

## **Frameworks for a sustainable development indicators system**

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**Abstract.** *In present, the economic development is a key preoccupation of the policy makers and general public; the attention is focused not only to the economic growth, but to the ways of the development towards sustainable development. In the last time, considerable efforts have gone into work on Sustainable Development, including indicators to support analyses and policies in this field. The paper presents the framework of theoretical concepts and associated operational variable that form the very foundation of the sustainable development indicators system adapted to the particularities of the Romanian economy, which constitute the basis to monitor the efficiency of macroeconomic policies.*

**Keywords:** sustainable development, indicators system, measurement, national policies, strategy.

**JEL Classification:** E61.

**REL Classification:** 8E, 18F.

## **Background**

The challenges of future developments and its longer term sustainability represent the problems of the present age of globalization. In the early past the biggest countries like China and India have been economically growing rapidly for some time, and some parts of Asia and Latin America are increasing their production more rapidly than most OECD countries. These processes are understood and welcomed by many people as a growth of the welfare per capita, but it is in the sometime a responsibility for the future use of the resources for this development. Global mechanisms and policies are necessary to secure long term sustainable development, i.e. a development path in which material welfare per capita can be enhanced without ruining or severely damaging the global environmental commons.

The most important policy measures that influence development processes are the responsibility of nation states, even if some global agreements are in place. National policies to enhance sustainable development, therefore seems both useful and necessary to reduce the risks of future threats to global sustainability. A main responsibility in this regard rests with developed countries which in most cases have reached high levels of Gross Domestic Product (GDP) per capita while being mainly responsible for the present stage of globalization. A number of European countries have recently established Sustainable Development Strategies to guide longer term policies in sustainable directions.

The strategy of sustainable development is seen as an integral part of longer term development policies, which grows out of neoclassical growth theory including recent additions and modifications. Development is based by real or man made capital. The capital could be the natural capital, human capital, social and political institutions and how well they function (governance) and provide welfare services (utility) to its population.

## **The concept of sustainable development**

The World Commission on Environment and Development (WCED) created the political interest in sustainable development and introduced the concept in the public debate by the publication in 1987 of the report "*Our Common Future*". The Brundtland Commission, named after its leader, stressed that "*sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987, p.43). That means that economic development has to be sustainable environmentally and socially in the longer term.

The term "sustainable" means "enduring" and "lasting"; based on that, sustainable development (SD) is development that lasts. "Utility" or "well-being" (per capita) is the appropriate focus for analyzing the development and the extent to which it may last over the longer term.

The concept sustainable development may be understood intuitively, but in practice it proved more difficult to define precisely the content and to make it operational.

It seems reasonable to interpret sustainable development as developments that can continue "for ever", or at least until the end of the time horizon considered by policy. In addition, developments in question should have a positive quality; to deserve the term sustainable, the situation should not deteriorate. However, whether a given development is good or bad may be more difficult to judge and agree on. In the professional economic literature it is usual to define sustainable developments as developments where the level of welfare, or living standards broadly defined, are not decreasing over time.

### **The measurement of the sustainable development**

Sustainable development can be defined and redefined in a number of ways. It remains central however, that sustainable development is about social welfare over time. Thus, the time dimension is crucial; sustainable development is a dynamic concept that relates to inter-generational issues. It is a development path that is or isn't sustainable. Any given single situation located in time (e.g. an intra-generational issue) is not possible to characterize as sustainable or not. The reason is that several alternative development paths may follow from a single situation.

On a global scale, the Sustainable development concept was launched at the 1992 Rio Summit as a four-pillar model with economic, social, environmental and institutional (governance) elements. Within the framework of the 2002 World Summit on Sustainable Development, the Johannesburg declaration and the plan of implementation reaffirmed and built upon the 1992 Rio commitments.

The EU is committed to translating these commitments into concrete actions. The main issues added here were sustainable production and consumption, corporate responsibility and participation. The European Commission translated the vision of sustainable development into an operational strategy in 2001, endorsed by the Heads of States or Government at Gothenburg in June 2001. The sustainable trends were identified, as:

- limiting climate change and increasing the use of clean energy;
- addressing threats to public health;

- managing natural resources more responsibly;
- improving the transport system and land-use management;
- combating poverty and social exclusion;
- the dealing with the economic and social implications of an ageing society.

