, along with the monetary one, together with a change of the ideological orientation of relevant stakeholders towards the economy, efficiency and rationality.

European Commission (2006) introduced the concept of "knowledge based bio-economy" which, in the opinion of Birch et al. (2010) represents the transformation of sustainable, eco-efficient renewable resources in health, food, energy and other industrial products, by promoting bio-techno-science as a means of reconciliation between environmental and economic dimensions of sustainable development.

It is noted that neoclassical economics has limitations in assessing the real economic situation of a company in the context of sustainable development, and the GDP does not meet current valuation requirements, having identified alternatives, covering better the social and environmental dimensions. From this perspective, Robertson (1997) proposes indexing GDP with the sustainable economic welfare index, which removes from GDP the income gained from activities that diminish or add no value to the individual welfare.

As an example, Douglas (1984) noted that sustainable agriculture is the agriculture that has shifted from the maximum productivity to its sustainability, through land and water conservation, genetic diversity and a healthy natural environment. In terms of sustainability in agriculture, the European Commission (2000) stated that the environmental dimension is

related to the management of resources and their availability in the future, including protection of land, habitats, biodiversity, and air and water quality. The economic dimension concerns the use of resources, sectorial competitiveness, and efficiency of agricultural structures, technologies and diversity of income sources for farm families. The social dimension is related to the employment opportunities, access to resources and services to the farmers compared to other operators in rural areas, concerns of the society on ethical production methods in agriculture.

Based on the ideas presented above, it could be noticed that in the current market economy, globalization and governments intervention in response to the international economic challenges, individual actors (individuals, firms and corporations) are forced to exist within this general framework. How do they perceive the sustainable development context, what are the values to adhere to, how do they estimate their market posture, how do they adapt their behavior, what actions to undertake and how they assess their economic outcomes? These are fundamental questions of existence, development and civic responsibility to which relevant actors must find an answer.

From the firm perspective, business activities induce effects on the natural environment, on the society and on the planet, through the intensive use of raw materials, location and use of land, creating waste and emission of gases into the atmosphere, by the production process, through the influence of lobbying on legislation. From this perspective, it could be argued that the economic activity per se is necessary because of the demand market and, from this perspective there is no responsibility for the negative impacts produced. In contrast to this, there may be situations where the negative effect produced on the environment is acknowledged and, therefore, subject to accountability. What factors could display the difference between these approaches and how could be attained a unified approach on economic growth through sustainable development actions, lead to the optimum use of resources and protection of the environment?

In the specialized literature, companies competitive advantage was considered to be gained through strategy, firm attributes, resources and external competitive environment, the importance of which is interpreted differently by specialists.

Thus, Porter (1980) suggests that based on the assessment of the competitive environment, companies choose their strategies and then acquire the required resources and the focus on achieving competitive advantage, companies have abandoned concerns for social and environmental aspect, while Wernerfelt (1984) emphasizes that developing a strategy requires a balance between the exploitation of the existing resources and the identification or creation of new ones. Hart (1995) argues that the environmental dimension of the sustainable development concept induces constraints, limitations and challenges in developing resources and new capabilities and identified three inter-connected strategies: pollution prevention, product administration and sustainable development.

Sutton (1997) argues that if there are no changes initiated by governments and corporations imposed towards the sustainable development, corporations' support towards the sustainable development of the society, might impose governments to respond in the same direction. Henri and Journeault (2008) believe that the ability of companies to manage the environmental impact is becoming a strategic factor for their development and Webber (2008) argues that environmental practices could support revenue growth, market access and risk management.

Wagner (2005) observed a low correlation between corporate environmental practices and performance, analyzed by the rate of return on total assets, a situation observed by Link and Naveh (2006) after the implementation of ISO 14001. In contrast, Jacobs et al. (2010) believes that companies may lose competitive advantage by implementing environmental

practices, and Cohen et al. (1995) argue that environmental issues at the corporate level produce no effect on competition or economic performance.

