



**COUNCIL OF MINISTERS**

**REPUBLIC OF POLAND**

**THE NATIONAL ENVIRONMENTAL POLICY FOR 2009-2012  
AND ITS 2016 OUTLOOK**



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## **INTRODUCTION**

The Act of 27 April 2001 on the Environmental Protection Law (Official Journal z 2008, No. 25, Item 150, further amended) provides that preparation of the National Environmental Policy shall be prepared each 4 years, including the forthcoming 4-year outlook thereof. On 8 May 2003, the Parliament of the Republic of Poland approved document titled „National Environmental Policy for Years 2003-2006 and its 2016 Outlook”.

In 2006 the Council of Ministers submitted to the Parliament the Draft Proposal for the subsequent "National Environmental Policy for Years 2007-2010 and its 2014 Outlook", however given the shortened Parliamentary term the Policy could not be adopted in 2007.

The analysis of that document as performed in 2008 made objection concerning its both too much general nature and a lot of outdated essential components, particularly those relating to the European Union legal framework. Therefore, updating this document was required that however caused unavoidable delay of preparation of the National Environmental Policy and in consequence its new time-horizon had to be expanded. Thus, the present elaborate is the second subsequent strategic document meeting the requirements under the Act on Environmental Protection Law.

Generally, the pattern of this document is retained the same or similar likewise that of the „National Environmental Policy for Years 2003-2006”, while however emphasising in a different way the needs to actions considered the priorities. It is also essential that new Chapter 1 was added thereto that includes both the summary of entire document, and the brief compilation of actions undertaken in 2007-2008; it also indicates the major challenges and the most important priorities in environmental policy of the Republic of Poland for the next 4-8 years.

## **CHAPTER 1**

### **THE PRIORITIES OF ENVIRONMENTAL POLICY OF THE REPUBLIC OF POLAND IN 2009-2012 AND THE 2016 OUTLOOK**

In times of the former People's Republic of Poland, our country was, likewise the Soviet Union and the Democratic Republic of Germany, the country with extremely polluted environment, since the national industrialisation and urban development was carried out there without any respect of the principles of environmental protection and nature conservation. The function of the legal framework was a "façade" one, while the social and economic reasons prevailed over the environmental ones. The inspection services were only poorly furnished with the relevant control and measuring equipment. The national manufacture of equipment for environmental pollution abatement practically not existed, whereas the lack of convertible currency made impossible any abroad purchase thereof. The investment expenses in environmental sector amounted to 0.3-05% of the national income, while the material losses suffered by the general public in result of environmental pollution were estimated at 5-10% of the national income.

The situation radically changed in result of the political and economic transition which was begun in 1989. New, the more restrictive laws were adopted already during the first years of the transformation period. In 1991, the Act of 20 July 1991 on Environmental Protection Inspectorate (Official Journal z 2007, No. 44, Item 287, further amended) entered into force with the aim to introduce an unified control system of environmental legal compliance, and also the first „National Environmental Policy” was approved in that year. The purpose of that strategic document was to establish fundamentals of the national development conforming to the principles of sustainable development. At the same time, given the enormous arrears in the field of environmentally sound investments, a system of (both the National and Provincial) Environmental Funds was established to accumulate the proceeds gained on the charges collected for emissions of environmental pollutants, and to support financing of particularly needed investments. In that time (1992) also an unique at the global scale the environmental financing institution, i.e. the EcoFund, was established that while using a part of the Polish foreign debt owed to six creditor States has converted these resources into environmental investments.

All these efforts being made in administrative and financial sphere were in support of environmentally sound activities of both industries and self-governmental authorities, whereas both the general public and the non-governmental environmental organisations performed the role of vigilant inspectors safeguarding the efficiency of their administrative and financial activities.

