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Integration of conservation and environmental management systems in the sustainable development in Poland

Introduction

Renewable energy sources (RES) are sources whose use is not associated with their shortage, as they are renewed in a very short time. They are regarded as nearly infinite and free from organic impurities. Technical potential of RES in Poland is estimated at 3.850 PJ/y., which provides up to 90% of domestic energy demand. Geothermal, biomass, wind and water energies play the greatest role in the renewable energy sources in Poland. RES are distributed unevenly across the country, and are further characterized by very large daily and seasonal variability. Aggregation of the potentials of individual sources is flawed. The frequently used RES in Poland are invariably wood, water and wind energy and, eventually straw, landfill gas, shale gas and geothermal energy. The EU's new draft framework directive on the promotion of renewable energy sources was enacted on January 23, 2008. It says that the target amount of energy derived from renewable sources in Poland by 2020 must reach a minimum of 15%. For comparison, guidelines for Sweden correspond to the level of 49%, for Finland 38%.

Renewable energy in Poland

The environment encompasses all the elements surrounding people, both natural and manmade, that is all objects and phenomena in and outside of the organism, necessary for its survival and development. The social intercourses between people are characterized by certain standards of behavior, of values, as well as moral, ethical and aesthetic ones. Emerging ecological-political systems, international relations, ideas and imagination, all create the social environment (Figure 1).

The environment of a human being can be defined by systems of relations of natural habitats and social and cultural relationships created by people. In addition, elements of this system important for people are other living organisms and natural resources (Figure 2).

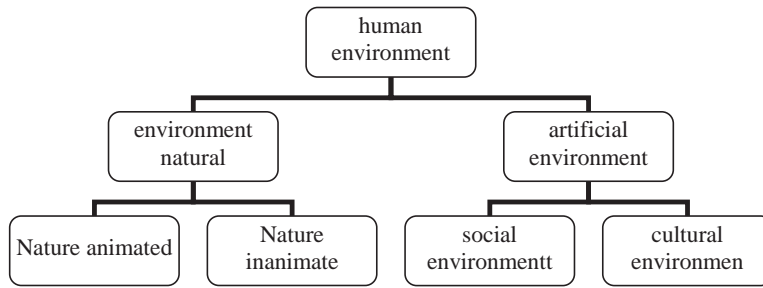


Fig. 1. Division of the human environment

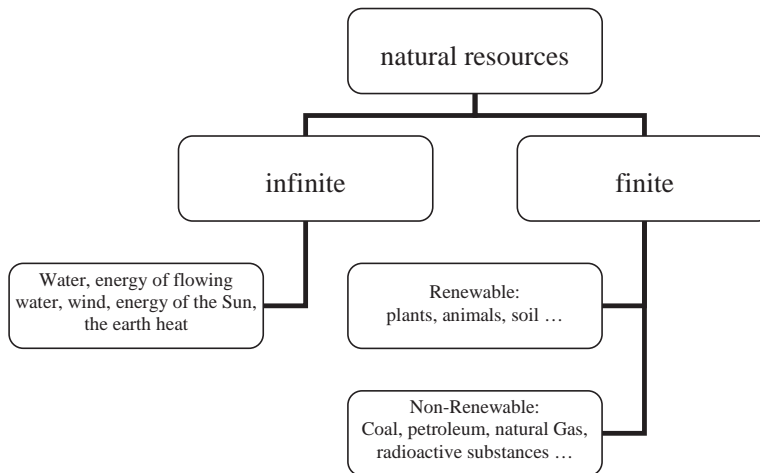


Fig. 2. Diagram of the overall distribution of natural resources and their examples