The European Commission (2001) developed a framework document for the Corporate Social Responsibility (CSR), whereby companies decide to contribute to a better society and a cleaner environment as a proactive measure in support of sustainable development, encouraging them to use the SA8000 standard and the Global Reporting Initiative report. There should be a balance between companies' need to gain a profit, the location and costs of raw materials and the voluntary implementation of the pollution prevention measures and use of environmental practices. Also, there could be a discrepancy as companies regard the voluntary CSR report, as it could be seen as a means to disclose information on the company policy, which would be beyond the required financial information.

Another important aspect is that although there are tools to implement measures to support sustainable development, they are different conceptually, are used in parallel and there is no single model for reporting the measures implemented and the results thereof, which does not allow unified data centralization and hence achieve integrated statistics and focused action to improve results.

3. Sustainable Development Indicators

The SDIs represent a tool which offer an overview of the progress made towards a more sustainable economy, society and environment. They are used to assessing whether countries are taking appropriate measures towards sustainable development, and as a means to distinguish new venues for economic, social and environment strategies.

They have been developed, tested and adjusted in accordance with the responsibilities assumed by nations, governments and organizations, derived from the agreed SDI versions at the international level. In order to have an overview of the indicators, the SDIs were correlated with the SD dimensions and compared as normalized values against the set of indicators to which they belong.

3.1. United Nations SDIs

United Nations' Sustainable Development Indicators were developed by the UN Commission on Sustainable Development (CSD), based on the Chapter 40 of Agenda 21, adopted at the United Nations Conference on Environment and Development (Rio 1992) (UN, web). Their aim is helping on implementation actions towards the UN Millennium Development Goals, adopted at the Millennium Summit in September 2000:

1. Eradicate Extreme Hunger and Poverty
2. Achieve Universal Primary Education
3. Promote Gender Equality and Empower Women
4. Reduce Child Mortality
5. Improve Maternal Health
6. Combat HIV/AIDS, Malaria and other diseases
7. Ensure Environmental Sustainability
8. Develop a Global Partnership for Development

The SDIs cover fourteen major themes, as presented in Table 1 and are used as a base for policymakers' and stakeholders' decisions at all levels, in conjunction with the sustainable development concept, adapted to the realities of the international environment. Each them includes a number of sub-themes (shown in the brackets) and core indicators, used for a better understanding and implementation.

First set was set up in 1996 and comprised a number of 134 indicators, voluntarily tested by 22 states and subsequently revised in 2001, with a number of 58 indicators. The latest revision

of CSD Indicators was published in 2007, with a number of 50 main indicators plus 48 supplementary, as a basis for countries to adjust national sustainable development policies to the existing set of indicators (UN, web).

Table 1 UN CSD SDI Themes

Poverty (6)	Education (2)	Atmosphere (3)	Freshwater (2)	Global economic partnership (2)
Governance (2)	Demographics (2)	Land (4)	Biodiversity (2)	Consumption and production patterns (4)
Health (4)	Natural hazards (2)	Oceans, seas and coasts (3)	Economic development (6)	

As presented in the UN “Blue Book” “Indicators of Sustainable Development: Guidelines and Methodology”, the CSD are no longer associated to the SD dimensions, as a reason of SD multi-dimensional character. For this reason, the methodology indicates how sub-themes enter into various themes, into a thematic linkage.

Acknowledging the complexity of the SD concept, we consider that having such a variety of relationships between the indicators and themes, indicators’ importance and organizations relevancy for implementation would be diluted. Having in mind the intension to comparing the various available indicators, we correlate the themes, sub-themes and the SD dimensions, as depicted in Table 2.

Table 2 UN SDIs and SD Dimensions

ECONOMIC	SOCIAL	ENVIRONMENT
Economic development (6)	Poverty (6)	Natural hazards (2)
Global economic partnership (2)	Governance (2)	Atmosphere (3)
	Health (4)	Land (4)
	Education (2)	Oceans, seas and coasts (3)
	Demographics (2)	Freshwater (2)
		Biodiversity (2)
		Consumption and production patterns (4)
TOTAL: 2 (8)	TOTAL: 5 (16)	TOTAL: 7 (20)
14% (18%)	36% (36%)	50% (45%)

The correlation between themes, sub-themes and SD dimensions was realized in accordance with main focus of each sub-theme and a total number of CSD was calculated, under each SD dimension, with their normalized values. The values indicates that, in the UN view, the environmental dimension has an increased importance (7/20), followed by the social (5/16) and economic (2/8) dimensions, as presented in Figure 1.

