

THE COSTS OF THE SUSTAINABLE DEVELOPMENT AT THE BEGINNING OF THE 3RD MILLENNIUM

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Abstract: Presently the climate changes at a global level show, from the point of view of the effects that they generate a great importance. The real threat for the human survival is not the terrorism, but the climate changes determined by the global warmth. In this article starting from the definition of the concept sustainable development and of the theoretical preoccupations and practices from this field, we would like to approach some aspects related to the costs that the humankind has to bear at the beginning of this millennium in order to fight against the global warming.

The different environment projects are very expensive and produce effects in time. Because, these projects were not treated as they should be, the humankind faces now a situation where important financial resources have to be used in order to solve the environment problems. In other words, one has to solve the environment problems from the past in order to produce in a competitive way for the future.

The human society came into force, existed and still exists because of the activity of the people. As we know it, the human activity is varies and is continuously developing as a consequence of the scientific and technical progress and can be found under different forms starting from the goods production to the scientific and artistic creation. In order to provide their own existence, people transform nature according to the interests that they have, producing the necessary things for a good living.

The man looks at the results of his activity through the way in which these correspond to his needs, these activities being also related to a healthy environment which can offer the corresponding facilities for all the generations. When these results are moving away from the present and future needs of a high number of people in a relatively long time, there is a development crisis. *The natural-human global development crisis* may be seen as a complex, profound process of emphasizing on a global scale the incompatibility of the environment created by the human being, with the exigencies of the natural environment, of the profit, in a monetary sense, with the social-human environment which endangers the balances of the dynamic compatibility between efficiency, in a strict economic sense, with the social justice and the equality of chances of the generations that co-exist and continue to live in a given natural-human environment. [Popescu, C, 2005, p. 512]

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The current way of producing and consuming goods has brought high advantages, but it also registered a series of human errors which accompanied the knowledge and the revaluation of the results in the economic, social and political life of the human collectivities. The overview of these errors of the human action, are at the basis of the gradual diminution of the perspective of allocating and using the rare resources, increasing the opportunity costs of the economic balance and creating certain premises for the unbalance of the balance of progress, for the damage of the social-human and ecological exigencies imposed by the equality of chances of the generations.

Overcoming the natural-human crisis of the development is a complex, long lasting, very difficult process which presupposes a period of transition to a new society, where the success is manifested through: the common hope of the people to live in a better way, in peace and friendliness, with the respect for the fundamental values of life and nature, to respect the equality of chances which has to be provided for all the existing and future generating from the planet Earth.

The theoretical and practical concerns regarding these aspects of the natural-human development crisis date back to 30 years. So, *at the Stockholm Conference on the Environment* (1972) one agreed upon the necessity to answer the issued about the deterioration of the natural environment, the prevention of the ecological unbalances and the provision of the ecologic balance. This conference marked the moment when the humankind started to recognize the fact that the problems of the environment are inseparable from those of the welfare and the economic processes, generally. But, the reference point which marks a new development vision of the countries from the contemporary world is the *United Nations Conference on Environment and Development*, Rio de Janeiro, 1992. The economic development and the protection of the environment were established during this conference, under a new concept also known under the name of *sustainable development*, and thus the *Agenda 21 and the Rio de Janeiro Declaration* were adopted, which are program documents on the sustainable development. The approach of the pollution problem has evolved from identifying the ways to reduce it and prevent the waste of resources to drawing up some strategies which promoted the human development through the economic growth based on the sustainable management of the fundamental natural resources and sustaining and action plan for the global development from the XXI-th century.

Lately, the concept of sustainable development registered a continuous development by new additions and improvements, the states of the world met in a series of conferences and summits. In 2002 the *International Summit on Sustainable Development* took place in *Johannesburg* (South Africa) were the way in which the objectives that were settled a decade ago at Rio de Janeiro were accomplished, and some new directions of actions were settled which were included in the *Johannesburg Declaration on Sustainable Development*.

