

MANAGEMENT OF SUSTAINABLE DEVELOPMENT AND ECONOMIC REVIVAL OF MINING AREAS AFFECTED BY RESTRUCTURING

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Abstract

Sustainable development of an area or region, as a process of change, of economic and jobs development, entails, in the context of what it summarizes through the dualism: ecosystem-ecoeficiency, community concern over the current and future situation of its natural resources, energy, materials and information. With the responsible approach for the sustainable development of mining areas, the exploitation and the efficient use of coal as the main source of fossil fuel for energy production, involves the operation of a sustainable economy to meet the current needs of the society, respectively the orientation of the development technologies and the institutions of increasingly responsible for implementation, which actions must be convergent and replace the fact that mining must use resources with care such as mining as a whole, should not endanger the natural support systems of life. The paper presents, in an uniform and coherent whole, the specific principles and criteria of strategic and integrated management of sustainable development, based on what are the detailed objectives and priorities of economic development of mining regions, as well as highlights of the strategic management of sustainable development at the local, regional and national levels.

Key words: market economy, sustainable development, economic revival, strategic management, local comunity, financial support, public – private partnership, ecosystem, coal, not renewable resource, holistic concept.

JEL Classification: O40, O41, O43, O44, O47, O49

1. Introduction

The Romanian economy is facing a difficult exam of her existence, i.e. the connection to the requirements of the European market economy, to ensure the conditions of quality and efficiency through re-organisation and functioning of the SME sector and large enterprises on the basis of trade, the introduction and expansion of the privatization process and the re-organization of public-private partnership, the establishment of "financial market". It continues to go through a comprehensive process of restructuring, being in a continuous transformation and adjustment, economic, political and social, to whom it can be said that neither the mining areas considered industrial were not protected by these changes, social and economic effects of the restructuring of the mining sector is quite notable, they deserve better developed measures in order to create the necessary economic development business environment and a spirit of economic competition to ensure a favorable perspective development of a functional market economy.

The essence of sustainable development is given by the current and future management of its natural resources, energy, materials and information, in relation to the objectives of economic growth and ensuring the best quality of life and the environment.

Politicians and economists noticed, in this context, the need for rationalization of the long-term economic recovery and development, of the mechanisms and an integrated management governing the connections and interactions recorded between processes in nature and society. A prolonged period of time, economists have attempted and apparently have answered to accredit the illusion of modern computerised society based on a market economy.

In the case of mining areas, sustainable development and economic revival, as a mechanism of change, where the coal is exploited as an energy resource, assume the orienting development technologies and institutions increasingly more responsible for implementation, which actions will have to be converging and to substitute the fact that the extractive industry must manage resources sensibly so that it does not endanger the natural support systems of life, such as air, water, soil, flora and fauna. On the other hand, strict economic criteria, development of mining areas, continuing coal as a resource for energy production, is directly influenced by the financial resources allocated to this sector, in the context of providing investment for the introduction of competitive technologies of extraction and combustion and the production of energy in power plants, taking into account that financial support for the refurbishment and development with the economic recovery and development of jobs can be done from external resources, as well as through mobilizing its own resources.

Accordingly, in relation to the negative effects of the mining industry on biodiversity and the nature, a key objective of the policy of sustainable development and economic revival of mining areas, is the maintenance of the ecosystem in a stable base of energy resources, which means to avoid intensive exploitations, that the use of their speed to be no more than the ability of finding new resources, through their gradual replacement with others. In addition, the success of the sustainable development approach, involves the financial support for finding and implementation of processing technologies which prolong the life cycle of this non-renewable resource, to avoid the situation of treating the environment as a free good, available to all, by ensuring that all costs and benefits are distributed in an equitable manner.

Such an objective it is necessary to continue to provide the basis for establishing major economic decisions in the public and private sectors in the framework of a strategic and integrated management of sustainable development on all levels (local, regional, national and global).

2. Objectives and areas of action for the sustainable development and economic revival of mining areas

In the race for the reduction of the social and economic gaps between the developed and less-favoured areas, strategic management at macro and microeconomic level is required to monitor and assess strategies of sustainable growth, which shall include appropriate environmental factor, in a genuine process of differentiated growth – decrease of economic sectors, in line with the demand of future products and services.

As a holistic concept which combines social, economic and natural aspects, the sustainable development can be addressed in the light of the following three major areas, namely:

- *economic field*, which involves studying the issue from the point of view of effective management of the resources;

- *natural field*, which involves maintaining a natural life, by reducing the pollution of ecosystem;

- *social field*, with his directions for action aimed at the needs of the society.