The European Council, in 2002 at Barcelona, added an external dimension to the strategy, following three main objectives: (i) harnessing globalization — trade for sustainable development; (ii) fighting poverty; and (iii) promoting social development; and sustainable management of natural and environmental resources. In addition, the European Council made commitments in support of the Monterrey consensus on financing for development aimed at achieving the millennium development goals adopted by the UN in 2000.

Four years later, the European Commission commenced the review process of the Sustainable Development Strategy by publishing, in February 2005, a critical evaluation of the progress achieved since 2001 and presented the directions for action for the future years: climate change, threats to public health, poverty and social exclusion, depletion of natural resources and erosion of biodiversity. Based on these directions, a Declaration on the guidelines for sustainable development, including the revised Lisbon Agenda for Growth and Jobs has been adopted in 2005.

In July 2009 the Commission adopted the new strategy at the European level, the 2009 Strategy. It underlines that in recent years the EU has mainstreamed sustainable development into a broad range of its policies. In particular, the EU has taken the lead in the fight against climate change and the promotion of a low-carbon economy.

### **Needs for indicators**

Agenda 21 states in paragraph 40.4 that: “*Commonly used indicators such as the gross national product (GNP) and measurements of individual resource or pollution flows do not provide adequate indications of sustainability. Methods for assessing interactions between different environmental fields, demographic, social and developmental parameters are not sufficiently developed or applied. Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems.*”

Based on that, it calls for:

- Development of indicators of sustainable development
- Promotion of global use of indicators of sustainable development

Since 1992 several nations and intergovernmental organizations have answered the call of Agenda 21 and developed sets of indicators of sustainable development. Some have even done so in several versions.

Hence, there has been a request for developing a conceptual approach to the topic of sustainable development indicators that could give direction to the work and provide a mean for greater harmonization in the international effort in developing sustainable development indicators (SDIs).

In particular, the indicators should provide information that direct attention to potential problematic issues, more than providing complete data for analysis of the problems. Use of indicators is thus more a way of communication concerning the sustainable development issue. The indicators should adhere to certain norms, like:

- The indicators should be transparent. That mean that the basis for the indicator should be easy to explain; preferably the indicators should be based directly on available data or statistics in order to avoid methodological discussions about weighting or other computational algorithms for construction of indicators.
- The indicators seen as a set should to be able to communicate a total picture with regard to whether the development is sustainable or not. This implies that the indicator set should not be too large, because large indicator sets are often incomprehensible, and thereby become irrelevant.
- The indicator set should be policy relevant, e.g. by providing guidance on what policies needs to be changed in order to secure a more sustainable development.
- The indicators should as far as possible be comparable across nations/regions in order to facilitate comparisons and identifications of good practices in policy areas of relevance to sustainable development

The indicators in the field of sustainable development are used, mainly, to monitor production processes or government policy. It is important to have good and compressive indicators, because it is possible to manage and to build a strategy only if it is possible that the phenomenon is measures. In that case, it is very important to be sure that the correct "things" are getting measured and therefore included as indicators.

### **Main approaches to establish SDIs**

There have been two main approaches taken towards establishing sustainable development indicator sets. These approaches are; (i) the model-based approach and (ii) the policy-based approach. The model-based approach was used first

because some indicators sets were established before sustainable development policies had been developed by different governments

### *Model-based approach*

The United Nations (UN) in 1996 used four pillars for development models: social, environmental, economic and institutional.

Based on this approach, the United Nation Commission on Sustainable Development (UNCSD) proposed about 130 indicators which were tested by a number of countries. Based on the test countries' experiences a new framework and indicator selection was developed (UN 2001) which reduced the number of indicators to 58. The UN has recently revised this list and has dropped the pillar framework since it was found that most of the indicators could be placed in more than one of the pillars.