Formulating the concept of sustainable development started from the idea that the humanity has the capacity to carry out such a development, to guarantee the satisfaction of the current needs without compromising the capacity for the future generations to satisfy their own needs, idea which was presented during the Report of the World Commission on Environment and Development, UNO (known also as the Brundtland

Report – which comes from the name of the former Norwegian labor prime minister Gro Harlem Brundtland, the leader of this commission). In this context, the future development of the human kind was conceived in a systematic, integrative vision meant to answer the need to balance the chances of the existing and future generations from Terra, combining these aspects with the economic growth sustained by the maintenance and improvement of the environment, equity, justice and democracy in the social life.

As a consequence this new type of economic development of the humankind way substantiated around the concept of durability which became the central point of the debated regarding the problems of the economic growth and of the environment. In the economic and ecological literature there are a series of approaches of these aspects:

➤ *Allen Robert* defines durability as the use of species and ecosystems at certain levels which allow them to renew themselves for any practical purpose, the sustainable development being the one which allows the satisfaction of the human needs on a long term and the improvement of the quality of life; [Robert, A., 1980]

➤ *R. Goodland* and *G. Ledec* consider that the sustainable development represents a model of the economic structural and social transformations which optimize the available economic and social benefits without endangering the possibility to obtain benefits which are similar in the future. The sustainable development implies the use of the renewable natural resources so that they are not wasted, degraded or their use should not be diminished for the future generations; [Goodland, R., 1987, p. 38]

➤ *J.K. Lynam* and *R.W. Herdt* define durability as the capacity of a system to maintain the output at a level almost equal or higher than its historical average; [Lynam, J.K., 1989]

➤ *David Pearce* approaching the criteria of the durability, he shows that it imposes the necessary conditions for the equal access to the basic resources, which should be valid for each generation, which presupposes a set of constraints which settle the following: the consumption rates of the resources should not be higher than their natural regeneration rates; the use of the environment “ as a place for the waste storage” should be accomplished under the circumstances when the production rates of the waste are not exceeding the natural assimilation rates by the correspondent ecosystems.; [Pearce, D.W]

➤ *M.K. Tolba* considers that the sustainable development aims: to help the very poor people, because they do not have any other option than that of destroying their environment; the idea of a secure development under the circumstances of the constraints imposed by the development of the natural resources; the idea of the cost-efficiency development which use different economic criteria from the traditional approaches which mean that the development does not have to degrade neither the environment nor to reduce the productivity on a long term; the important problems related to the health control, corresponding technologies, securing the food, clean water and shelter for everybody; [Tolba, M.K., 1987]

➤ according to *FAO*, The sustainable development presupposes the arrangement and the preservation of the natural resources in a matter in which they should satisfy the needs of the present and future generations, the preservation of the fields, water and fito and zoo technical environment, the use of materials which are not dangerous for the environment, which are well adapted from a technical point of view, acceptable from a social point of view and are also viable. [FAO, 1992]

In consequence one can assert that all these definitions and many other existent in the reference literature approach the problem of the durability in the vision of the

reconciliation between the economy and the environment in a new way in which it should sustain the human progress not only in a few places for some years but also for the entire planet and for a long lasting future which means the accomplishment of a set of economic and social objectives which refer to:

- ◆ economic growth taking into consideration the conservation and the protection of the natural resources;
- ◆ the essential requirements of work, food, energy, water, houses and medical assistance for people;
- ◆ some new qualities of the processes of economic growth;
- ◆ the controlled population growth;
- ◆ the conservation and the increase of the reserve of resources;
- ◆ the technological restructuring and the maintenance of the possible risks under control;
- ◆ the approach of the protection of the environment, the economic growth and the necessary of energy.

All these approaches which are previously presented start from the reality that the development is a complex process with many faces and a non-linear evolution which follow different path from a country to another according to the specific context of each economic, socio-cultural and institutional aspect, but also as a consequence of the impact generated by the economic policies created and applied along the time.

The main moving force of this development was and remains the industry. The evolution of the developed countries proves that the promotion of the industrial activities has built the way to prosperity of the "strong industrialized" economies, but also a way to recover the economic disparities from the countries from South-Eastern Asia (countries also known under the name of recently industrialized).

