Comparative Study of Sustainable Development Indicators in CEE Countries (2000 – 2010)

Mara Ursache[1]

Abstract: Environment is the basic factor to continue human survival and long-term prosperity of mankind is unthinkable if we are not able to ensure that future generations can enjoy the full benefits of nature. At the same time, development is needed to tackle poverty in developing countries and to empower people everywhere to live in a civilized manner in a more favorable environment. The aim of this article is to examine if the sustainable development indicators (*greenhouse gas emissions, resource productivity* and *people at risk of poverty or social exclusion*) have an impact on the economic growth and if there are significant discrepancies between countries in 2010 compared to the base year of analysis (2000), using this indicators. The analysis focuses particularly on the countries situated in Central and Eastern Europe (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia). Based on the result obtained, the author shall try to trace, in the conclusion, a few guiding lines which could be of strategic importance for stimulating action and awareness that environmental protection and economic development must be contemporary concerns.

Keywords: CEE countries; environment; economic growth

JEL Classification: O52; O57; Q56; R11

1. Sustainable Development – A Jigsaw Puzzle

Human development has reached a cross path. What should be considered is related to the need to sustain life, in conditions which favor this issue long term. Unfortunately, current economic trends require more economic than environmental rules, more social than economic or more ecological than social. These trends are harmful, the future development of society needing a balance to consider on the same level of importance the three dimensions of human development: social, economic and environmental.

In recent years, the world has become increasingly aware of the complex relationship between environment and economy and the need to integrate them, which means reliance on the premises of a deep and lasting sustainable

[1] Centre for European Studies, Alexandru Ioan Cuza University of Iasi, Romania, Address: 11 Carol I 11 Blvd, Iasi, Romania, Tel.: +4 0232 201 030, Corresponding author: maraursache@yahoo.com.

development. The last two decades have witnessed both in developed and in the developing countries, environmental policies designed to work with economic and trade policies.

The concept of sustainable development is characterized by fluidity, as shown by many of its interpretations. From the appearance of the first formulations of this concept until now, its content has seen continuous improvement by adding new coordinates, theoretical, methodological and practical valence, which are reflected in its many definitions. Common to these definitions is their interpretation in a global vision, which highlights the complex and dynamic interrelationships between economy, ecology and social-human. In the economic and environmental literature, sustainability was considered an essential coordinate for development policies.

The 1960s and the 1970s were marked by an intensification of concern about pollution. They were also marked by an awareness that environmental problems arise within the context of a complex interrelationship between humankind, the global resource base and the social and physical environment (Turner 1988).

The initial definition of sustainable development was provided by the World Commission on Environment in 1987 with the publication of the Brundtland Report entitled "Our Common Future", pleading for reconciliation between economy and environment. Sustainable development is seen as the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Environmental quality and economic development have come to be seen as interdependent and mutually reinforcing. Brundtland argued that sustainable development requires the promotion of values that encourage consumption patterns that are within the bounds of the ecologically possible and to which all can reasonably aspire.

Allen Robert (1980) sees the sustainability as a use of species and ecosystems at the levels and manners allowing them to renew themselves for any practical scope […] the development providing the satisfaction of human needs on long-term and improving the quality of life. R. Goodland and G. Ledec (1987) give the following definition: the sustainable development is a model of structural and social economic transformations which optimizes the economic and social benefits available at present, without putting in danger the probable potential for obtaining of similar benefits into the future […] the sustainable development involves the use of renewable natural resources so that these should not be exhausted or degraded or not to be reduced their utility for the future generations […] involves, as well, the exhausting of non-renewable sources of energy at a rate ensuring a high probability for the transition towards renewable sources of energy.

J.K. Lynam and R.W. Herdt (1989) define the sustainability as the capacity of a system to maintain its output at a level equally or higher than its historical average.

In accordance with David Pearce, the criteria of sustainability asks for necessary conditions for the equal access to basic resources, which must be valid for each generation, which means: a set of constraints, establishing that the rates of consume for the resources not to be higher than the rates of their natural regeneration; the use of environment as a place for storage of wastes, so that the rates of waste production not to exceed the rates of (natural) assimilation by the corresponding ecosystems. In the conception of executive manager of United Nations environment program, M.K. Tolba (1987), sustainable development envisages a support for the very poor ones, since they do not have any other option but to destroy of their environment; the idea of a certain development, in the framework of constraints imposed by the development of natural resources; the idea of development of cost efficiency, which uses various economic criteria from the traditional approaches, which means that the development must not damage the environment, nor to reduce the long-term productivity; important problems related to health control, corresponding technologies, food security, clean waters and shelters for everybody. Putting 'development' and 'sustainability' together, 'sustainable development' becomes a form of societal change that, in addition to traditional development objectives, has the objective or constraint of maintaining ecological sustainability (Lele 1991).