Consequently, the Republic of Poland began relatively prompt elimination of the year-lasting arrears, yet an openness to international competition and making the Polish currency convertible caused bankruptcy and closure of many industries which relayed on outdated technology and consumed excessive quantities of raw materials, water and energy. These entities would never be could competitive in terms of the price against those using the state-of-the-art technology. Moreover, under market economy conditions the prices of such goods as water or energy raised quickly, thus reflecting their full costs of production and supply.

In the late Nineties, the rate of the environmental quality improvement in Poland considerably dropped. That was due to considerable depletion of the primary reserves underpinning the general improvement. Thus, the environmental outlays significantly declined, and yet the Parliamentary decision to merge the Provincial Environmental Inspectorates with the Provincial administrative bodies made them dependant upon the regional administration, thus hampering the efficiency of their activities. This status persists somewhat until now, and no significant environmental Act has been adopted since that time.

The close perspective of Poland's accession to the European Union gave new significant impulse on this way. The provisions in the Accession Treaty imposed considerable challenges on our country, in line with a general assumption that after 2015 Republic of Poland have to be a country fully compliant against all environmental standards mandatory in the EU Member States. Implementation of that difficult challenge was supported by financial resources of the Community Funds, initially from the ISPA Programme, an then from the Cohesion Fund, in the framework of the 2004-2006 Strategy for Use the Cohesion Fund, and the European Regional Development Fund in the framework of the Integrated Regional Operational Programme, and the Sectoral Operational Programme "Improvement of the Competitiveness of Enterprises", as well as the European Agricultural Guidance and Guarantee Fund in

the scope of the Rural Development Plan for years 2004-2006, and Sectoral Operational Programme „Restructuring and Modernization of Food Sector and Rural Development 2004-2006“. Since 2004, the donations to environmental projects are being granted also from the Financial Mechanism of the European Economic Area and the Norwegian Financial Mechanism. In new 2007-2013 financial perspective, the environmentally sound investments benefit from support being provided first and foremost by the „Infrastructure and Environment“ Operational Programme, to which the amount of 4.84 billion EURO from the Cohesion Fund and the European Regional Development Fund resources is designated to environmental projects. The resources of the European Regional Development Fund under 16 Regional „Infrastructure and Environment“ Operational Programmes will be an additional Community funding source. Considerable amounts from the resources of the Rural Development Programme for 2007-2013 and the Operational Programme "Sustainable Development of the Fisheries Sector and Coastal Fishing Areas for 2007-2013" have been also designated for environmental projects. However, it has to be emphasised that even those new Community programmes with their total combined donations amounting to 6.3 billion EURO, account for no more than 20% of eligible environmental investment expenses in Poland for 2007-2013 (thus, also for 2009-2012 as the key period in this document). The remaining resources must be secured by the Polish Side.

The activities planned in the field of environmental protection in Poland write well into the European Union priority scale under the 6th Community Environmental Action Programme. Pursuant to the recent review of the Community environmental policy, the most important challenges include the activities for:

- securing implementation of the principle of sustainable development;
- adaptation to climate change;
- protection of biological diversity.

The Climate and Energy Package's decision to reduce greenhouse gas emissions in non-trading sectors (non-ETS) oblige the Member States to contribute to the EU target to reduce the greenhouse gas emissions from sources outside the EU emission trading system. These include agricultural, transport and waste management sectors that are liable for a large proportion of the total greenhouse gas emissions.

Active Poland's contribution is important in terms of discussions being held at the European Union forum on the future shape of the Community environmental law, particularly with regard to climate change. Extremely important will be the results of the activities being carried out on several EU legislative initiatives concerning the Climate and Energy Package (decision of 2008 on the reduction of greenhouse gases in non-trading sectors - non-ETS). That obliges the Member States to contribute to the EU 2020 target for reducing greenhouse gas emissions from sources outside the EU emission trading system, including agriculture, transport and waste management sectors, which account for a large proportion of the total emissions of greenhouse gases. Essential is also the proposal for Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community (new ETS Directive), and the Draft Directive on Geological Carbon Capture and Storage (CCS Directive). Challenging is also the implementation of new Directive 2008/50/EC on ambient air quality and cleaner air for Europe. Another such challenge is the Draft Directive on Integrated Pollution Prevention and Control (new IPPC Directive). The activities in this scope will concentrate on

improvements in the prevention and control system for pollutants released by industries with simultaneous assumption that the new requirements will be introduced in a wise manner being possible for implementation, and with respecting the ideas of sustainable development.