Natural resources occur as infinite, finite, renewable and non-renewable. Resources constitute infinite energy supplies (such as water power, wind and solar energy), when their operation is not threatened by depletion. Quite different situation occurs in the case of finite resources, which emerged during the evolution of the Earth, because they may be completely depleted or destroyed. Depleted resources can be classified according to their capacity for regeneration, into renewable and non-renewable ones. Renewable resources are plants, animals, soil, surface water and atmospheric air. Living organisms can multiply through their ability to carry out the renewal of the population. Rains restore the level of surface water and green plants produce oxygen in photosynthesis. In a slow process, formation of gravel and sand occurs through natural erosion. No renewal of other finite resources, such as coal, results from the extremely long time of their formation, e.g. black coal formed about 300 million years ago and brown coal formed about 200 million years ago. There are also non-renewable mineral deposits, ore rock energy and sometimes even living organisms (slow or difficult to breed) and the entire biota. It is very important for the rational management to insist on a cost-effective and appropriate acquisition, processing and use of the material for the possibilities of

resources regeneration. The management of wild plants and animals should ensure their durability and optimal size while maintaining the greatest possible degree of genetic diversity.

Nature protection includes actions aimed at preserving a stable or optimum state of animate and inanimate nature and the landscape. These activities are designed to maintain the stability of ecosystems and ecological processes and, in particular, for the conservation of biodiversity. Biological diversity is diversity of all living organisms on Earth that occur in terrestrial, marine and freshwater ecosystems, and their ecological complexes.

The acts validated on January 31, 1980, on Environmental Protection and Management and the act validated on October 16, 1991, on the protection of nature were binding in Poland up to the 21st century, to 2001. Various articles of these laws define the rules and procedures for setting up facilities to protect and carry out the management of resources. Currently, the primary piece of legislation concerning environmental protection is the act validated April 27, 2001, the Environmental Protection Law. Its purpose is to create modern environmental attitudes.

Nature conservation is taking place since the inception of mankind. With the development of civilization, there were some reasons for environmental protection resulting in raising the awareness of people in the surroundings (Figure 3).

Protection of nature and natural resources has become a subject of research, because natural ecosystems are living laboratories, hosting important human discoveries. The international character of the environment protection became the basis for coordination of the Polish law with the EU law. The rights of the EU for the European countries were based primary on the law, which was modified successfully in the period of changing conditions. Following the example of the EU, the regional policy in Poland has adopted as its main objective promotion of regional development by improving the quality of the environment and living conditions, and by reducing the differences in various areas of the country, inter alia, by the protection of the environment so that it survives for the future generations.

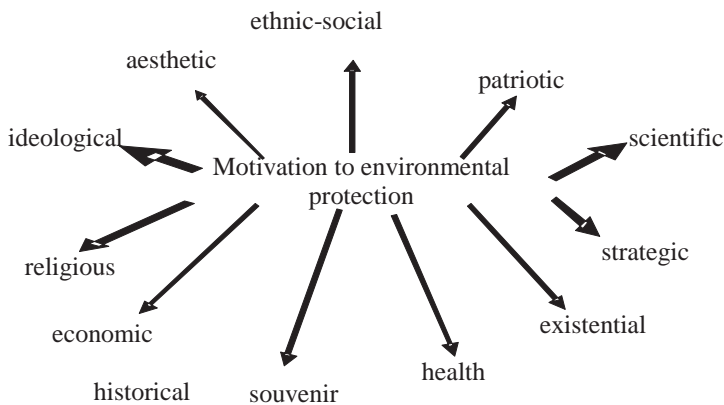


Fig. 3. Motivation for environmental protection

The idea of environmental management

Environmental management is not based solely on planning and nature conservation, but also on rational plans for national industrial development, management and communication. Environmental management is the management, operation and restoration of the environment, both in economic organizations and in territorial systems (regions, districts, municipalities). These activities are integrated into the overall management system of the organization. Processes of environmental management make use of protection and development of the natural environment through injunctions, prohibitions and indications of improper usage of the environment, reduction of pollution, and protection of the spreading of environmentally friendly species and specimens. The environmental management system based on the idea of continuous improvement by the Deming cycle is known as the P-D-C-A cycle (plan-do-check-act). This plan assumes that activities can be divided into phases: planning (plan), implementing (implementation of the plan), checking (control, assessment of the effectiveness and reference to the objective of the plan) and improving (action, detection of defects and adjustment of plans). Basic elements of the environmental management system have been developed and included in ISO (International Organization for Standardization) 14001 series.

