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REGIONAL ASPECTS OF ENVIRONMENTAL PROTECTION POLICY

1. Environmental protection law

Environmental protection has become not only an important social and economic issue, but a political one as well. In April 2002 a new directive was adopted by the Council of the European Union (no 11304/1/2001) on *waste electronic and electrical equipment* (WEEE). This directive imposes an obligation on producers of white goods and household electronic equipment to pay for product recycling. According to the report of the EU Commission for Environmental Protection "present technologies enable the recovery of up to 90% of the mercury contained in equipment" [www.gazeta.pl]. This poisonous contaminant is "traditionally" discharged into soil and then enters water. The experience of the EU Member States is richer than Poland's experience. In Italy the chief government authority that deals with environmental protection is the Ministry of Environmental Protection, established in 1986. It is supported by two standing advisory bodies: the National Board for the Environment and the Scientific Committee. These operational bodies within the ministry are government services. Moreover, the Italian constitution empowers over twenty regions to intervene under the environmental protection policy and to use legal and administrative measures. At the lower level of the administrative division – provinces, there are institutions which control and supervise environmental protection. There are also departments of control and natural environment protection are also at the levels of communities [Winiarski, 1999, 384–7].

The implementation of an environmental protection policy within the European Union necessitates giving attention to the nature of the EU legal acts, which should be gradually implemented by its Member States.

The EU legislation, regulating environmental protection, is diverse and comprises about 200 directives which may be divided into several groups [Winiarski, 1999, 387]: water contamination, water pollution, air pollution, chemical substances, flora and fauna, the assessment of the impact of man's various activities and products on the environment, e.g. noise.

The EU has elaborated an efficient policy of environmental protection, however, a significant proportion of environmental protection issues are still to be solved, as the implementation of many regulations is hampered by the poor co-ordination of actions to be taken by government administrative bodies.

Poland's aspiration for accession to the EU requires, due to the treaty signed in December 1991 establishing an association between the Republic of Poland and the European Communities and their Member States, not only amendments in Polish environmental protection law, but its radical reconstruction in compliance with directives of the European Parliament [Radecki, 2000, 1].

The World Conference on Ecology (ECO92) held in Rio de Janeiro in 1992 proclaimed cleaner production (CP) as one of the preventive strategies of the XXIst century, promoting a balanced development of production processes and services, thus harmonised with the interests of the natural environment, which is one of the basic assumptions of sustainable development.

Legal regulations derived from the CP concept enable the evaluation of the efficiency of the CP methodology and environment management systems based on it, including [Nowak, 2000, 7]:

- EMAS – the Eco-Management and Audit Scheme of the European Union, 1993,
- ISO 14000 – collection of international standards related to the assessment of the environmental management system, 1996.

In everyday practice the implementation of the CP concept means moving the priority from “end-of-the-pipe-line” – the company's internal environment, where wastes are produced and released into the environment, to preventive strategies in research and development policies and activities, by supporting the improvement of the natural environment and stopping its degradation. This new approach is termed “activities at source”.

Highly developed countries have adopted the principle that everybody pays for his garbage (polluter pays principle), which comprises transport costs, disposal and utilisation of wastes. An average Polish citizen produces about 210 kg of litter annually, in Switzerland over 400 kg, and in the USA approx. 700 kg of waste. Poland belongs to the leading “waste

producers" in Europe. Just in 1994 Poland produced 121 million tons of waste, and a mere half of it was re-used. A new act on waste of 27 April, 2001 [Dziennik Ustaw, No 62, Item 628, 2001] is expected to introduce radical changes in this area, and we may catch up with the EU communities at least in the field of legislation.

A concept of preventing the causes of environmental damage, which is essential, triggers off a dynamic model of environmental protection, whose essence is a continuous reduction of unfavourable effects on our environment – a decrease in inputs (materials, energy, water) and waste loads (solid, liquid, gaseous). It entails the necessity of working out a new model of economic development that will take a full account of "the value of nature".

Such an approach may bring about one more effect, an essential effect of enforcing CP in commercial enterprises – a financial effect, resulting from a reduction in production costs, a decrease in environmental fees, and in particular a significant curtailment of external costs, due to the limitation of damages to nature [Nowak, 2000, 9].