Regarding the future Polish Presidency of the European Union in 2011, the indicative strategy could include the following themes:

- the protection of biological diversity,
- the provision of river re-naturalisation and passage capacity.

At the same time, the Republic of Poland, as a Member State of the European Union, is committed to transpose the whole Community legislation into its national legal framework that causes a number of difficult obligations to be complied with. However, consequently Poland's accession to the European Union provides an important incentive to the further progress in the field of environmental protection to be achieved in the forthcoming 8 years. It is just this period this „National Environmental Policy” refers to.

According to the general rules mandatory in the European Union, this 8-year period has to feature by rapid national economic development managed in full respect of the environmental protection and nature conservation principles, since following the basic principle of sustainable development, the environmental and social values are considered equally important as the economic ones. The environmental impact assessment procedures are one of the preventive environmental instruments that provide for integration of environmental aspects already in the preparatory phase of elaboration on strategic documents, and then in possibly early technical design and decision making phases for specific projects. Decision making processes have to be straightforward and transparent and have to provide for full access to information for the representatives of the general public, including in particular the non-governmental environmental organisations. In order to fulfil this task, an in-depth reform of environmental services is necessary in Poland to make them subordinate to the central governmental administrative authorities in the scope of inspection of strategic investments. Moreover, pursuant to the common water policy of the European Union, where the environmental objectives assumed are to be really achievement, management of water resources has to be performed within a system of hydrographical, but not administrative territorial units.

The environmental protection and nature conservation principles have to be integrated in physical management plans. However, the physical planning itself undergoes deep institutional crisis bringing about adverse effects to the national spatial order. Rapid and in-depth reform of this system is required.

Polish industry develops quickly and its environmental impacts undergo reduction thanks to the state-of-the-art technology. However, unfortunately the industries manufacturing environmental protection facilities and equipment have not developed sufficiently enough for the recent 18 years despite existence of the investment market with its annual financial volume of 1.5-2 billion EURO. This industrial branch still has the opportunity to its rapid development, provided however that they are capable to placing technological novelties on the market. Yet, the cooperation between industries and scientific establishment is far insufficient although the latter ones are capable to develop such eco-innovations. Also, the governmental tools are lacking that could have stimulated practical implementation of the most interesting projects.

The adverse effects of the consumptive attitudes are growing in line with increasing social wealth. That features by multiplication of material goods not necessarily indispensable to human needs that are thus being stimulated by advertisement and promotional actions, but their manufacturing requires

consumption of huge amounts of non-renewable raw materials, water and energy. That includes also a lot of foodstuff brands. Each consumer should have the right to make hi/her free choice in terms of the quality of products being purchased, including the properties thereof. However, no product assessment and eco-labelling system is available in Poland that could be pursued by the Consumers' Federation. The household equipment and appliances are the only products labelled with energy-consumption information and this means a promising step forward to an improvement.

This „National Environmental Policy” provides a lot of information on the protection of natural resources being the wealth of our country.