A number of countries, following the UN experience, defined sustainability in terms of its different components, whether they call these pillars, axes, dimensions, or types of capital. Often, the countries used for organizing the framework for their indicator sets three categories: social, environmental and economic. Part of the countries, simply took the set of indicators and tested their data availability and quality at national level. But other countries, elaborated their own national processes of defining and developing a set of SDIs tailored to specific national needs and characteristics.

In the frame of national models to establish the SDIs sets, some countries mention the idea of capital. And also, international organizations, like OECD and the World Bank that have used the concept of capital as central to their approaches.

The OECD describes four types of capital in relationship to sustainable development:

- man-made capital, i.e. the produced means of production like machinery, equipment and structures, non-production related infrastructures, non-tangible assets and the financial assets that provide command over current and future output streams.
- natural capital, including the renewable and non-renewable natural resources which enter the production process and satisfy consumption needs, as well as environmental
- human capital, representing the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal well-being
- social capital, i.e. the networks of shared norms, values and understanding that facility cooperation within and between groups. (OECD 2001, 38)

Many countries used the capital approach in establishing the development indicators in a sustainable perspective. It could be stressed that these four types of capital are theoretically, perhaps the most robust way to look at sustainable development using a capital approach. It is also interesting to observe that these four types of capital are relatively close to the four pillars used by the United Nation Commission on Sustainable Development (UNCSD).

The positive aspect to the use of a model- based approach for the elaboration of the SDIs is the fact that from theoretical point of view this is a robust approach which does not change over time and offer the comparability over the countries. The definition of sustainable development may also be more comprehensive, but that of course depends on the model.

One of the negative sides to this approach is the risk that the indicator set will be less politically relevant and will not be used in connection with implementing any policies regarding sustainable development. The model may also have its limitations, since in the process to quantify sustainable development through the use of indicators certain assumptions are made when the indicators and related calculations are defined.

#### *Policy-based approach*

The second major approach being used to establish SDIs is based on the sustainable development policy documents developed by the politicians. These documents are used to define "sustainable development" and after that to choose the indicators which are in line with the policy statements. If there are specific numerical goals or targets mentioned in the policies then these targets and goals are used to a large extent to define specific, relevant indicators.

Sometimes, it happened that the policy statements in these documents for the sustainable development may not be clear. The ambiguities in the policy statements require interpretation in order to understand the meanings and to make them into concrete, measurable indicators.

Once the definition of sustainable development has been clarified, it is then necessary to identify the different policy relevant topics or themes. These themes are then used as the starting point for the selection of indicators which will provide relevant information that is connected to specific policy statements.

The European Union (EU) has also used a policy-based approach to establish sustainable development indicators that are relevant to EU sustainable development policy. One challenge in this work has been to identify the

sustainable development strategy since this strategy was not presented in a single, coherent document, but was rather spread across several documents.

The EU strategy sets out a coherent approach to how the EU will more effectively live up to its long-standing commitment to meet the challenges of sustainable development. The elaboration of the sustainable development indicators is based on ten themes, reflecting the seven key challenges of the strategy, as well as the key objective of economic prosperity, and guiding principles related to good governance. The themes follow a general gradient from the economic, to the social, and then to the environmental and institutional dimensions.

The themes are the following:

- Socio-Economic Development;
- Sustainable Consumption and Production;
- Social Inclusion;
- Demographic Changes;
- Public Health;
- Climate Change and Energy;
- Sustainable Transport;
- Natural Resources;
- Global Partnership;
- Good Governance.

They are further divided into sub-themes to organize the set in a way that reflects the operational objectives and actions of the sustainable development strategy.

This policy-based approach allows for an iterative development process, which can improve both the policy statements regarding sustainable development and their related indicators over time.

A particular strength of the policy-based approach is represented by the high correspondence between the indicators and the political relevancy. Another strength of this approach is that indicators can be created for multinational or geographic regions for which there is a policy document and a political cooperation, for example the European Union.

Both approaches have strengths and weaknesses. From examining the core essence of each approach, it does appear that similar sets of indicators are obtained. It also appears that the two different approaches have some specific characteristic weaknesses which need to be considered if it is use one approach or the other.