Although nowadays one talks more and more about the post-industrial economy, which is mostly immaterial characterized by the domination of the information and communication services sector, which is also related to some industrial classical activities, and produces material tangible goods.

In this context, the aspiration of the human society for prosperity is related to the industrial development, as a premise of the construction of a modern economy, but attaining this objective presupposes that the direction in which the industrial structure evolves should give priority to the high productivity branches and should create the added value and generate positive externalities.

Although these aspects are taken into consideration, the modern industrial economies continue to consume important amounts of natural resources. So, in the case of the most advanced economies, there are necessary almost 300 kg of natural resources to generate a profit of 100 US dollars. Taking into account the dimensions of these economies, the volume of natural resources used is huge, which leads to a massive pollution and degradation of the environment. The energy consumption on an international level has grown with almost 70% after 1971, and the predictions of the specialists show an annual rhythm of growth of 2% for the next 15 years. Under these circumstances the gas emissions which produce the greenhouse effect will grow with almost 50% even if there are not taken enough efforts for the growth of the efficiency of using the energy and to give up, at least partially the fossil fuel. [Campeanu, V., 2004, p. 13]

In consequence, exporting this economic model which presupposes the intensive use of the natural resources to developing countries as it presently happens is unsustainable from an environmental point of view. The massive industrialization of the

developing countries following the pattern of the developed countries showed that it could be possible from an economic point of view, could be proved to be dangerous for the survival of the human species.

“The Greenhouse Effect” determines major changes on the climate, at an international level, in a fast way which thus becomes critical for the existence of life on the planet. This phenomenon which was predicted 100 years ago, studies from 1955 and which is the study object for some management projects of its effects from 1975, has gained through the global warming an international dimension. The common statement from June 2005 of the Academy of Science from 11 States (inclusively those which produce most of the part of the gases having greenhouse effect) confirmed definitively the reality of the phenomenon of global warming, of the responsibility of the human activity and the emergency to act properly. The public opinion is more and more conscious and worried of the climate changes, and of the concrete consequences.

At an international level there were approached many problems which should solve this problem, but many of these problems have remained at a project stage. Three of these formulae are widely known:

- the first, is focused on “specific policies and measures”, starts from the text of the frame-convention from 1992 which forced the member states to apply a series of instruments which should use a series of instruments with the purpose of attenuating the greenhouse effect;

- a second formula, promoted by the American economist Nordhaus proposes a system of national of absorbed national taxes on the carbon but which presents a series of inconveniencies;

- a third formula is the solution of the “technological agreements” which was suggested by Scott Barrett under the form of a collaboration in research and development of the new clean technologies, completed through protocols which should settle technological standards, a multilateral fund that should be a distributed in the developing countries etc.

Up to the present two projects were imposed and initiated by politicians and negotiated between the states both having as a starting point the Convention regarding the climate changes (Rio de Janeiro, 1992):

- The Kyoto Protocol (1997), regarding the quantitative limitation and the reduction of the gas emissions which have a greenhouse effect as compared to the level of the year 1998;

- The Vientiane Agreement (2005), based on the voluntary approach of the reduction of the gases emissions with greenhouse effect.

The Kyoto protocol (11 December 1997) is the international act through which the states are obliged to a global control of the gases emissions with greenhouse effect, with the purpose of stabilizing the concentration of noxious gases from the atmosphere at a level which should remove any dangerous entropic perturbation of the climate system.

Appreciated as a better method than that settled by the Kyoto Protocol, the Vientiane Agreement borrows the strategy of Australia's government regarding the climate changes and which settles global targets, and which should not affect under any circumstance the interests of the energetic industry based on fossil fuel: the development and the transfer of clean technologies, the satisfaction of the current needs and the exploration of new ways of reducing the gas emissions with greenhouse effect and their impact on the economies, identifying new ways of employing the private sector. So, the American vision is established at an international level and refers to the

existence of many ways of approaching the problems of the climate changes, by global agreements, which are not excluded and are complementary having as the basis the frame convention regarding the climate changes, adopted in Rio in 1992.