In the conception of Thomas Sterner (1994) the sustainability is presented as a union of three dimensions - economic, social and ecologic.The economic attached to the ecologic influences the process of economic development by affecting the natural resources and the biodiversity; the social attached to the ecologic assure a rational use of the natural resources, a preservation of biodiversity, a respect for the nature through culture and education. The latest modern approach, presents the concept of sustainable development relying on four pillars: economic growth, social development, environmental protection, cultural diversity (Comșa 2011).

Consequently the various definitions in terms of sustainability are addressed in the vision of reconciliation between economics and the environment, supporting human progress, not only in some places and for some years, but for the whole planet and a sustainable future as far as possible.

2. The General Concept of Implementing a 'Green' Environment in CEE

After the Second World War, most countries in Central and Eastern Europe (CEE) came under the Soviet sphere of influence. Following its example, CEE countries began intensive programs based on heavy industry, particularly those producing chemicals and metals. The success of socialism was measured in the number of tons of steel produced and not on maintaining environmental quality. Furthermore, large scale collectivization and mechanization of farmland led to drastically

increased use of polluting pesticides and fertilizers, along with a drastic decrease of biodiversity.

Reduced productivity and poor environmental conditions have also slowed progress in establishing economic reforms. Concerns about the lack of environmental infrastructure, accountability for past damage to the environment and the high cost of correcting these shortcomings have discouraged foreign investors to do business in these countries. The fall of communism in the late 1980s not only reshaped relations within the continent, due to the rapid growth of globalization, but has provided fascinating insights on the potential and limitations of the major restructuring of society.

Globalization has intensified relations between nations, increased trade flows of goods and services. Every country, regardless of size or geographical location felt the need to participate in the global economic cycle. At the same time, the probability of an impact, positive or negative, of a country's business environment on another country's environment (economic, social, cultural,) increased. In the last twenty-five years we have witnessed some of the most profound political, social and economic changes in Europe's history. But the way of CEE countries to a market economy was not easy, since it started with serious obstacles due to environmental problems inherited from the planned economy system, which was a burden to society and hindered privatization process. Transformation involved great sacrifices, accompanied by economic depression, which led to a massive drop in GDP and declining living standards, namely in the first half of the 1990s. CEE countries were pushed to introduce market reforms to remove inefficient industries and modernize long-neglected infrastructure.

For many people, these changes have meant the destruction of a way of life based on security, predictability and low risk. However, the prospect of EU membership, which provided the impetus for change, offered a reward for losing the 'comfortable' standard of living previously provided by the communist state. Also social sensitivity towards environmental issues has grown progressively. Environmental movements have played an active role in the transformation, becoming a major factor in terms of political changes.

3. Analysis on CEE Countries Regarding Sustainable Development

In this article we made a comparative analysis of the Central and Eastern European countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia). Using the sustainable development indicators (*greenhouse gas emissions*, *resource productivity* and *people at risk of poverty or social exclusion*), we tried to establish if these indicators influence economic

growth and whether there are significant discrepancies between these countries, carrying out a parallel between 2010 and the base year of analysis - 2000.

According to Eurostat the greenhouse gas emissions indicator presents emissions of greenhouse gases by main source categories. A major source category is defined as an emission source category with significant influence on the inventory of greenhouse gas emissions from a particular country in terms of absolute level of emissions. Various greenhouse gases are weighted by global warming potential, and the results are expressed in CO2 equivalents.