### **The sustainable development strategy in Romania**

In Romania, like in other countries, a special attention is paid to ensure a sustainable development in the future. Each government was interested to elaborate a development strategy based on the actual level of the economy and its political objectives.

As results of a joint project of the Romanian Government, through the Ministry of Environment and Sustainable Development, and the United Nations Development Programme, through the National Centre for Sustainable Development in Bucharest a strategy for sustainable development was elaborated, approved by Government Decision HG No. 1216 of 4 October 2007 and published in the Official Gazette of Romania No. 737 of 31 October 2007.

The Strategy sets specific objectives for our country for moving, within a reasonable and realistic timeframe, toward a new model of development that is capable of generating high value added and improving the quality of life in harmony with the natural environment .The strategy includes objectives for the short, medium and long run, as following

- Horizon 2013: To incorporate the principles and practices of sustainable development in all the programmes and public policies of Romania as an EU Member State.
- Horizon 2020: To reach the current average level of the EU countries for the main indicators of sustainable development.
- Horizon 2030: To get significantly close to the average performance of the EU Member States in that year in terms of sustainable development indicators.

The implementation of the strategic objectives will ensure high rates of economic growth in the medium and long term and, as a result, a significant reduction of social and economic disparities between Romania and the other countries of the European Union.

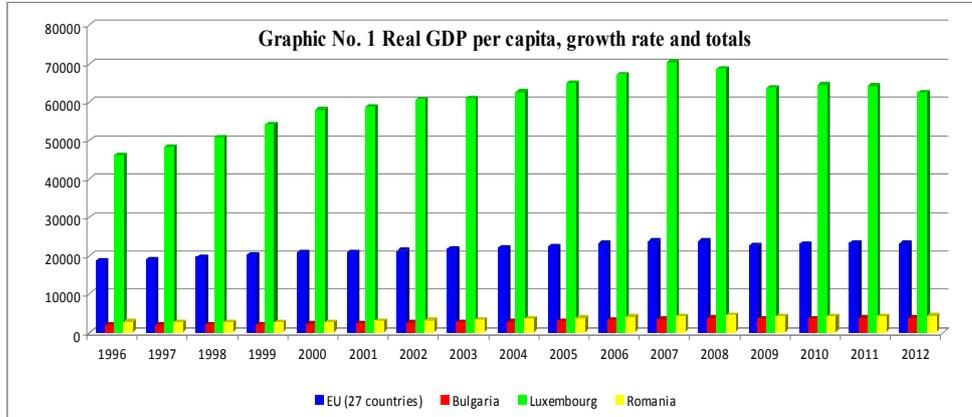
Rounding off the objectives included in national development strategies, plans and programmes, the Sustainable Development Strategy for Romania sets the main guidelines for action towards the adoption and implementation of the principles of sustainable development in the immediate future:

- Rational correlation of development goals, including cross-sector and regional investment programmes, with the established potential and sustaining capacity of natural capital;
- Accelerated modernization of the educational, training and public health systems with due consideration of the unfavorable demographic trends and their impact on the labour market;