If the Kyoto protocol follows to reduce and stabilize the gases emission with greenhouse effect, the Vientiane Agreement has opted for the promotion of some clean and efficient technologies on the climate changes. In spite of their limits, the latter represent a step ahead to the overcome of the ecologic “iron curtain” and the integration of the international efforts in this field.

The Kyoto protocol has not to be regarded as the best and the single solution for the current state, but as a start which marks the stage of leaving behind the state of confusion, expressing the wish to act on an international level. So, the reunion from December 2005 from Montréal of the Conference of parties at the frame convention, first after putting into force the protocol, managed to impose the idea of discussing the extension of the Kyoto process after 2012, the countries from the South were participating in negotiations in order to reach some commitments and promote a dialogue on a long term action.

It is already recognized that at the level of an economic agent, their own existent resources are insufficient to solve the environment problems, which are very bad due to the pollution produced along the years. In the current period, from this point of view, we can present an obvious example: the obligation that the economic operators or the local authorities to build special funds destined for the closure of the industrial waste or local warehouses which do not comply with the environment restrictions. At a first sight, one can say that this fund can be opened but the way to supply these funds is not clear. One also has to add the expenses with the supervision and post-closure of these deposits which can be extended on the next 30 years (period in which the respective waste warehouse becomes stable). The costs are significant. How can such a problem be solved? These need to be transformed in environment projects with a high success rate, which should absorb complementary resources which should be attractive for public-private partnerships.

Such a project destined for a warehouse of household waste having an acceptable dimension could be qualified as a joint implementation project. For example, a project of closing a waste warehouse also needs a gas installation which should be then used for additional purposes. The methane gas may be equaled in carbon credits which can be commercialized. But if for such an environment project there is a public-private partnership, then other financial resources may also be attracted.

Putting into force the Kyoto protocol on 16 February 2005 had important effects regarding the management of the business environment and the governments which will answer together for the efficiency of the projects proposed for the transfer of the carbon credit unities. So, since 1993 right after the efficiency the frame-convention regarding the climate changes (Rio de Janeiro, 1992), a mechanism of surveillance of the CO₂ emissions and of other gases with greenhouse effect has been stipulated, through a decision of the European Council and the obligation of the Member States to promote national programs for this purpose. An important step was the directive 96/61 CE, from 24 September 1996, regarding the prevention and the integrated control of the pollution, which settles a general frame of approaching and fighting against the earth, water and air emissions.

At the same time, the European Union was manifested as an active actor in promoting the Kyoto Protocol, so that it was ratified by the member and candidate

countries, on 31 May 2002. In order to encourage to coming into force of the Protocol through the own example, as a consequence of the deadlock created because of the USA and its allies rejected to ratify it, through the Directive of the Council from 13 October 2003 (2003/87/CE) regarding the settlement of a plan of the transfer of the right of gas emissions with greenhouse effect from the Community, which was modifies (2005), the communitarian frame from this field was settled.

This thing allowed the enterprises involved in the transfers plan to obtain additional CO₂ credits, by the means of the financing other projects of reducing the pollution outside EU. The decision no. 280/2004/CE stipulated the supervising mechanisms for the gases with greenhouse effect and of implementing the Kyoto Protocol, and the Decision 2005/166 settled its implementation rules. The two documents refer to the supervision and report of the gas emissions with greenhouse effect and of the radioactive waste, being the stipulated a series of parameter of the emission values, as well as the indices which will measure the progresses registered for the commitments which were taken. The Decision no.381 from 2005 of the Commission rationalized the reporting system of the information regarding the implementation of the documents from this field. So, anticipating the coming into force of the Kyoto protocol, the European Commission organized from 2003 putting into force some platforms for the exchange of CO₂ permits, so that by 30 July 2005 6 “pollution markets” were already functioning. Moreover, officials from the Chinese government announced that they wish to launch in this country, in the summer of 2008, a stock market for transaction with carbon-credits, in order to take advantage from the growth of the number of projects accomplished in the Asian state in order to reduce the pollution emissions. This market should combine the transactions with CO₂ emission certificates, called carbon-credits, according to the Kyoto protocol, with a market for the voluntary reductions of pollution emissions, which resemble the existent ones from Chicago.

