

ENVIRONMENTAL MANAGEMENT AT METALLURGICAL COMPANY - BASIC ELEMENTS OF SYSTEM

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ENVIRONMENTÁLNY ManaŽMENT V HUTNÍCKOM PODNIKU – ZÁKLADNÝ PRVOK SYSTÉMU

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Abstrakt

Kľúčovým prvkom článku sú výrazy (základné prvky systému environmentálneho manažmentu) spojené s environmentálnym manažmentom: „ekológia“ a „environmentálna ochrana“, „manažment životného prostredia“ alebo „environmentálny manažment“, „taktika“, „stratégia“, „plán a program“, „ciele“ a „úlohy“. Okrem štruktúry rozvoja bola prezentovaná vyvážená stratégia. Stratégia je vybudovaná na základe scenárov. Tieto nám umožňujú analyzovať zmeny v životnom prostredí. Kľúčové stupne prípravy stratégie rozvoja: definícia východiskového bodu a rovnováha vlastných sôl a peňažných prostriedkov, definícia cieľov, rozloženie a analýza prevádzkového priestoru, vývoj metód, ktoré majú byť aplikované na prekonanie prekážok alebo riešenie problémov, stanovenie úloh, rozdelenie zodpovednosti, definovanie termínov a stanovenie prostriedkov jednotlivým úlohám, definovanie pravidel komunikácie a podávania správ, manažment akcií prostredníctvom pravidelnej kontroly cieľov. Tiež sú vysvetlené určité investície a ich dôsledky na príklade Mittal Steel Company (najväčší hutnícky podnik na poľskom trhu).

Abstract

The key element of the paper were terms (basic elements of environment management system) are connected with environmental management: “ecology” and “environmental protection”, “environment management” or “environmental management”, “policy” and “strategy”, “plan” and “programme”, “goals” and “tasks”. Besides the structure of development balanced strategy was presented. Strategy is built on the ground of scenarios. They let us analyse changes in environment. Key stages of development strategy preparation: definition of a starting point and the balance of own forces and funds, definition of goals, distribution and analysis of the operating area, development of methods to be applied to overcome obstacles or solve problems, allocation of tasks, division of responsibilities, definition of terms and allocation of resources to particular tasks, definition of communication and reporting rules, management of actions through permanent and periodical control of goals. More over for example of Mittal Steel Company (the largest metallurgical enterprise in Polish market) some investments and their effects were described.

Key words: environmental protection, environmental management, development balanced strategy, ecological investments, ecological effects

Introduction

In the 21st century, companies in Central and Eastern Europe introduced environmental management. In Poland the Environmental Protection Law of 27 April 2001 (Journal of Laws No. 62, item 627 as amended) applicable (mostly) as of 1 October 2001 is a leading act governing environmental protection. Environmental Management Systems in companies are State environmental policy instruments. The basic elements of environmental management systems are: environmental policy, development balanced strategy, plans, programmes, goals and tasks. To realise environmental programmes companies invest in new technology and production methods. Technological changes cause that environment is more and more cleaner.

1. Some elements of environmental management system

The basic elements of environmental management system are: environmental policy, strategy, plan, programmes, goals and tasks. So we must explain what we main by them.

1.1 Ecology and environmental protection

Terms of "ecology" and "environmental protection" are practically synonyms in the colloquial language. Ecology also deals with natural environment protection. Environmental management issues should be correctly called as "environmental protection", which points out "practical activities the purpose of which is not to pollute, damage, degrade, contaminate or transform the environment" [1]. Ecology is "a section of biology analysing relations between external conditions and the life of plants and animals"[2].

1.2 Environmental management or environment management

The term of environmental management mainly refers to an environmental management system integrated with the general management system. The environmental management system comprises an organisational structure, planning, responsibilities, rules of proceeding, procedures, processes and measures used to develop, implement, analyse and maintain the environmental policy [3]. The structure of environmental management is presented in the standard ISO 14001. The term of environment management means the management of environment to protect it. Prof. Z. Nowak define the environment management as the management of polluted and damaged environment. So the environment management tends towards eliminating wrong impact (pollution prevention)[4]. The same aim is realised in environmental management. So terms of "environmental management" and "environment management" are synonyms.

1.3 Policy and strategy

F. Piontek defined environmental policy as a science of environmental protection shaping at many levels, i.e. rational use and reproduction of environmental resources to ensure necessary efficiency and effectiveness of actions relating thereto [5]. The adoption of the

sustainable development rule provided the environmental policy with a special new function recorded in the constitution. Environmental policy should be understood not as one of many specific policies to be executed by the company, but as the most important task of the company policy[3]. In other terms, the environmental policy may be treated as a well-thought and organised decision-making process governing an access to limited environmental goods and resources. The environmental policy has to be co-ordinated with other policies company and it may not be contrary to them. The object of the policy is natural environment and the quality thereof from the point of view of biological, social and economic human needs [3].