The abundant biological diversity is a characteristic feature of Poland. However, currently, among various legal forms of nature conservation covering the most valuable sites, the total combined areas of both 23 National Parks and 1,400 Nature Reserves occupy only 1.5% of the national territory, whereas that of 120 Landscape Parks account for 8% thereof. This nature conservation system overlaps, in its part, with that of the Natura 2000 European Ecological Network, including the Special Protection Areas for wild birds and the Special Areas of Conservation for habitats. At present, the Natura 2000 sites account for about 18% of the national territory, whereas the objective pursued by Minister of the Environment is that the list of the Natura 2000 sites be complete - in cooperation with non-governmental environmental organisations - by the end of 2009, with parallel efforts to prepare their respective management plans. The inventory of biological diversity resources to be legally protected - as currently managed throughout the national territory - is extremely useful in this effort. Completion of this list is required especially for efficient planning the course of any linear infrastructure investments (highways, sewerage mains, energy transmission lines, etc.).

It has to be mentioned here that on 17 November 2008, new specialised environmental authority, i.e. Directorate General for Environmental Protection, and its respective 16 Regional Directorates for Environmental Protection, began their governmental service at the central and regional levels of the governmental administration. These new authorities link within the substantive scope of their competence the issues connected with environmental impact assessment from projects, the matters of nature conservation management, including the Natura 2000 sites, and the questions of liability for environmental damage. Appointment of this new institutional network is aimed at considerable speeding up the environmental procedures as required during the investment preparatory phase.

Forests are another such tremendous wealth of Poland and these occupy 28.9% of its national territory. Prevailing majority of forests in Poland is subject to governance under the "State Forests" National Holding, which manages 78.1% of the forest land. According to the principles of sustainable forest management, the most important challenge the "State Forests" face currently is to shift from their forest management featuring by prevalence of the economic objectives to the multi-functional ones, since forest provides the supplies of timber, but performs also many other important functions such as protection of biological diversity, enhancement of water retention, soil protection against erosion, and also secures space for tourism and recreation. To this end, since a decade ago, the Director General of the "State Forests" National Holding has established so called Forest Promotional Complexes, where the principles of forest multi-functional management have been tested. in Poland, there are 19 such Complexes covering almost 1/8 area of the State-owned forests. This mode of conduct has to be further developed because it provides a model pattern for future forest management. Expansion of woodiness up-to 30% of the national territory in 2020, as well as afforestation, or tree planting within so called ecological corridors, i.e. the patches of vegetation and land linking the individual forest complexes, is

essential since these corridors are of special importance for preservation and development of wildlife biological diversity. However, afforestation must not be applied to these non-forest ecosystems which are both important for conservation of biological diversity and forming separate national wealth of nature.

Poland is a country where agriculture forms an important sector of the national economy. Agricultural land occupies more than 60% of the national territory including 45% thereof accounting for arable land. Unfortunately, 34% of this land falls in the 5th and 6th (i.e. poor) land quality classes, hence those produce scarce crops. Furthermore, as much as 25% of soil is endangered by wind erosion and 28% by water erosion. Thus, soil protection against erosion by means of both in-field and along-the-river-course shrub-planting and also application of good agricultural practices are the priorities in the scope of land-surface protection. Land reclamation in degraded and naturally devastated areas is a priority, and rehabilitation thereof by means of restoration of its natural and useful values is carried out to this end. Currently, in Poland there are 65,000 ha such areas, but only 1,500 ha had undergone respective land reclamation measures in 2006.

Rational management of water resources is one of the more difficult challenges facing Poland in the decades to come. This sector, although being socially, economically and environmentally important, has been underinvested for decades. Thus, water management sector has to be so reformed in several-year perspective that it reaches financial self-sustainability. Its hitherto reliance on the State budgetary resources makes it chronically underinvested although it fulfils important roles consisting not only in provision of qualitatively and quantitatively needed volumes of water to satisfy demands of the general public, agriculture and industry, but at the same time secures the inhabitants' safety and property thus protecting them against the effects of extreme natural phenomena, to only mention floods. Good step was made in 2006 to establish the National Water Management Authority, however the further tools are still lacking that would have provided for efficient national water management in the aspect of satisfactory quality of water. The latter requirement is imposed by the Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive) and the Directive of the European Parliament and of the Council 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy), the integral part of which is the Baltic Sea Action Plan being a strategic document produced by the Ministerial Conference under the (HELCOM) Convention on the Protection of the Marine Environment of the Baltic Sea Area. Besides, given the Poland's scarce water resources, widespread public awareness raising campaign and actions are required to stimulate water resource savings. Wasting water in Poland is still very big problem.