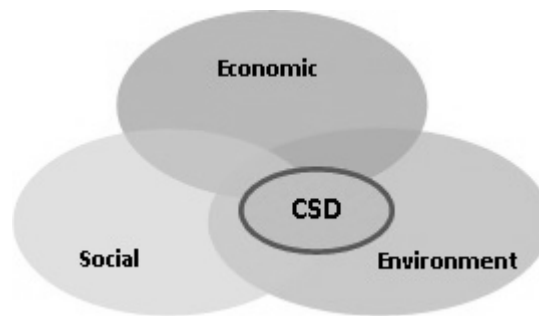


Fig. 1 CSD and SD dimensions

3.2. European Union SDIs

Sustainable development is a fundamental objective of the European Union, which targets the constant improvement of EU citizens' lives "through reconciling economic efficiency, social solidarity and environmental responsibility" (EC, web).

Adopted by the European Council in 2001 and revised in 2006, the EU sustainable development strategy (EU SDS) identified 7 key challenges, to which targets, operational objectives and actions were set.

1. Climate Change and clean energy
2. Sustainable Transport
3. Sustainable consumption and production
4. Conservation and management of natural resources
5. Public Health
6. Social inclusion, demography and migration
7. Global poverty and sustainable development challenges

The EU SDS objectives and targets are monitored and evaluated using a set of 136 sustainable development indicators (EU SDI set), organized in a ten theme-oriented framework, presented in Table 3. The European Commission states that "the themes follow a gradient from the economic to the social, the environmental, the global and the institutional dimension of sustainable development" (EC, web).

The indicators include headline indicators that monitor the overall objective and which include several operational indicators, related to the operational objectives of the EU SDS (presented in brackets) (EC, web). For the computation of the normalized value, the sum of the operational indicators will be used.

Table 3 EU SDIs thematic framework and SD dimensions

ECONOMIC	SOCIAL	ENVIRONMENT
Socioeconomic development (16)	Social inclusion (18)	Climate change and energy (8)
Good governance (8)	Demographic changes (17)	Sustainable transport (10)
	Public health (9)	Natural resources (8)
	Global partnership (12)	Sustainable consumption and production (20)
TOTAL: 2 (24)	TOTAL: 4 (56)	TOTAL: 4 (46)
20% (19%)	40% (44%)	40% (37%)

It could be noticed that EU has established equilibrium between the social and the environmental dimensions of SD, with less emphasis on the economic dimension, as presented in Figure 2.

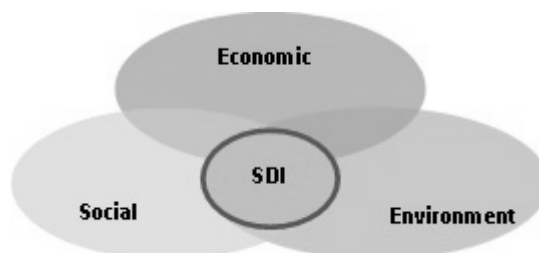


Fig. 2 SDI and SD dimensions

3.3. Romanian SDIs

National SDIs are based on the National Strategy on Sustainable Development (NSSD), set up by the Environmental Ministry and Sustainable Development and UN National Center on Sustainable Development. The NSSD has its basis on the EU SDS and has set goals for the years 2013-2020-2030 and SDIs are based on EU SDIs, using the same EU key challenges:

1. Climate Change and clean energy
2. Sustainable Transport
3. Sustainable consumption and production
4. Conservation and management of natural resources
5. Public Health
6. Social inclusion, demography and migration
7. Global poverty and sustainable development challenges

Table 4 Romanian SDIR and SD dimensions

ECONOMIC	SOCIAL	ENVIRONMENT
Structural changes and macroeconomic equilibriums (10)	Public health (8)	Climate change and clean energy (13)
Scientific research and technological development, innovation (5)	Social inclusion, demography and migration (4)	Sustainable transport (9)
Increasing productivity and improving employment rates (1)	Global poverty and sustainable development challenges (1)	Sustainable consumption and production (21)
Structural changes and macroeconomic equilibriums (2)	Education and vocational training (6)	Conservation and management of natural resources (7)
	Administrative capacity and quality of public services (5)	
TOTAL: 2 (18)	TOTAL: 4 (24)	TOTAL: 4 (50)
31% (20%)	38% (26%)	31% (54%)

As a monitoring tool, Romania uses a number of 13 themes with 92 operational indicators (SDIR), which are used to calculate the normalized values.