To underline the importance of CP on our globe, UNEP – the United Nations Environment Program issued the International Declaration on Cleaner Production in 1998, which is being signed by governments, self-governments and organisations all over the world. Polish companies followed the Polish Government, which also signed the Declaration on Cleaner Production in 1999.

Cleaner production is understood as a system of organisation and management of the natural environment in production processes and services, being an integral part of the company's management system. According to CP an environmental management system ensures a continuous and progressive decrease in the negative impact of production processes and services on the natural environment, expressed by steadily diminishing waste loads and their harmful effect.

CP recognises the necessity of preventing or limiting a long- and short-term risk to which human health and the environment are exposed in all aspects of production processes and services performed by man, by improving the existing ones and developing cleaner technological processes, products and services, thus minimising or eliminating their negative effect when their usability features are lost.

Simplicity and a universal methodology makes CP an appropriate tool to attain sustainable development in production processes and in the environmental management at the level of territorial self-governments [Nowak, 2000, 13].

A program of the reconstruction of environmental protection law has induced significant effects in the last eleven years of political transfor-

mation. New legal acts were adopted, three of which are worth mentioning [Ibid.]:

- Act on Environmental Protection of 16.10.1991,
- Act on Land Development of 7.07.1994, and
- Act on the Waste of 27.06.1997.

The act on environmental protection and development has not been replaced by a new one, but numerous amendments have re-shaped the old act from a different perspective than at the time it was adopted. The Sejm (parliament) of the Republic of Poland made an overall evaluation of its enforcement during its session in May 1991. The results were unsatisfactory. The process of environmental degradation has not ceased. A certain decrease in waste loads released into the natural environment has been caused by lowered production, but not by the intensified activities stipulated by the act [Winiarski, 1999, 393]. The greatest failure of the legislative construction program of environmental protection is the water law. It is still an unsolved issue. Although this law has been revised several times, the changes have not been profound. As a result, the water law is one of the oldest acts in Poland which remains in force [Radecki, 2000, 2].

The following are some of the legislative successes: anchoring environmental protection firmly in the Polish Constitution of 2.04.1997, inserting an extensive chapter on offences against the environment in the penal code of 1997, and introducing new regulations on the assessment of the impact of an investment on the environment, which to some degree are in compliance with directives of the EU. However, the process of elaborating a new environmental protection law in Poland is far from completion. The most urgent tasks, are among others: a new water law conforming with present requirements, a new act on waste and also a new general act on environmental protection, which would fully respect the basic assumptions of EU law [Radecki, 2000, 1].

2. Environmental protection policy

The absence of an effective policy in the use of many resources of the natural environment in numerous countries and regions has led to its devastation and quite often to irreversible or virtually reversible and negative upshots in the interrelations between man and his environment. Threats to the environment and its elements – air, water, soil and land, are in fact threats to human beings, that menace their health and living conditions, and in the long run shake the foundations of economic processes.

The watchwords of environmental protection are not new. However, in practice, they have only very recently been applied in the goals of economic policies. Their implementation necessitates all sorts of restrictions and prerequisites for economic activities, their forms, location and technologies that are harmonised with actions geared toward protection of water resources, air and soil against pollution, and reclamation of devastated land. This situation has forced the development of a new field in economic policy – environmental protection policy. Since state frontiers are not obstacles to environmental pollution and threats, international co-operation is urgently needed in this area. It is also necessary to include ecology-related objectives and restrictions in developmental policy, and its shape should be dependent on the requirements of sustainable development; development that does not interfere with natural environment protection [Winiarski, 1999, 72].

The dramatic impact of human activity on the natural environment quite often is the result of an improperly working market (market-failure), which in turn justifies intervention by state authorities in the economy. Such intervention is aimed at the achievement of goals in the protection of the environment and maintaining equilibrium. This aim cannot be attained by mere market mechanisms. It requires a shift from observation and evaluation of environmental management to implementation of environmental policy, i.e. from studying interrelations between human activity and the natural environment to recognising the need for public action, which through intervention in the market and its mechanisms leads to resolving these problems.

The aim of environmental policy is to induce such tendencies in economic activities that would reconcile them with social and environmental protection objectives laid down by state authorities [Winiarski, 1999, 373–4].