According to the Community policy in the field of flood risk management it will be necessary to perform in the few next years a flood risk assessment throughout the national territory and then, upon results thereof, to draw the flood risk maps by 2013.

Comparatively difficult to perform will be the commitments assumed in the Accession Treaty as regards the protection of waters against pollution. Despite progress Poland achieved during the two past decades also in this sector are apparently evident, the requirement imposed in this regard by the European Union are quite burdensome and requiring expenses amounting to almost 60 billion PLN to be incurred by 2015. Until then, all bigger localities have to be provided with the state-of-the-art, highly-efficient waste water treatment plants as integrated with broadly expanded sewerage systems. Implementation of this task will be to far extent helpful in achieving the targets included in the aforementioned Baltic Sea Action Plan under Convention done on 9 April 1992 in Helsinki (HELCOM

Convention) on the Protection of the Marine Environment of the Baltic Sea Area (Official Journal of 2000, No. 28, Item 346). This priority is decisively predominating in terms of its both costs and scale over all other environmental priorities by 2016. The European Union resources, and particularly those under the „Infrastructure and Environment” Operational Programme are helpful in implementation of these protective tasks.

Much better is the situation in the field of geology. The current legal, organisational and financial system provides fostering the regional management of mineral and groundwater resources. The results of exploration of geological formations in Poland are considered satisfactory. The present priorities include intensified prospecting of petroleum and natural gas, better exploitation of thermal water resources, and also balancing the opportunities to carbon dioxide sequestration in orogene that will provide for avoiding atmospheric emissions of this gas. However, the contemporary action in geological environment must not be only confined to prospecting fossil minerals. Monitoring geological hazards, assessment of the opportunities to environmentally sound use of geological formations, as well as promotion and protection of geological heritage are also required.

Protection of the Major Groundwater Basins against their both excessive and irrational exploitation, and against pollutant runoff from the ground surface is another important challenge. These basins are the strategic clean water reserves for use by humans that is extremely important in spite of forecasted water deficit in Poland during the decades to come.

Air protection against pollution is of considerable importance for the state of both the public health and the environment. During the past two decades, Poland made significant progress in reduction of particulate matter and gaseous emissions into the atmosphere. Nevertheless, these emissions are still too high at the European Union's scale. The reasons effect primarily from the fact that combustion of hard coal is the source of 95% of electric energy and 80% of heat generated in Poland. Under both the Accession Treaty and the Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (National Emissions Ceiling Directive), the Republic of Poland assumed its commitment to reduce considerably SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub> and volatile organic compounds emission by 2010, but also to reduce considerably already in 2008 the SO<sub>2</sub> and NO<sub>x</sub> emissions from combustion boilers rating more than 50 MW thermal input. It has to be emphasised here that these limits imposed on Poland are extremely difficult to comply with.

Under Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (CAFE Directive), extremely stringent limit values are imposed for concentration of fine particulate matter (i.e. PM below 2.5 µm in diameter), and yet it forces considerable reduction in population exposure thereto. For 161 zones (Counties or large agglomerations) throughout the national territory in Poland those do not comply with the Community air quality standards the quality assurance programmes have to be developed and implemented.

Extremely difficult are the challenges which relate to atmospheric protection, but rather to counteracting climate change, to be implemented by the Republic of Poland under Decision adopted by the Council of Europe in spring 2007 on reduction of carbon dioxide from the Community area by 20% in 2020. Additionally, the Council decided that the share of the renewable energy sources in the total energy produced has to be at least 20% by 2020, whilst the energy efficiency rise factor must account for the same. For Poland, given the aforementioned coal-based primary energy balance, its atmospheric protection means also just the protection of its resources against both pollutants and climate change.