In the case of the economic sector, the ways of sustainable development of mining areas, are represented by the various divisions, of which [1], [2], [3], [4]:

- technical and technological rehabilitation of coal pits and coal mines through the use of competitive methods of extraction, with the application of sustainable technologies and effective use of resources;

- to establish the possibilities of change and readjustment of the flow sheet, so that they can be adaptable to the mechanization of exploitation operation of coal and upgrading/rehabilitation requirements and integration in the economic circuit of sterile dumps resulted from lignite extraction from coal pits;

- analysis of recovery possibilities of the occupied territory by dumps in the case of coal pits exploitation, related to fundamental principles of ecological planning and regional development plans, through the identification and promotion of solutions with high degree of implementation at the level of agricultural production, natural setting, fitting for the productive and technological facilities location, which is like having a high degree of interest;

- capitalization and integration in the economic circuit, as raw material for the production of various construction materials, ash and cinder of thermal power plant from burning coals; the use of ash as backfill material in the field of infrastructure construction, including the filling of underground cavities created by the exploitation of coal;

- capitalization of the sterile from the dumps, as well as building materials, and as backfill material for underground mining;

- capitalization of slurry from ponds, originated from the preparation companies, as well as alternative fuel to energy production, etc.

In the natural field, can be selected the following areas of action for sustainable development, namely:

- rehabilitation and cultivation of sterile demps and the bad lands, as a result of coal mining activity, through the recultivări of vegetation and afforestation;

- filling with water the cavities created by the coal pits exploitation and integration in the natural circuit as natural lakes;

- the implementation of "clean coal" technologies, based on capturing and storing CO₂ produced by burning coal in thermal power plants;

- implementation of the technology of capture and use of methane gas (CH₄) located in the coal deposit of active mines or mines that were closed etc.

In the case of social field, the sustainable development measures consist in economic growth and development of jobs, with an effect in unemployment rate attenuation and labour conversion. An important role in this case lies with the IMM sector, as well as of information units, advice structures, initiation in the business, that have to work effectively and find the opportunity [4], [5], [6].

3. Principles and criteria for development

In conjunction with the major macroeconomic objectives of sustainable development at the national level of our country, with favourable results on the reduction of the economic and social gaps between Romania and the developed countries, the economic growth sustainable management at the sectoral level and at the level of mining areas, concerns to ensure a high level of available labour and reducing the unemployment rate to his "natural" (4-5%) by including the public-private partnership, generator of jobs with high productivity, as well as the use of specific mechanisms of redistribution of income, avoiding encouraging the mentality of not working to "benefit from social assistance".

A number of internal and external factors related to the deterioration of environmental factors are considered to be more efficient for strategic management of sustainable economic growth.

In addition to the establishment of long-term objectives (15-20 years), being compatible with short and medium term, the strategic management of sustainable development involves the application of a set of principles and criteria [6], [7], [8], [9]:

- *equity between generations*, where the present generation will deduct the benefits by using the environment as a resource base, while the costs are passed on to future generations. According to this principle, the present generation has the right to use and benefit from the resources of the Earth, coal energy as a resource, with the obligation to take into account the long-term impact of its activity and to sustain the resource base and the environment and for the benefit of generations to come;

- *replacement* of inefficient products and services, intensive users of environment resources with others more effectively and with less environmental impact and less damaging. The case in question, it is necessary to replace the classical technologies of coal extraction with new ones based on mechanization and low level of pollution of the environment;

- *the principle of internalisation of marginal external costs (negative externalities)*, expresses the quit of extraction of marginal unit resources in the future. This principle, according to which the "polluter pays" principle, establish the use of market-based mechanisms for polluters to bear the full social and environmental costs of their activities and that these costs will be reflected in the prices and tariffs for goods and services;

- *internalization of marginal external benefits (positive externalities)*, according to which is established the use of a system of corrective subsidies, incentives for activities that generate benefits to third parties, without pay (research-development institutions, the environmental protection agency, educational institution, regional development agency, IMM etc.);

- *public participation*, the principle according to which access to information is guaranteed and the right of local civil society to take part in decisions on the environment and its resources, taking into account their consequences, interested parties being able to react and right to know in advance the possible environmental risks on resources;

- *private-public partnerships and public-private partnerships* is based on direct cooperation between the parties, represented by local authorities and public institutions, NGO-s, groups and industrial companies, business man networks, which together can get through the combination of expertise and efficiency, a superior value added for the sustainability of economic growth at the macro and microeconomic levels in the standard area;

- *principle of good management of resources (material and human)* provides that the local public activities to operate transparently, effectively and honestly under the pollution prevention and penalty by promoting environmental protection solutions.

These few principles and approaches of strategic management of the mining areas sustainable economic development, local and regional cooperation, in order to maintain and develop its energy resources ecosystems, including natural, material and informational, as actions in accordance with the legislation, as well as the aspirations of the environmental, economic, social and cultural needs of communities.

4. Highlights of the strategic and integrated management of sustainable development

According to the experience in the field of sustainable development by a number of developed countries, the strategic management should consider the following [5], [6], [9] :

- a driving mechanism to coordinate and monitor the stages of the development strategy and to analyse, on the basis of an integrated set of indicators, the compatibility between the components of the economic, social and environment, as a known fact that you can manage only what can be measured;

- interdependence between the development strategy targets and local budgets, including direct participation from the State budget, for longer periods of time, so that the development strategies should not be on peripheral positions or be neglected. In this case should be a greater involvement of the authorities;

- coordination and implementation of the objectives and strategy of development programs to the realities of the area, so start policies applied to have consistency and efficiency.