Basing on the standards, organizations should establish, document, implement, maintain and continually improve the environmental management system. An important issue is to determine the scope of the management system, as organizations are not required to implement the system throughout their structure. Environmental policy is a general intent and focuses the organization on the performance formally expressed by the top management. Its objectives and deriving obligations are clearly defined. Its liabilities include continuous improvement, pollution prevention and compliance with relevant requirements of the legislation and with regulations relating to environmental influences of the organization. Environmental policy of organizations should be available in public and tailored to the nature and scale of their activities, products and services and to their impact on the environment. The policy provides the framework for setting up and reviewing environmental objectives and targets. Planning should take into account spatial and functional relationships occurring between the society, nature and technical equipment in the area. It takes place on three levels: the national, regional and local one.

Planning includes development of the concept of national efforts in order to meet the needs of agriculture, industry and municipal economy as well as to determine strategies of natural resources use. The plans include implementation of regional environmental valuation and determination of its suitability for different forms of management. Plans determine the possible use of the environment that does not distort its ecological balance. The planning process involves local municipal plans for land development in individual settlements and their distribution in industrial plants. There are several methods of analysis. One of them is the method based on a life cycle. The procedures for implementing the life-cycle analysis (LCA) are as follows:

- □ define the purpose and scope of research as well as the cause of research, plans for deployments and customers, and identify limitations in the research system,

- □ harvest inventory analysis - identification and quantification of the effects of input and output product or service, the balance of consuming natural resources and creating a negative environmental impact of the product life cycle,
- □ □ impact analysis - isolation, analysis and assessment of environmental impacts of the products,
- □ □ interpretation - identification of significant environmental aspects in the areas of improvement, introduction of steps to reduce the negative impact on the environment.

The method of LCA has been included in algorithms. LCA is a method frequently used to assess the environmental aspects of cleaning, packaging of cremes, oils, fuels, TV sets, etc. This method has also been applied to environmental management. It is important to review the environment, which allows for a better analysis and identification of different aspects and impacts before establishing an environmental management system. Appropriate identification of the aspects and impacts could be crucial for the credibility of systems. The analysis must first determine its scope, but the manner of its conduct is not defined. The analysis covers not only the manufacturing process implemented in the organization, but also some aspects related to the provision of raw materials and intermediate products (including energy, whose production is also important), waste disposal, transport, storage and delivery of the final products, and to other functions.

For implementation and operation of systems, it is crucial to have adequate human, financial, technological, organizational, and professional resources, as well as to define the tasks, responsibilities and powers. The body responsible for ensuring these conditions is essential for the management. Organization's top management is required to designate a special representative / representatives, whose job is to present the reports to the top management of the system, allowing for reviews.

Regular monitoring and measurements, as key operations and activities, can have a significant impact on the environment in order to verify the proper system operation. All information should be recorded (documented) to enable verification of the subsequent activities. The first step is to identify the object of measurement. Monitoring applies in three areas: management, operations and specification of the state of the environment.

The audit is to compare the environmental management system functioning in the organization with the requirements of ISO 14001 and the documentation describing the system. Internal audits are conducted by the organization itself (or on its behalf) for internal purposes. Parties interested in the organization, such as customers or external independent testing organizations conduct external audits, to check whether the organization complies with the requirements of the standard. The purpose of the audit is to examine whether the environmental management system complies with the requirements of standards, and whether it is properly implemented and maintained.

The top management performs management review. It allows a broader look at the system and enables verifying the current expectations of the state system, its usefulness, competence and efficiency. It allows determining the extent to which the implemented system is tailored to the current state of the organization, too.