Following the above Decision, the European Commission proposed the four-decision package the

aim of which being to comply with the provisions of that Council Decision. While making no objection against the need to devote efforts at the protection of the Earth's climate, one however has to state here that a number of the Commission's Decisions can be hardly acceptable by Poland. The completion of negotiations on the Climate and Energy Package is anticipated in 2009 spring, at the latest. Nevertheless, from the point of view of atmospheric protection, it is necessary to speed up considerably the use of renewable energy sources, with due respect of the national potential in this regard. Energy savings are required in industrial, transport and housing sectors in which Poland is still capable of considerable reserves. Power generation sector requires also prompt modification.

Unlike in case of both atmospheric and water protection, waste management sector has not been integrated with Poland's transformation processes. Following data provided by the Environmental Protection Inspectorate, more than 75% of infringements of legal provisions are connected to inadequate waste management practices. Lacking progress is particularly perceivable in municipal waste management being the responsibility of self-governmental authorities. More than 90% of this waste still undergoes deposition on landfills. That proves inefficiency of the current system of waste collection and recovery thus requiring a prompt reform.

Nine EU Directives and also the commitments under the Accession Treaty are in force in this field. Therefore now, this sector full of arrears requires special attention in order to achieve significant progress necessary in the years to come. Education of the public is particularly important as regards pre-selection of municipal waste, as well as the promotion of and financial support to waste recovery and recycling. The 2010 National Waste Management Plan and the respective regional plans provide for construction of facilities for thermal treatment of waste. So far, only one such facility is under operation in Poland (Warsaw).

Noise control and the protection against electromagnetic fields are also the sectors facing the arrears. Development of noise control plans on the basis of acoustic maps is required firstly for big cities with more than 250 thousand population. The maps are also required for physical planning purposes. So far, such maps have not been drawn up still for two cities only. It is also important that full monitoring systems be developed for both noise and electromagnetic fields caused not only by the high voltage transmission lines, but first of all by cellular telephony transmitters. No reference laboratory is available in Poland for taking measurements of this type fields.

Management of chemical substances is another specific problem which concerns human health and environmental protection. These are substances important and necessary for humans, however the properties of a lot of them also endanger human health and life.

In 2007, the Regulation 1907/2006 (EC) of the European Parliament and of the Council of 18 December 2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, was made in order to encompass in a single comprehensive legal act all the issues connected to control, manufacture and placing chemicals on the market. Currently, Minister of Health elaborates on transposition into the Polish law of this important, but extremely complicated Regulation.

A similar task faces the authorities responsible for the protection against ionising radiation. In Poland, there is currently only one low-capacity test-reactor (named MARIA) under operation. However, the use of radio-isotopes, especially for medical purpose, is rather common, and that requires

management of enhanced system to supervise radioactive sources and wastes. Both the use of radioactive substances in Poland domestically and the existence of numerous nuclear power plants abroad, in its neighbouring countries, require efficient radiological monitoring and early warning system for emergency response to be applied in case of any nuclear accident. The solutions adapted to this end in Poland, as coordinated by the President of the National Atomic Energy Agency, act smoothly and those are entirely compliant with the European Commission's recommendations.

Detailed description of directions for action to be undertaken in the next years in order to implement the aforementioned priorities is presented in Chapters 2-4 of this document.

The further plans and the directions for action to be undertaken in the next years are at the same time a continuation of the previous activities, and it is noteworthy to recall certain actions here in order to summarise those done in 2007-2008.

Namely, in 2007, revision of the key strategic document in the field of nature conservation was performed, i.e. of the National Strategy for the Protection and Sustainable Use of Biological Diversity. The general objective of the Strategy is to preserve the wealth of biological diversity in the local, national and global scale, and to provide for sustainable development of and the opportunities at all organisational levels thereof (intra-species, inter-species, supra-species), with regard to socio-economic development in Poland and the need to secure adequate social living and development conditions. The Strategy sets out the strategic and operational targets for implementation of its general objective, as well as their implementation instruments and conditions.