The natural environment and its protection is causing more and more concern in Poland, which is considered to be one of the most polluted countries in Europe. In Poland there are 27 areas that are ecologically endangered, based on the criteria under which indicators of environmental pollution for at least two elements of the environment exceed the allowable standards or multiple or particularly harmful occurrences of violating permitted standards in the case of one element. These areas are the most industrialised and urbanised. They are inhabited by about 35% of the population of Poland and although they cover 11% of Poland's territory they generate almost 90% of all pollutants.

In July 1990 the government of the Republic of Poland adopted a document entitled "Long-term program of spatial planning", which underlined the necessity for special action and care to be taken in these areas

of environmental hazard to preserve their natural value. The document gives priority in scientific research to the analysis and forecasting of land management in Poland [Winiarski, 1999, 390].

Environmental protection is such a sphere, where problems cannot be solved by the market. A certain level of intervention by the state is needed. The main idea of the Polish environmental policy, formulated by the end of 1990, is the transformation from traditionally perceived forms of environmental protection to a broader goal of sustainable development, which means the adjustment of developmental targets and plans to potential of the environment. A sustainable development policy means that ecological criteria are given as much importance as economic ones in formulating social and economic goals. A sustainable development policy of the state is to be implemented in compliance with the following principles: legality, pollutant control at source, the enhanced awareness of society, the use of market mechanisms, the "polluter pays principle" and regionalisation. The last principle is of great importance as it means [Winiarski, 1999, 391]:

1) an extension (or introduction) of rights the of territorial (local) self-governments and regional governmental administration to determine regional charges or standards and other environmental requirements imposed on commercial enterprises,

2) regionalisation of nation-wide mechanisms of environmental protection with regard to three types of areas:

- areas of environmental hazard;
- areas of great natural value;
- areas of intensive agriculture and modestly developed industry.

The necessary steps to be taken in order to improve the state of natural elements of the environment include:

1. Rationalisation of energy management,
2. Restructuring of industry (e.g. low or no waste technologies, utilisation of waste),
3. Reducing transport-related pollution,
4. Rationalisation of water resource use and management (determination of water price, charges for waste water disposal, decentralisation of water resources management; stringent norms for concentrations of pollutants in sewage deposited into sewage systems, surface and ground waters and soil, strengthening of economic instruments in order to reduce the use of water, minimisation of water losses in pipe networks, restriction of the use of deep groundwater for industrial purposes),
5. Rationalisation of mining and use of mineral resources,
6. Use, protection and landscaping of living natural resources.

Effective implementation of the state environmental policy must be supported by certain tools and instruments, such as:

- legal and administrative (since 1992 new laws, governing nature conservation, forests, water law),
- economic instruments and mechanisms (e.g. charges, subsidies in form of grants, tax relaxation, preferential credit and also penalties for not observing regulations on the use of the environment),
- environmental monitoring and control systems (the State Inspectorate for Environmental Protection is one of the inspection authorities), environmental education and research.

The implementation and fostering of an environmental policy should be carried out not only by territorial government administration, but by commercial enterprises, local governments and society. The strengthening of local government's role in environmental policy is expected soon to become a reality [Winiarski, 1999, 393]. A deep concern about environmental protection issues is an essential element of self-government work. No development can be planned without taking into account natural environment issues, nor can land development plans be prepared without the knowledge of interrelations in the environment. The process of development is to stimulate economic and social advancement, so as to preserve environmental resources and natural values to meet the needs and aspirations of the present without compromising the ability to meet the needs of the future. This principle is incorporated into the actions defined in the "New National Environmental Policy" developed by the Ministry of Environment. The main goal of this policy is to ensure the environmental safety of the country, to lay out strategies of sustainable development and to implement a development model which will provide for effective regulation and rationing of the use of the environment [Rybarczyk, 2000, 3].

One of the examples is the Opole voivodship (province), which has worked on the verification of a development strategy since the appointment of the local government. This document was assumed to be the most important act, as it determined directions and goals to be attained and provided a basis for the voivodship development plan and regional spatial plan [Ibid.].

The development strategy for the Opole voivodship also depicts partial operational goals, whose implementation should bring about measurable effects in the natural environment and raise the competitiveness of the voivodship in the country and abroad. This strategy provides for a gradual improvement in the state of the environment through [Ibid., 4]:

- improvement of surface water quality,
- stopping the degradation of resources,

- a regional system of efficient waste management,
- control of water sewage disposal, construction of waste water treatment plants,
- improvement in air quality,
- preservation and maintenance of landscape value and bio-diversity,
- the large scale use of clean, reusable sources of energy.