Best practices in implementing the national environmental policy at the local level in municipalities of the Malopolska region

Plans developed in recent years and strategic plans for the future development of local individual communities usually take into account diversity of the proposed solutions using local resources, opportunities and external conditions. Among the most commonly postulated routes of development, a special place is given to non-agricultural entrepreneurship. It usually takes the leading position in the list of all possibilities and is cited as the anticipated direction of development in most regions of our country. The development in the area of this activity is particularly suitable for rural areas that are characterized by large untapped resource of labour. Undertaking one's own non-agricultural activities affects both the villagers without farms and farmers, who want to enlarge their own, usually modest income from agriculture. The scale of the existing business development in the environment of the Polish countryside, however, is too small; the development is characterized by high territorial dispersion and diversity. Observing the intensity of this phenomenon in the entire country, it can be seen that there are clearly lower rates of entrepreneurship in the regions of the eastern Polish provinces in comparison to the areas in the western and southern parts of the country.

The vast majority of municipalities have elaborated strategies of development, others have strategies in progress, or are preparing to draw up such documents. Usually, municipalities with strategies point out small business, tourist and recreational services and agriculture as the basis of development. Local industry development is mentioned only in every fifth municipality as the direction for future elaboration.

Plans include the development of strategic directions and the objective conditions of factors existing in the municipality for determining the development of resources. There is no surprise that territorial differentiation of the chosen directions of development is anticipated by the local authorities. The southern part of Malopolska is explicitly oriented towards the development of tourism, in particular agriculture tourism. This is due to favourable natural and environmental values prevailing in this part of the region. As we move toward the north, the improvement of natural farming is emphasized as an important direction of development of certain parts of municipalities. In areas of larger population centres, especially near cities and towns, the industry is mainly regarded as an important direction of development, as it uses local processing of agricultural raw materials. The intensive process of development in these environments leads to the creation of small businesses, but generally without outside investors.

Appreciating the role of small business, local municipalities in Malopolska are trying to create the conditions for its development by conducting various organizational and educational activities.

In the communes of Małopolska, the organization conducting the training affects the local labour market and the development of business. Functioning of companies at the local level depends largely on the efficiency of the local government officials and their approval. A budding entrepreneur from the community expects assistance in registering the business and expert advice from a tax official, which is very popular.

Local authorities may be a lack of understanding for initiatives among a certain part of representatives of the local authorities, but the basis for the negative attitude to many projects is usually the councilors' impatience in waiting for the effects of the initiatives. Often the time requirement is overlooked, sometimes the effects are not immediately visible, but are necessary for the implementation of promising programmes. The weak point of local governments' activities is the lack of consistency in practical implementation strategies adopted in the task. It is much easier to adopt tasks and produce a visible effect, thereby guaranteeing the recognition of the residents. Quite a lot has been made for funding difficult tasks, whose effects are not immediately visible, but their conduct is necessary to build the foundations of sustainable economic growth in municipalities.

Summary

In conclusion, it should be noted that in the face of numerous problems to be solved in the rural areas of Małopolska, we can notice a lot of positive evidence leading to the rapid catch-up with the modern civilization. This evidence creates a good foundation to rebuild and revitalize the economy of the region. Actions taken by individual municipalities can be criticized for being one-sided, due to the selective implementation of goals and lack of consequences or even negligence, but certainly, they can bring about a breakthrough in the way of thinking of the local community. This is particularly evident among those who decide about the fate of the development of the municipality. The once-typical passive attitude of demanding is becoming less common.

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Abstract

The Constitution of Poland provides protection of the environment, guided by the principle of sustainable development and provides environmental protection as the duty of public authorities, which, through its policies should ensure the ecological security of current and future generations. Taken the issue is an attempt to determine the impact of national environmental policy on economic development strategy of local governments concerning the sustainability.

Key words: ecodevelopment, ecology

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