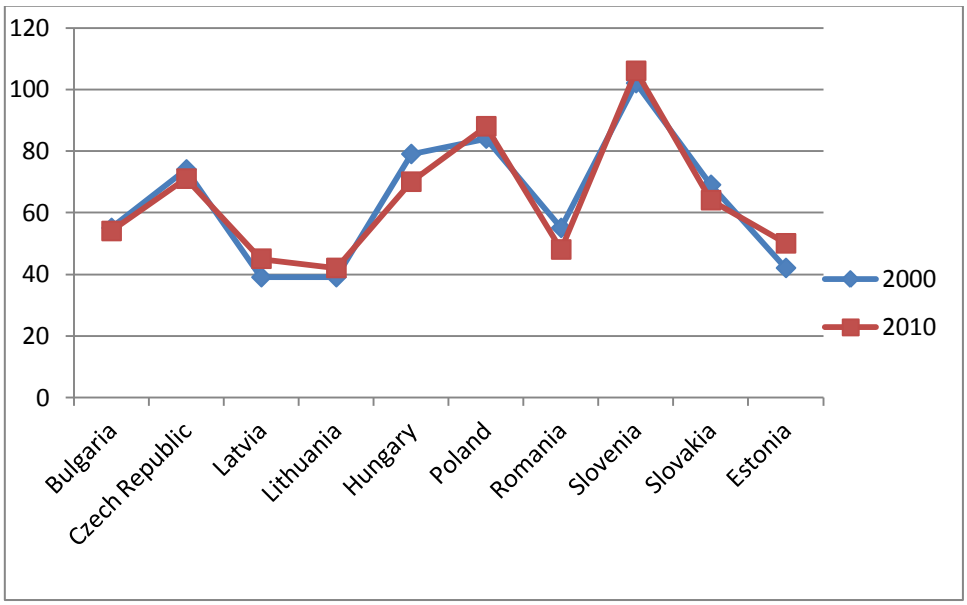

Figure 1. Greenhouse gas emissions

Source: Eurostat

Economic growth and environmental quality relate according to the environmental Kuznets curve theory. This theory exposes the fact that environmental quality indicators tend to deteriorate up to a certain level once per capita income increases, but then a shift occurs and the relationship is reversed - the indicators of environmental quality improve as the level of income per capita increases.

From the figure we notice that among the CEE countries, during the analyzed period, only Romania and Hungary have reduced their greenhouse gas emissions, although not in a significant proportion. Economies are likely to remain stuck at a certain level without managing to reach the point at which pollution begins to diminish.

As a result of structural changes in the economy, it is likely that pollution will worsen slower in time, but it is not likely to diminish in absolute terms, even if the

income level increases. Greenhouse gas emissions and energy consumption did not get to record a downward trend even in the richest nations.

Another indicator that can describe sustainability refers to the effective use of resources available in a particular country. We present in the chart below, the situation in this respect in the CEE countries.

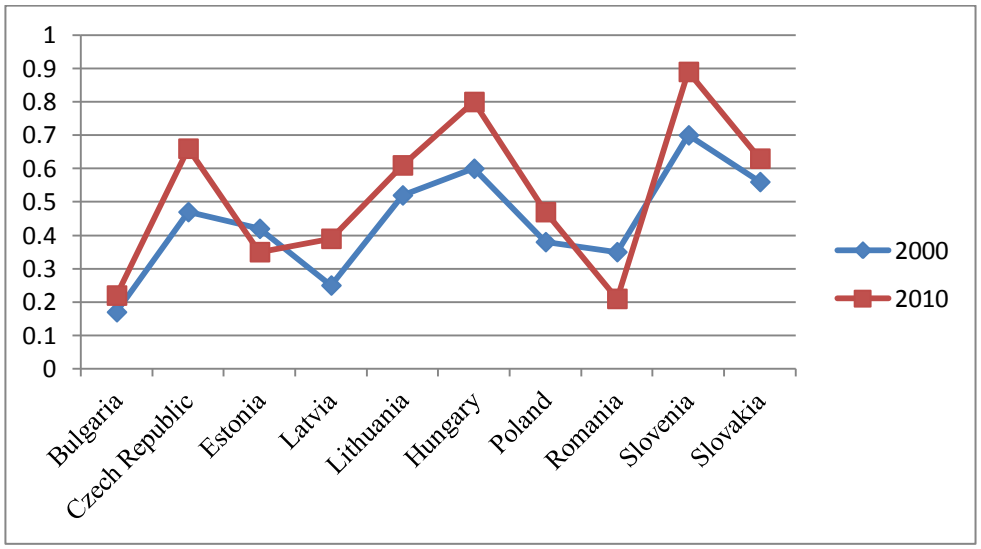

Figure 2. Resource productivity

Source: Eurostat

The resource productivity indicator is obtained by dividing the GDP to domestic material consumption (DMC). This indicator is relevant in two ways. The first, refers to the technological level, the intensity with which raw materials are transformed and are given value. The second, targets sustainable development, conservation and effective management of the available resources of a country and environmental protection in terms of economic growth.