The success of these objectives is conditional on obtaining external funds, including those from the European Union, which will speed up the processes in question. The tasks mentioned above are related to environmental protection.

3. Declaration on Cleaner Production

A good tool to be used in environmental protection is the concept and procedures of cleaner production, which lay an excellent foundation for environmental management systems in commercial enterprises and local government institutions, being a path to the attainment of sustainable development by such entities. Cleaner production is understood as a system of organisation and management of the natural environment in production processes and services, being an integral part of a company's management system. According to CP an environmental management system ensures a continuous and progressive decrease in the negative impact of production processes and services on the natural environment, expressed by steadily diminishing loads of wastes and their harmful effect.

From this point of view the achievements of the "Spółka Wodociągi i Kanalizacja" (Water Supply and Sewage System Company) are worth mentioning. This company has been operating since 22 January, 1992 in accordance with the articles of association, commercial code, resolutions of statutory bodies and regulations in force. The main and non-transferable statutory objective of the company is the supply of water to inhabitants, commercial and other entities in the territory of the municipality of Opole.

The company also has side operations supplying water to the following neighbouring towns and villages: Czarnowas, Turawa, Tarnów Opolski, Łubniany.

The goals drafted by the Movement of Cleaner Production are in tune with the environmental policy of the "Wodociągi i Kanalizacja" company in Opole. An obligation of environmental protection is stipulated in the company's articles of association, and old technological lines have been continuously modernised in order to reduce the production of waste and to improve product quality. The company's operations are carried out by departments of primary and auxiliary production. From the point of

view of water intake, the city of Opole is in a pretty good position as the city uses only ground water intakes, which are characterised by permanent physical and chemical properties dependent on the water-bearing level. The best quality water is extracted from the shell limestone and trias layers at the water intake in Grotowice. Its quality allows it to be directly pumped into the water distribution system (water is only chlorinated to meet standards and because of the unused capacity of water pipes). At other water intakes (Zawada, Groszowice, Opole, Oleska street) water is delivered from the quaternary layer and the iron and manganese content exceed standard values, so it requires treatment before pumping it into the municipal network. This water treatment comprises of coagulation processes supported by liming and filtration. Water supplied to the network meets the standards of the World Health Organisation and the EU.

Water derived from these intakes, following the treatment, is pumped into the water-pipe network, which is 374.2 km long, including 29.1 km of watermains, 228.4 km of water network and 116.7 km of service lines.

The number of water consumers is 132 thousand city inhabitants. The water losses in 1997 amounted to 10.59% of its production, i.e. 1426.9 thousand m³. The basic rule in the use of the sewage system is to maintain a continuous outflow of municipal waste and residue through networks to the outlets into the receiving body of water.

In 1997 the Company operated a waste water network using 12 intermediate pumping stations:

- 159.4 km of sanitary sewage system (including 30.9 km of combined sewage system),
- 150 km of rain-water system (commissioned by the Municipality).

4. Ecological aspects of a waste water treatment plant

Municipal waste is a mixture of water from households, small production companies, municipal utility services and waters infiltrating the sewage system through the leaky network. In the combined sewage system municipal wastes also contain rain water. The following waste enters the sewage system: sink and household water, faecal matter, municipal industry waste, residue, infiltration water, drainage water (incidental), illegal discharge of sewage [Dymaczewski et al., 1997, 3].

Sewage can be discharged into inland waters unless its contaminant indices exceed those specified in the annex to the regulations. An authority empowered to issue a water permit may determine lower

contamination indices than those found in the annex and even refuse to issue such permits.¹

The flood in July 1997 caused severe damage and limited the production capacities of the effluent treatment plant in Opole. Facilities, equipment and machinery have been gradually repaired under the flood recovery scheme. The treatment plant returned to full production capacity in October 1997. Due to mesophilic digestion of sludge, the treatment plant extracts a sewage gas of varying calorific value.

The aim of the Cleaner Production Declaration is the development of economies with respect paid to natural resources. Based on the assumptions of sustainable development of industry, the principles of preventive environmental management are encouraged to be built into the general production and development schemes of companies. These principles, regulating environmental protection, are oriented to a continuous decrease in the loads of solid, liquid and gaseous wastes, generated by industrial processes, and the attainment of economic benefits. The Declaration on Cleaner Production was signed by the President of the company on May 5th 1998. A team was appointed to implement the program, which involved the balance of materials, products, energy carriers and generated wastes. The program has resulted in ecological and economic profits.