The environmental policy in the company is a written statement of goals and intentions regarding the use, protection and development of natural environment. It should result from the agreed vision and strategy of development and define solutions for current environmental protection problems [5].

Strategy is a consistent concept of action the implementation of which is to guarantee that fundamental long-term goals relating to a given area, e.g. environmental protection, are achieved. The planning document called "environmental strategy" refers to a planning document called "Strategy for Development of Company" and other internal documents of organisations, including an investment plan.

1.4 Plan a program

Terms "plan" and "programme" are considered equivalent. In the Polish Language Dictionary, the term "plan" includes "plan – develop a programme". Whereas, the "programme" is defined for example as "plan – the set of intended activities". As regards the "plan", the question should be however "relating to what, whom?", whereas as regards the "programme": "programme of what?" [5,6]. Thus, we may say that the "plan" is a "programme of strictly defined activities". And the "programme" is a "plan, set of independent activities", or differently "programme of tasks and works in a given area to be performed in an agreed time"[5].

1.5 The environmental goal and tasks

The goal is a future desired status or result of actions taken by an organisation. Goals result from the organisation's mission. Environmental goals result from the environmental policy. Environmental goals are usually defined by volumes. Environmental goals motivate to take up actions to improve the quality of natural environment. Well-defined goals constitute an efficient mechanism of performance measurement and control. To achieve the goals, they have to be broken down into tasks[3,7,8].

In the praxeology, the "task" is defined as a status that is to be maintained or achieved. It is an event referring to the future that has been defined, described and commissioned. Persons in charge of task definition are usually managers of the company. Tasks are usually performed by persons or task forces [5]. Analysing the literature and modifications in approaches presented therein, we may assume that "the task is a normative obligation to achieve a defined State goal by administration through specific measures". Each task has got two parameters: formal establishment and actual execution [5].

Environmental tasks are "specific requirements relating to effects of environmental activities expressed by volume, always, if possible, applying to organisations or parts of organisations and resulting from environmental goals" [5,7].

2. The development balanced strategy – structure

The environmental management is connected with strategy planning. Strategy is built on the ground of scenarios. They let us analyse changes in environment. Key stages of development strategy preparation: definition of a starting point and the balance of own forces and funds, definition of goals, distribution and analysis of the operating area, development of methods to be applied to overcome obstacles or solve problems, allocation of tasks, division of responsibilities, definition of terms and allocation of resources to particular tasks, definition of communication and reporting rules, management of actions through permanent and periodical control of goals (tabl.1).

Table 1 Key stages of development strategy preparation [3, 5, 9,10]

Key stages	Essence and scope of actions
Definition of a starting point and the balance of own forces and funds	A starting point is the existing status for which actions are prepared. To define it, we have to, for example, evaluate the condition of natural environment within the analysed area, make statistical analysis to determine borders of problem areas in the company. To determine the starting point, we have to know our own resources and data allowing for the definition of change trends (SWOT).
Definition of goals	We define general goals, e.g. the reduction of air pollution, which are then translated into specific goals. Actions defined by goals have to be conducted in accordance with certain principles, assumptions and conditions that should be defined and observed to achieve the goals.
Distribution and analysis of the operating area	General and partial goals are allocated to "operating areas" covering a specific area, site, zones (social, economic, environmental, legal, etc.), e.g. the analysis of legal regulations on environmental protection, investment opportunities, technical conditions. The operating area is analysed by various methods (interview, statistical survey, measurement, calculation) and ends up with the identification of key problems and the definition of advantages resulting therefrom.
Development of methods to be applied to overcome obstacles or solve problems	To achieve goals, we come across many trouble, risks and obstacles, which have to be overcome to succeed. Such risks resulting from our own weaknesses and imperfection should be identified (e.g. through SWOT analysis). Advantages using and strengthening, as well as defining weak sides and counteracting threats allows for the selection of adequate tools to solve a problem, e.g. the acquisition of additional beneficial sources of finance, the execution of agreements to achieve the goal, the establishment of a new business unit in the existing company's management structure, the introduction of an environmental management system, etc. Simultaneous solution of all projects is not possible, thus the strategy should define absolutely necessary priorities. The strategy should define trends of changes within the time interval or estimate such changes. It may not, however, suggest solutions that are not feasible. At this strategy preparation stage we should break down particular goals and priorities into specific measures (tasks).
Allocation of tasks, division of responsibilities, definition of terms and allocation of resources to particular tasks, definition of communication and reporting rules	The tasks should be assigned to relevant business units and persons that are in charge of their execution within strictly defined terms, using the defined financial resources. To execute a task, we have to apply defined procedures, coordinate actions, including for example the appointment of horizontal task forces, report task progress (inform, prepare written reports), allocate necessary funds, etc.
Management of actions through permanent and periodical control of goals	To perform tasks aiming at the achievement of specific strategic goals, the performance has to be continuously and currently controlled. The purpose of the control is also to define progress with specific ratios.