DMC measures the amount of raw materials used by an economy and annually extracted from the national territory plus imports in physical expression minus exports in physical expression. However, we note that it is about the apparent consumption and not the final consumption, which may include non-disclosure flows of import and export of raw materials.

Table 1. Modification 2010/2000

Bulgaria	+ 30 %
Czech Republic	+ 40 %
Estonia	- 17 %
Hungary	+ 33 %
Latvia	+ 56 %
Lithuania	+ 17 %
Poland	+ 24 %
Romania	**- 40 %**
Slovakia	+ 13 %
Slovenia	+ 27 %

Source: Eurostat calculation

From the calculation presented above, it appears that Romania records the lowest value, aspect which reveals a weak point of maximum importance, namely the negative trend in the use of raw materials available in Romania.

Apart from Romania, only Estonia is still in the territory of negative evolutions, but it is far from the 40% rebound in our country. Moreover, starting its economic performance from a level situated at half of Romania's performance, Bulgaria passed Romania, improving performance by 30%. At the opposite pole we find Latvia, with an impressive increase in resource efficiency (56%) which brings it to the first position, and the Czech Republic, with an advance of 40%.

Progress is a natural purpose of each national economy. The achievement of social progress is based on a decisive factor, which is the efficiency of use of natural, human and financial resources that the considered economy is dependent on. An intensive economic growth, a goal to be touched by any modern society, creating an advanced economy and a high degree of welfare for the population can be achieved only through the effort of human factor to use in a productive way each unit of natural, human and financial resource.

Moreover, the direct relationship between economic development in developing countries and the levels of environmental degradation became increasingly obvious. Overwhelming poverty and increasing population increases the problem of environmental management. Health and economic welfare of people living in poverty depend on a range of environmental resources: fresh water for drinking, sanitation and agriculture, fisheries and fertile soil for food production, forest

various products of forest and marine ecosystems. Above all, the diversity of nature: its aesthetic, nutritional and pharmacological variety - greatly enriches people's physical and spiritual experience. But when natural resources are not used properly or when the air, soil and water are polluted, poor and economically vulnerable people are those who suffer the most.

To complement the things stated before, in table 3 we present the situation of people at risk of poverty or social exclusion in the CEE countries.

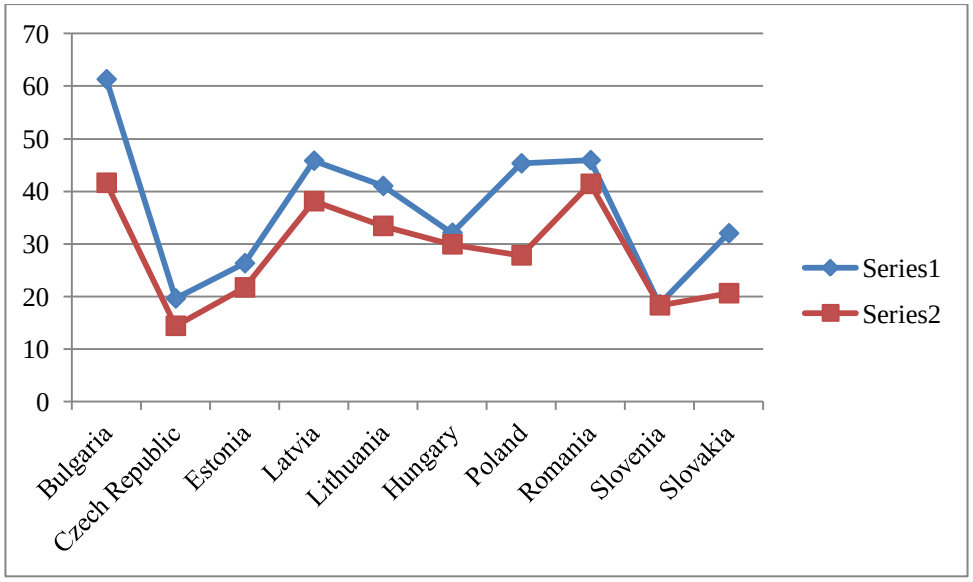

Figure 3. People at risk of poverty or social exclusion

Source: Eurostat

The Europe 2020 strategy promotes social inclusion, in particular through the reduction of poverty, by aiming to lift at least 20 million people out of the risk of poverty and social exclusion. This indicator corresponds to the sum of persons who are: at risk of poverty or severely materially deprived or living in households with very low work intensity. Persons are only counted once even if they are present in several sub-indicators. At risk-of-poverty are persons with an equalized disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equalized disposable income.