On 18 November 2008, the Council of Ministers approved the draft new Framework Position of the Government of the Republic of Poland concerning genetically modified organisms (GMOs). The aim of that document is to outline the Governmental policy in the scope of contained use of GMOs, intentional release of GMOs into the environment for experimental purposes, placing the GMO products on the market, and growing genetically modified plants.

In 2007-2008, the national forest resources continuously grew. In late 2007, the area of forest land in Poland was 9,048 thousand ha, accounting for 28.9% woodiness. In 2007, 13.3 thousand ha area was afforested in all categories of forest land ownership, and almost 360 ha was recognised as the areas afforested in result of natural succession. It is anticipated that the size of land afforested in 2008 will drop when compared to the previous year because of the change introduced in the 2007-2013 Rural Areas Development Programme, as regards the conditions for arable land afforestation.

In 2007-2008, in the field of waste management the preparation and conclusion of the following Draft Act was done:

- Act on managing of packaging and packaging waste,
- Act on batteries and accumulators,
- Act on extractive waste,
- Act on amendment in the Act on wastes and amending certain other Acts,
- Act on amendment in the Act on waste electrical and electronic equipment and amending certain other Acts.

In 2008, official preparation and public consultation was completed on both the background assumptions for the Draft Act on counteracting odorous nuisance, and the Draft Act on counteracting odorous nuisance, itself.

Important in the field of management of geological resources was the introduction - in the framework of the 5th implementation phase of geo-environmental map of Poland, scale 1:50000 - of its

two new thematic layers, i.e. "protection of geo-diversity" and "anthropopressure", and also modification and updating of the "fossil minerals" reference layer. The map will be produced in form of continuous thematic layers covering the whole national territory. Also, implementation of the 1st phase of anti-landslide protection system was completed, and in 2008 the activities were begun under the 2nd phase of this system, i.e. cartography work and drawing-up the landslide map, including the areas endangered by earth mass relocation in the Polish Carpathian area that illustrates also the monitoring system of selected landslides in the Carpathians. This project is aimed at supporting the County Heads in their effective performance of the responsibilities imposed on the public administrative authorities. Data acquired therefrom will provide the basis for both the efficient risk management and the public awareness raising about the earth mass relocation occurrences. Essential is also, in terms of the aforementioned activities, the completion of preparation of new Draft Act on Geological and Mining Law.

In 2007, work was begun on identification of essential water management in river basin areas in Poland. To this end, a document has been prepared on "The Review of Essential Problems in River Basin Areas". Additionally, in the framework of the water management planning process, the activities were continued in the scope of in-depth analysis of the anthropogenic effects of and the impacts on surface waters and groundwater.

Socio-economic development in Poland jointly with the requirements included in the European Union Directives both underpin the need to pursue new approach to water management in our country. To this end the proposal for the 2030 National Strategy of Water Management (and its 2015 outlook) was prepared in September 2008.

The total financial expenses spent for implementation in 2007 of all environmental and water management projects amounted to 9.7 billion PLN (in 2007 prices). The increase in the expenses (in 2007 prices) from about 9% to more than 12% for environmental protection and water management projects is noted when compared to those incurred in 2006. Following the estimates, the investors', i.e. companies' and Municipalities', own resources were the major funding source in 2007 (almost 50% of the total).

However, no assessment can be made at the moment of the expenses incurred for environmental protection and water management in 2008, since the Polish Central Statistical Office will provide adequate statistics as late as in 2009. It is however expected that the upward trend in outlays for these sectors, as observed in the recent years, will persist.