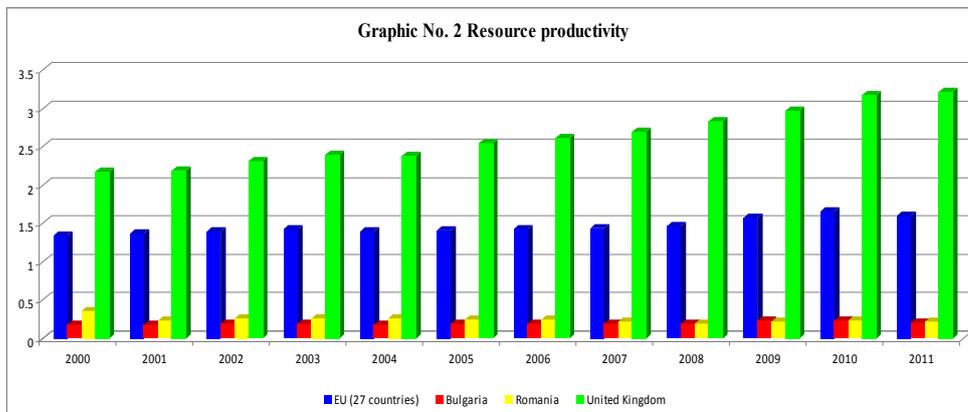
- Use of the best available technologies, by both economic and ecological standards, for publicly funded investments at national, regional and local levels, and encouraging the choice of such technologies on the part of private investors; entrenchment of eco-efficiency standards in all production and service activities;
- The ability to anticipate the effects of climate change, to prepare solutions for adaptation in the long run and to develop cross-sector contingency plans comprising portfolios of alternative crisis-management solutions in case of natural or man-made disasters;
- Ensuring food security and safety by turning to good account Romania's comparative advantages with regard to increased agricultural production, including organic farming; balancing the quantitative and qualitative growth of agricultural output for human and animal consumption with the higher demand for biofuel production without compromising the need to maintain and improve soil fertility, biodiversity and environmental protection;
- The need to identify additional, sustainable financial resources for large-scale projects and programmes, particularly in areas such as infrastructure, energy, environmental protection, food safety, education, healthcare and social services;
- Protection and promotion of Romania's cultural and natural heritage; efforts to meet the European norms and standards on the quality of life should be pursued together with the revival of traditional occupations and ways of life in a modern setting, especially in high mountain areas and wetlands.

The implementation of the objects and the results obtained can be analyzed based on the specific indicators of the sustainable development. The place of Romania in the European Union is analyzed further.

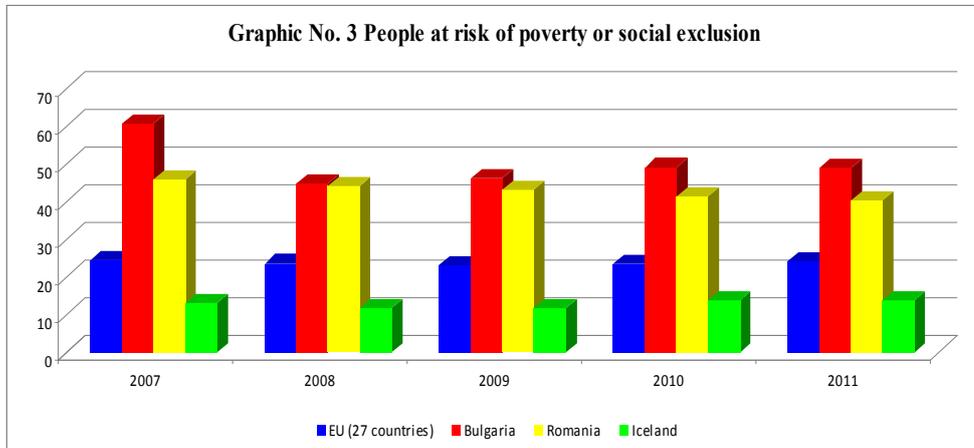
To realize the analysis of Romania's situation in relation with the European Union we have chosen 5 relevant indicators. We realized the comparison between Romania and the countries at the maximum and minimum limit of the indicators and the medium of the European Union (27 countries). The indicators were compared over the time interval for which there is information for all the countries taken to be studied<sup>(1)</sup>.