In what the commercialization of the CO₂ permits is concerned, the basic principle is relatively simple: each of the member state assigned a certain level of permits for the main enterprises from the fields recommended by the communitarian directive, namely: energy, the glass industry, the cement industry, the lime, paper, refinery and chemical industry. So, these were distributed free of charge at the level of the European Union, a total amount of 2,2 billion tons of CO₂. The enterprises which have very high emission of gases with greenhouse effect have received the right to produce for 90% of CO₂, for the rest of 10% there are two solutions: either they are reducing the emissions, either they obtain through the exchange stocks permits to pollute, given by the enterprises which do not pollute. In this context, there were settled national registered which are framed in the categories stipulated by this directive as well as the allowances for the consumed CO₂.

Starting with January 2005, the exchange of permits and the corresponding prices registered a growth: from 8 Euros per CO₂ ton the price reached 30 Euros/t, maintain the level of almost 20 Euros/t, but there is a series of specialists which estimate that this price will reach up to 100 Euros /t by the end of 201. This situations has many explanations: an insufficient supply as compared to the demand, the boom of the price of petrol and of the methane gas which force some states to use the fossil fuel, respectively coal, or the draughts which reduces the production of electricity.

If between 1990 and 200 EU has reduced its emissions of gases with greenhouse effect with almost 3,3%, these continue to grow on an international level. The reduction at an European level can be explained, through Germany’s efforts, which registered a

reduction of 18,3% in the last decade, especially due to the economic restructuring from the former GDR.

At the same time, Great Britain announced a decrease in the emissions with 12%, and Luxemburg with 44,2%, but at the same time, not less than 10 Member States have remained behind in accomplishing their obligations. The balance of the first three years from coming into force of the Kyoto protocol offers us data which are not very optimistic. According to a report of the Research Institute of the Public Policies from London, EU has not managed to reduce the gas emissions with greenhouse effect according to the assumed obligations. Only two of the Member States (Great Britain and Sweden) are about to diminish their emissions according to the plan, the rest of the countries did not manage this thing. In spite of these, the Kyoto Protocol stipulates obligations and limits for the period 2008-2012, so that the community efforts can still be accelerated correspondingly. Besides these aspects as it was also mentioned in the reunion from Montréal, EU is decided to act for the continuation of the Kyoto process and after 2012.

EU has announced at the beginning of the year 2008 a package of measurements against the climate change, which describe how much each of the 27 member has to take in the next years. So, EU should reduce the emission of gases with greenhouse effect with at least 20% by 2020 (as compared to the level reached in 1990) and to increase the quantity of energy produced from reusable resources, as well as the wind energy and hydro energy. When the plant fuel proves to be ecological enough, it is desired that up to the same date 10% of the fuel used in transports should come from biofuel. [www.economist.com]

The new legislative norms, which rely on the principle "20/20/20 up to 2020" (20% growth of the energetic efficiency, 20% reduction of the gas emission with greenhouse effect and using 20% of the reusable energy resources, all these aspects by 2010), will create pressures in the industrial operators so that they could accomplish environment investments. According to this legislative package the wealthier countries will have to go even further while the Eastern-European countries and the poorer countries will be able to increase their emissions as their economies are developing.

The cost of this action will not be very low: the total invoice could reach 60 milliards Euro (87,7 milliards dollars, or almost 0,5% from the annual GDP from Europe) by 2020. But this cost was presented as a very optimistic way as compared to the paid price if we do not act in this direction (the cost reaching 10 times higher than the price of the new energy package).

In what the population is concerned it is estimated that up to 2020, each European citizen will have to bear a cost of 3 Euro per week to fight against the global warming. According to the EU officials not every economic sectors will be constrained equally. The electric energy sector will pay for emissions starting with 2013, fact which will lead to an estimated rise in price of the electric energy of 10-15%.