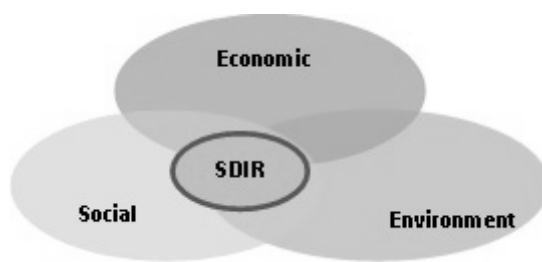


Fig. 3 SDIR and SD dimensions

It could be noticed that Romanian SDIs keep an almost perfect equilibrium amongst the three SD dimensions, with a slightly emphasis on the social dimension, as presented in Figure 3.

Conclusions

Sustainability and sustainable development represent key concepts of the future development of all mankind. Despite the attempts of establishing clear cut definitions of the two concepts, there are various interpretations which diminish the unity of efforts, towards the implementation of a sustainability development.

This paper aims at presenting the results obtained from the analysis of UN, EU and Romanian SDIs towards the SD dimensions: economic, social and environmental.

By comparing the three sets of SDIs, a conclusion could be drawn: regardless of general purpose of SDIs, there are differences both on the number of themes and indicators and the emphasis placed on the SD dimensions. Moreover, through its own SDIs, UN has removed the link between indicators and SD dimensions, whilst SDI and SDIR keep the original earmark.

As of the values, it is interesting to notice that CSD are more environment oriented, SDI are social and environmental balanced and SDIR are almost perfectly balanced amongst all SD dimensions, as presented in Figure 4.

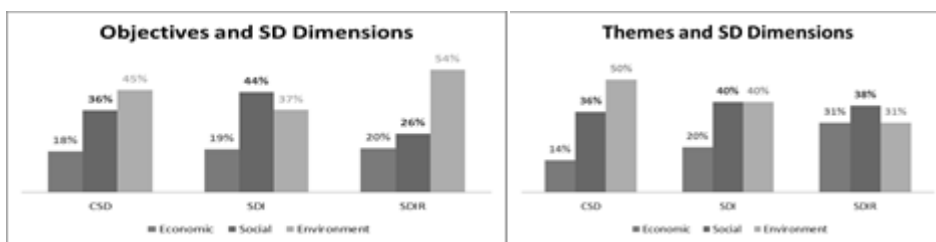


Fig. 4 Comparative analysis of themes and SD dimensions

As it could be seen from the aforementioned results, even though sustainable development is measured through the use of agreed indicators, there are differences due to the emphasis placed by states and organizations into the SD dimensions. Therefore, it could be argued that we could agree on the core meaning of sustainability and sustainable development concepts, yet we could disagree that the results indicate a different approach towards sustainable development implementation.

It is worth mentioning the set of questions formulated by Brown et al. (1987): Is sustainability a utopian idea, or something that can really be achieved? How would we know that

sustainability has been achieved? How would we know that we walk on the right path of sustainable development?

Therefore, future research has to take into consideration European Union Strategy 2020, the CSR component and their decision effects in society, or other complex indexes of sustainable development such as UN Human Development Index (HDI), which takes into consideration the Life Expectancy, Education Index and Income Index.

Also, the economic growth cannot be treated separately from the way of utilizing the natural resources and from the impact of the human activity towards the natural and social environment. By adopting the concepts of “sustainability” and “sustainable development” as promoters of the required actions for establishing an equilibrium point in the environment and for decreasing the bad effects of the economic and human activity related to the environment, these have the potential to represent an important first step in what it concerns the common action efforts.

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