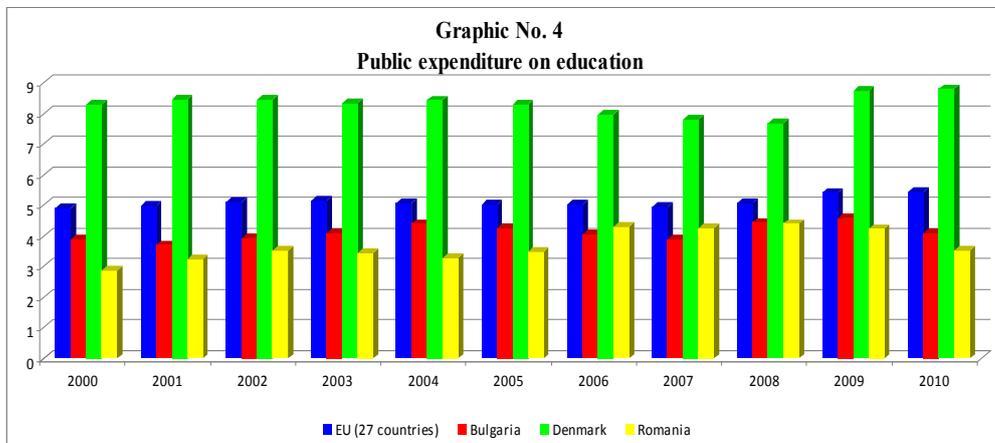
From the presented graph it can be observed that Romania has a reduced level of the GDP/capita being located as the second lowest after Bulgaria throughout the analyzed period.



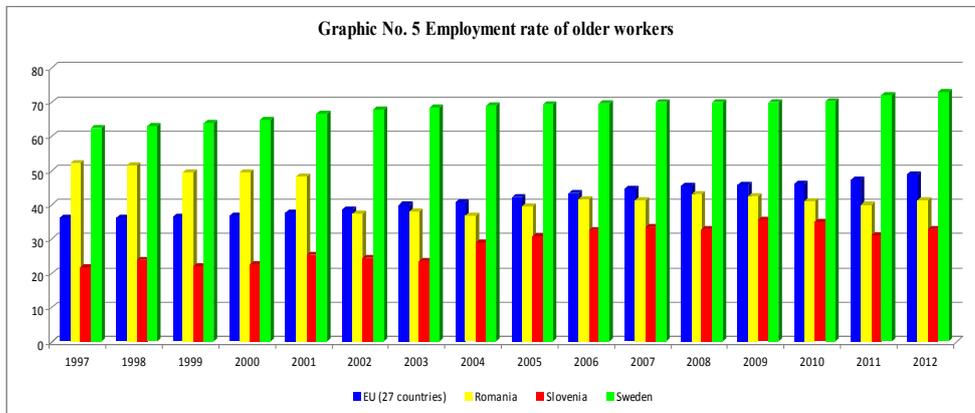
Regarding the indicator the resources' productivity, expressed in Euro/kg, Romania has a reduced level of 0.21 in 2011 being located still on the second place after Bulgaria, while the EU medium was 1.6 in 2011.



In Romania the population's percentage at a risk of poverty rise at a quite high level, being located at a level of about 40% being again close to Bulgaria's level but quite far from EU's medium.



The public expenses for education measure as a percentage of the GDP are decreasing, in some years they are lower than Bulgaria, while the EU medium remains relatively constant around 5% of the GDP, although an expressed objective of Romania is allocating 6% from the GDP, which would mean allocating over the EU level, approaching us to the Great Britain's level (6.22% in 2010). By allocating higher it would contribute to the growth of the public expenses' medium for education in EU.



The employment rate of older workers (55-64 years old) is lower in Romania than the EU medium which creates pressure on the public expenses with retirements, unemployment or social assistance. If in EU the tendency is the growth of the employment rate of the older workers, in Romania the rate is maintaining relatively constant, which imposes public politics for the growth of the active population.

**Conclusions**

From the comparative analysis of the 5 chosen indicators it is found that in terms of sustainable development Romania has many more steps to make to approach the EU medium. Being at the bottom of the list of all the studied indicators it appears as a relegation situation. If we analyze the evolution in time of the indicators it can be observed an improvement of their situation, but it is too reduced to be significant, and the other EU states are making progresses in the sustainable development domain.

By the conducted study we wanted to establish Romania’s place and role regarding the sustainable development indicators in EU. We considerate, that by our presentation we have contributed at the process of awareness of the situation in which we find ourselves. The future research directions would assume a more detailed analysis of the other indicators and the realization on this basis of some predictions regarding the future tendencies of the sustainable development indicators, the analysis of the existing indicators’ opportunity and the chance to propose other possible more relevant indicators on the sustainable development.

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**Note**

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<sup>(1)</sup> <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators>

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