For developed countries, the issue of improving life quality, reducing poverty, depollution, etc. is one of transformation, adaptation and modernization. Also changing the trend of economic growth to a sustainable one in these countries is supported by political and technological will and resources. Chances of success are very high.

For underdeveloped countries the problem arises in completely different terms, related not to modernization but to a drama stage. If, at times, the issue is not about life quality but about survival, it is understandable what order of priority has sustainable development within these countries policies.

In 2004, eight countries in Central and Eastern Europe - Poland, Czech Republic, Slovakia, Estonia, Latvia, Lithuania, and Slovenia - joined the European Union. They were followed three years later by Bulgaria and Romania. An immediate consequence of their membership was that foreign direct investment increased sharply, as investors positioned themselves to take advantage of the cheaper labor and the bigger and more stable internal market offered by the progressive unification of Europe. The U.E. membership also created for most of the CEE economies accessibility to globalization. While most of the economies are growing, and some are becoming players in the global economy, poverty and unemployment are still widespread. The central and eastern region has still lower cost labor than Western Europe and due to the global financial crisis is facing growing debts, inflation, increasing prices for food and energy, political instability etc.

Bulgaria is the poorest member of the European Union and slowly recovering from a deep recession. Its economy is shrinking and investors are fleeing. It has a very poor infrastructure: no highway connections to border countries to enable trade, outdated railways, aging water networks, severe water shortages, many villages with no electricity, and very little connectivity to the Internet. In Romania, 3% of the population live on a little over $1/day. Romania had the fastest economic growth rate in the EU until its economic bubble bursted in 2008. Now it is facing rising unemployment and social unrest against painful spending cuts and tax rises. It has a very poor infrastructure as well and the level of corruption is very high.

4. Conclusions

Accepting the principle of sustainable development involves combining cultural, economic and environmental elements. Sustainability considers that economic progress must be fully integrated to the environment. Sustainable development is the only way to reconcile the so-called conflict between the two elements considered so far incompatible: economic growth and the conservation of natural resources. Sustainable growth means promoting a more resource efficient, greener and more competitive economy.

Economic development and environmental protection must be contemporary concerns! The complex relationship between the two is of crucial importance to human welfare, for a intelligent sustainable development in a globalized world.

A vital condition for implementing a successful sustainable development policy consists of accurate information, access to that pertinent information, and training and educating all in the spirit of durability.

Currently corporations and governments around the world have realized that environmental protection is an economic opportunity. Basically, to choose between saving the environment and saving the economy is like choosing between prosperity and decline!

Understanding the state of the environment in all its dimensions in the countries of Eastern and Central Europe is crucial. Appreciating the way that these countries arrived at this state is essential to arriving at sound solutions. Although there are significant historic environmental liabilities to be overcome and some technical approaches need to be modified, the biggest challenge is in implementation of environmental legislation in an effective way. The strengthening of institutions and encouraging responsive, flexible yet robust regulatory bodies at a local and national level is a key to increases in environmental performance.

The EU's Europe 2020 strategy has set sustainable growth as one of its three priorities with the aim of supporting a shift towards a resource-efficient and low-carbon economy.

One obvious solution to environmental ills is to close polluting industries, clean-up damaged areas, mandate emission control devices on autos, trucks, and buses (introduction of cleaner, more efficient vehicles is an essential element in creating sustainable transport systems and is central to climate change mitigation efforts) and improve health care facilities.

Policy makers should pay attention to resource allocation and efficiency of any of their use, stimulating economic environment, and social progress. Resource productivity is a way of expressing performance and economic efficiency. A competitive economy is an economy capable of generating economic growth, high efficiency and long term. Given that currently the environment as a whole, is regarded as an economic resource, CEE countries must take into consideration implementing a healthy and successful industrial, technological, economic and social policy for green growth.

In the battle against poverty CEE countries should ensure economic, social, and territorial cohesion by helping the poor and socially excluded and enabling them to play an active part in society.

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