5. Ecology-related local initiatives

Economising on water consumption is becoming a common trend. In the past 10 years water consumption in Wrocław has decreased by over half. At present the average production in three waterworks of MPWiK [Municipal Water and Sewage Services] (Na Grobli, Mokry Dwór, Leśnica) is 140 thousand m³ a day. In previous years the production capacity reached 200 or even 240 million litres per day. The drop in water production has caused financial problems for the company. One third of the company's costs, which means one third of the water price is depreciation. This cost reflects the company's assets – facilities, infrastructure, investments, etc. Waterworks pay certain fees for the so called "special use of the environment", which include sewage charges. The better waste water treatment, the lower payable fees. The waterworks in Janówek ensure treatment that complies with standards. A problem arises from reduced water consumption, which in turn increases the

¹Art. 4, par. 1 and 2 of the Regulation of the Ministry of Environmental Protection, Natural Resources and Forestry, 5 November 1991 on water classification and parameters of sewage discharged into waters and soil (Dziennik Ustaw, No. 114, Item 503, 1991).

sewage concentration, thus making water treatment processes more costly. Nowadays, the Wrocław Water Treatment Plant receives the same load of sewage as it used to, however its concentration is significantly higher. Actually, the amount of sewage is three times higher than anticipated. However, in Wrocław sewage fees are lower than water supply fees. This is contrary to the tendencies in the world, where sewage fees are three or even four times higher than water fees. Well-aimed investments have made the Wrocław MPWiK use the environment in a harmless manner. Modernised water-bearing areas, pumping stations – Radwanice, Bierzany, Czechnica and pilot stations are put to good use. Following the completion of water works modernisation, the quality of water in Wrocław will conform to national and international standards.

Interesting ecological initiatives can be found in other regions of the country. The self-government administration in Rybnik has been granted 71 million Euro (about 260 million zlotys) by the European Commission for the development of a waste water system. The Rybnik project is one of the largest undertakings of this kind in Poland and the financial outlay will exceed 460 million zlotys. EU funds will cover 64% of the cost. The remaining amount will be derived by the municipality from national and provincial (voivodship) environmental funds and the European Bank for Reconstruction and Development. Investment will start this year. Prior to this the European Commission and the Polish government will sign a financial memorandum followed by the financing of the outstanding amount necessary for the investment. Development of the waste water system will allow the full use of the treatment plant modernised in 2000, to which the effluent from an area inhabited by over 64 thousand people is discharged. The target output is to service about 150 thousand people. The Rybnik project is scheduled for the period from 2002 to 2008 and involves over 600 km of sanitary system, covering not only Rybnik itself, but the adjacent communities of Gąszowice and Jejekowice. In the opinion of the municipal authorities this project would fail if financed only from the municipal funds without any subsidies.

A similar project will be subsidised by the EU in the community of Gliwice. Modernisation and construction of the waste water system there will cost 70 million Euro (about 270 million zlotys). Over 35 million Euro (over 135 million zlotys) of this amount comes from the EU. The Gliwice local government administration wants to obtain the remainder from the National Fund for Environmental Protection and loans. The project of modernisation and construction of the waste water system presented here will cover eight quarters of the city. The length of water pipelines to be built is about 150 km. Six quarters of the city will

have a new sanitary and rain water system. In the other two the system will be fully modernised. Old water treatment plants, which do not meet ecological requirements, will be closed. The project also comprises modern pumping stations that will dispose sewage in the central waste water treatment plant. The work will commence this year and is expected to be completed in 2006. Recently a new treatment plant (cost of 70 million zlotys) has been put into operation in Gliwice as well.

Observing different self-government initiatives, water management is of key importance in their environmental policy. Fewer projects can be found in other areas of concern. The crucial problem is shortage of financing. The Act on Waste of 27 April 2001 [Dziennik Ustaw, No. 62, Item 628, 2001] may be helpful. It imposes heavy duties on territorial administration entities with special attention given to waste management planning at national, voivodship, powiat (a Polish local administrative unit) and community level (art. 14). Planning plays a crucial role in an environmental protection policy, providing effective tools are employed in its implementation at the regional and local levels.

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