3. Environmental management at metallurgical company

For many years metallurgical companies belonged to a group of entities polluting the natural environment the most. New legislation and consequently realised ecological policy of the state obliged companies to introduce the sustainable development principles. The

metallurgical companies commenced to implement environmental management systems. The largest metallurgical company in the Polish market - Mittal Steel Poland (over 12000 employees) has implemented and has been constantly improving on the environmental management system according to the standard ISO 14001. The entity also takes part in the movement of Clean Production. Ecological investments are one of the most essential elements of the Company's Business Plan. The most significant ecological investments during the past few years are[11]: construction of new electrofilters dedusting the sinter belt, modernization of the sludge management, reclamation and reuse of a part of industrial wastes storage, modernization of the sintering plant, silencing excessive noise from technological appliances, assembly of an installation for: combustion gases recirculation and insufflating coal dust into the blast furnace and measuring the pollutants' emission on a constant basis. The company uses modern textile filters and electrofilters which stop ca. 99% of harmful dusts, it has regulated the water supply and sewerage management (launching final wastewater treatment plants, the water circulation closure), it realizes the wastes recycling, e.g. oils, scale, laminar rust, tar wastes, zinciferous wastes, skulls, furnace and steel-making slag. In 2006 Mittal Steel Poland S.A. rendered usable a new line for organic coating (Mittal Steel Poland in Świętochłowice), renovated and modernized a blast furnace No. 2 in Dąbrowa Górnica, modernized a wire rod rolling-mill (Mittal Steel Poland, division in Sosnowiec) and extended the Coke Plants "Zdzieszowice". These four investments cost over PLN 800 million. The investments rendered usable fulfil the European ecological standards and belong to the most modern in the world [11,12].

The Mittal Steel Poland realizes environmental management according to ISO 14001. Besides environmental investments are very important part of the business plan. The company uses the BAT technology and obtains the environmental standards. For workers and their families the company organizes environmental happenings for example during the Day of Environmental Protection the company planted 100 000 trees in the protection zone, Workers of the company participate in training to increase their environmental awareness. The company realises strategy of offensive activities. The strategy is directed at cleaner production, products development, proecological structure and style of management, proecological marketing, ecological culture of organization. The purpose is to prevent the waste production (source reduction) or its minimization.

Conclusion

The key elements of modern management is environmental management system and development balanced strategy. Now we can observe how the metallurgical companies are changed. They invest in modern technology and obtain the international low to protect our environment. They build new market image – ecological company. Mittal Steel Poland company is a leader of innovations in polish market, others follow it (metallurgical benchmaring).

Literature

- [1] Boć J., Nowacki K., Samborska-Boć E.: Ochrona środowiska, Kolonia Limited 2004, p.55
- [2] Skorupski S., Auderska H., Łempicka Z. (red): Mały słownik języka polskiego, PWN, Warsaw 1989

- [3] Gajdzik B., Pałasz J., Mapa kluczowych problemów w zarządzaniu środowiskowym w samorządach terytorialnych, Problemy Ekologii (in printing)
- [4] Zarządzanie środowiskiem, red. Nowak Z., Politechnika Śląska, Gliwice 2001, cz.I, p.51
- [5] Pałasz J.: Gminne i powiatowe programy ochrony środowiska –uwagi do ich formy, struktury, treści i wykonania, Problemy Ekologii nr10/2006, p.200
- [6] Słownik języka polskiego – edited by M. Szymczaka. PWN Warsaw, 1982
- [7] EN PN ISO 14001:2004 System zarządzania środowiskowego-wymagania i wytyczne stosowania; Standard EN PN ISO 14001:2004 Environmental management system – requirements and guidelines
- [8] Griffin R.: Podstawy zarządzania organizacjami, PWN, Warszawa 2000, p.201
- [9] Prepared on the basis of literature on strategic management. See: W.Beblo, Evaluation of environmental innovativeness of "Development Strategy for the Silesian Province up to 2015". Document prepared for the Ministry of Environment by the Institute for Environmental Development. Warsaw, October 2001 (manuscript)
- [10] Gajdzik, B.: Zarządzanie środowiskowe w gminach – wybrane aspekty, Górnoułańska Wyższa Szkoła Handlowa, Katowice 2005
- [11] Gajdzik B., Zmiany w zarządzaniu współczesnym przedsiębiorstwem hutniczym, Hutnik-Wiadomości Hutnicze Nr 3/2007, p.145-151
- [12] Gajdzik B., Inwestycje narzędziem podniesienia konkurencyjności przedsiębiorstw hutniczych, Materiały XV Międzynarodowej Konferencji Naukowo-Technicznej pt. Zarządzanie w przedsiębiorstwie, Politechnika Częstochowska, Zakopane, 27-30.06.2007