The national objectives are settled according to the Gross Domestic Product per capita, and to the principle of solidarity. So, Denmark, Ireland and Luxemburg will have to make the highest reductions of emissions of 20% while Germany will have to reduce the emission with 14% by 2020, Sweden and Great Britain with 16% and France with 14% while Bulgaria and Romania will be able to increase the level of the emission with almost 20%. Romania and Bulgaria are treated with generosity in what the allocation of the CO₂ rates is concerned, because the two countries, need to recover the disparities in the economic development. In exchange Romania and Bulgaria will have to

increase the average of the reusable energies from 17,8% presently, to 24% in 2020, in the case of Romania, and from 9,4% presently to 165 by 2020, in the case of Bulgaria.

In what this reusable energy is concerned, Europe hopes that by 2020 a fifth of the total energetic consumption should come from reusable energies. This effort is likely to amount to 18 milliards Euro per year, but the European Commission insists that by fulfilling this objective Europe tends to become the worldwide leader in "green" technology, generating new working places, exports and incomes of 150 milliards Euro up to 2016. According to the Commission, the profits from the regenerable energy are of 30 milliards Euro and this type of energy offers jobs for almost 350.000 people.

At the same time one also aims that the number of jobs from the polluting industries should be maintained so that they could not contribute to the unemployment growth. The secret of the success to maintain the jobs (even in the most polluting areas of the heavy industry) and to save the planet will be left to the EU scheme which will have to commercialize the gases emissions with green house effect (scheme conceived in 2005). This forces the big polluters, as for example the energy companies or the industrial giants to transaction certificates which allow them to emit tons of CO₂ and other polluters which determine climate changes up to a stricter limit. In spite of these, the Commission has announced that it will impose strict regulations so that these certificates could not reach a "carbon leak", in the sense that some siderurgical complexes and other big polluters from Europe should move their plants in countries where there are not nay compulsory standards regarding the environment. Due to these facts and due to the competition from the countries which do not respect the same strict ecological rules, some sectors, which generate emission, as the siderurgy and the aluminum industry will take advantage of free permits so that they could not be tempted to move their activity in the more permissive states.

For the moment the EU scheme for the commercialization of gas emissions with greenhouse effect covers almost 11.500 energy-based plants, as well as electricity works, petrol refineries, siderurgical complexes and cement plants which are responsible for almost have of the carbon dioxide emissions from EU.

According to the World Bank, in 2005, the international market of the CO₂ emission has grown 10 times reaching the level of 11 billion dollars. The total amount sold under the form of the emission certificates was of 374 million tons three times higher above the previous year. The EU market was estimated to 8,2 milliards dollars at the end of 2005, the equivalent of 322 million tons of CO₂. The main certificate buyers issued outside EU were Japan, Great Britain, Italy and The Netherlands. The states which registered the highest sale of certificates were China and Brasil.

In what Romania's reserve for the period 2008-2012 is concerned, it has more than 250 million tons CO₂ which for an average price of 20 Euros would mean a value of 5 billion Euro but the price would be much higher if we think of the penalties settled by the European Commission for breaking the approved limit. So, if in the period 2005-2007 the penalties were set for the level of 40 Euro/CO₂ ton, in the period 2008-2012 these penalties are 100 Euros /CO₂ ton which exceeds the given limit. If out country makes the mistake of selling from its reserve and it will have in the future some emissions above the given limit, the payment will be much higher than the profit obtained from the sale of certificates. Due to these aspects many countries are interested in Romania's available resources.

In consequence, we think that the Kyoto protocol and the adoption, during the Conference of the Parties from Montréal, December 2005, of the Marrakesh agreements

represent historical moments which give us stronger hopes to think the future of the humankind will be improved because of the joint efforts and common actions and the measures that are taken. In this context it is important to maintain the cooperation between the governments after 2012 (year which marks the end of the first period of commitment).

Moreover, we are aware of the fact that the results of the Protocol are not only measured by the impact on the climate, but they will also contribute to the development of the economic activity, by increasing the technology transfer which will have tangible effects for the sustainable development.

Knowing that a healthy environment is essential for the prosperity and quality of life and taking into account the reality that the damages and the costs resulted from pollution and climate changes are important, we consider that the efforts to improve the activities related to the protection of the environment has to be an essential preoccupation for all the factors from this field.

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