A relational type of sustainable economic development, with the presentation of links in chronological order addressed to the integrated strategic management level, is shown in Figure 1.

The success of the implementation of sustainable development strategies at the local and regional levels is directly influenced by the integration of the development at the national level, being known the fact that the legislation and the institutional framework, responsible for the elaboration, approval and influence of such strategies differ from one country to another.

In the context of the integration of the issue of sustainable economic development of mining areas to Romania's development policies, become necessary to elaborate and implement of specific development, focusing on long periods of time (a minimum of 10 years), which takes into account the resources and the social and environmental components of development, in the context of national and international, of integration and globalization.

5. Conclusions

The key criterion for those concerned about environmental quality, sustainable economic development of mining areas, involves, above all, to ensure sustainable development that meet the needs of present generations without compromising the ability of future generations to meet their own needs.

With the approach of responsible for the sustainable development of mining areas, the efficient use of coal as the main source of fossil fuel for energy production, involves the operation of a sustainable economy to meet the current needs of the society, like the orientation of the development technologies and more responsible institutions for implementation, which actions must be convergent, and substitute the fact that mining industry must use resources with carelessness; mining as a whole, not to endanger natural support systems of life.

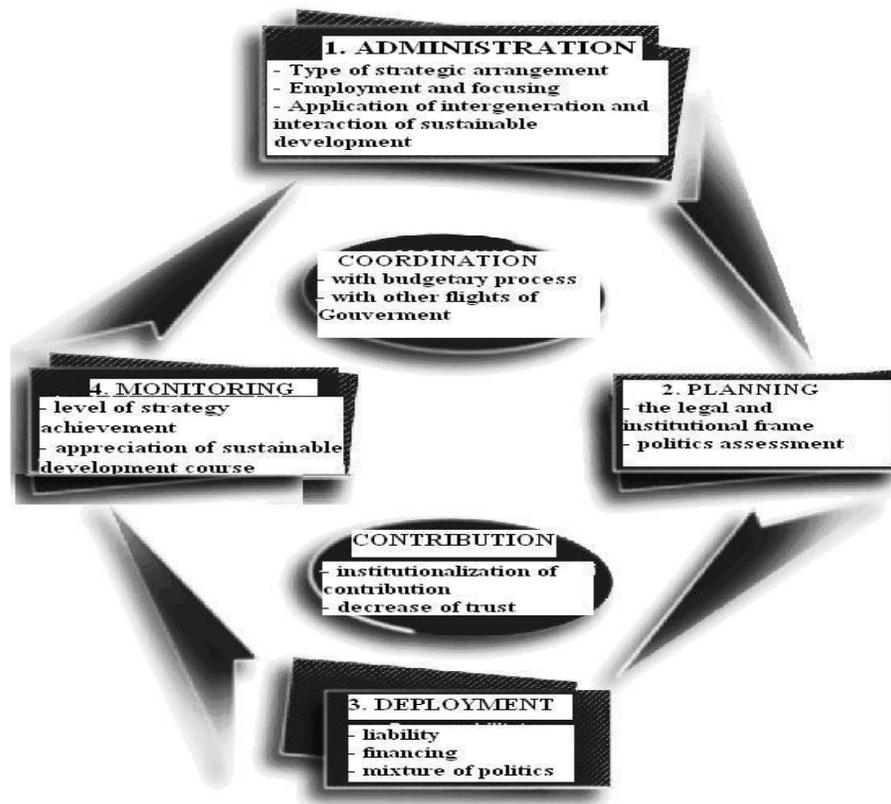


Fig. no. 1. Diagram of strategic management of economic sustainable development

Source: Swanson D. Et al, 2004

In relation to the negative effects of the mining industry on biodiversity and the natural frame, a key objective of the policy of sustainable development of mining areas, is the maintenance of the ecosystem in a stable energy resources, in conditions when the use of their actions should not be more than the ability of finding new resources, through their gradual replacement with substitutes. In addition, the success of the sustainable development approach, involves finding and implementation of processing which prolong the life cycle of this non-renewable resource, to avoid the situation to consider and treat the environment as a free good, available to all.

Management of sustainable development and economic growth, assume a clearer establishment of Governments responsibilities, an improvement of democracy, a stronger awareness of the citizens, the new styles of institutional organization for strengthening and supporting the long-term interdisciplinary research, involving of scientists, practitioners and citizens in setting priorities, creating new scientific knowledge, the assessment of the possible knowledge and testing them in practice.

Only by developing and applying it to the level of our country of such local development strategies, we can figure out the statistics, analyses and reports, and national forums, as an active member in the EU.

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