## **CHAPTER 2**

### **DIRECTIONS FOR SYSTEM ACTIVITIES**

#### **2.1. Integration of environmental principles in sectoral strategies**

##### 2.1.1. The current status

All anthropogenic activities are carried out in humans' natural environment, thus those have apparent effects on both the current environmental status and the future shape of the environment. That is the reason why the Constitution of the Republic of Poland provides in its Article 5 that „The Republic of

Poland (...) secures environmental protection pursuant to principles of sustainable development". That means provision of such national governance which preserves the state of the environment as good as possible for the needs of both the present and the future generations. Thus, the criteria of sustainable development have to be integrated in all strategic documents of all economic sectors. According to Article 40 in the Act on Environmental Protection Law, these documents are subject to the Strategic Environmental Impact Assessment procedure in order to their verification with view to solutions considered therein bringing about prevention of environmental hazards now and in the future. Unfortunately, the compliance with this provision of the Environmental Protection Law is rather rarely complied with in this regard, although a considerable improvement in this scope has been recently noted at the national level.

#### 2.1.2. The medium-term objectives by 2016

The overall strategic objective is to achieve the status where any draft proposals of strategic documents in all economy sectors, in accordance with the relevant legal provisions in force, undergo Environmental Impact Assessment Procedure, whereas the results of this assessment have to be included in the final versions of such documents.

#### 2.1.3. Directions for action in 2009-2012

In 2008, the activity of the Ministerial Commission on Environmental Impact Assessment was restored principally with the aim to analyse any strategic documents. This is an important step forward to enforcement of the legal provisions in this field.

In 2009-2012, it will be necessary to develop methodologies for carrying out Environmental Impact Assessments of strategic documents and to train both those who design such documents and the assessment-makers.

### **2.2. Market activation for environmental protection**

#### 2.2.1. The current status

In 1989, Poland stepped the way towards market economy where the State's responsibility is to establish the legal and economic tool favouring economic development and to provide for control over legal performance of the entities active on the market. Nevertheless, likewise in all mature democracies, the State's responsibility is also to stimulate the activities desirable from socio-economic point of view in order to implement the Constitutional principle of sustainable development. Unfortunately, in Poland there are only few mechanisms which could promote both the environmentally friendly consumers' behaviour and the products which impose reduced burden on the environment. And although the annual investments in environmental sector reach 8-10 billion PLN the industries manufacturing protective facilities have not been so far developed to a sufficient degree.

#### 2.2.2. The medium-term objectives by 2016

The overall objective is to set up such legal, economic and educational mechanisms which could lead to both the development of environmentally friendly manufacture of goods and the aware consumer attitudes conforming to the principle of sustainable development. Such activities have to reach complete internalisation of the external costs caused by environmental pressures.

### 2.2.3. Directions for action in 2009-2012

The following activities are required in 2009-2012:

- apply „green procurements” system in proceedings for granting public procurement being organised by all institutions using the public resources, and eliminate environmentally harmful products from the market,
- promote establishment of the „green jobs” with use of the European Union fund resources,
- promote transfer of the state-of-the-art environmentally sound technology to Poland through financing projects under the Community programmes,
- analyse the opportunities to introduce the „green” tax reform in Poland,
- carry out the country-wide public campaign for development of sustainable consumption patterns,
- introduce labels informing on ecological nature of products and promote them amongst the general public,
- develop the national plan for phasing out the phosphate containing washing agents,
- provide support to using the low-emission and high energy effective vehicles furnished with alternative propulsion modes, and work out the solutions inhibiting imports into the national park the foreign vehicles featuring by the unfavourable environmental and energy parameters.

## **2.3. Environmental Management**

### 2.3.1. The current status

Environmental Management Systems (EMSs) are the voluntary commitments being adopted by companies and institutions with the aim to undertake specific technology and organisational activities aimed at reduction of their environmental impacts.

In 2004, the Act of 12 March 2004 on the national Eco-Management and Audit Scheme (EMAS) entered into force (Official Journal No. 70, Item 631, further amended) that set forth the organisation framework for EMAS in Poland. The principles provided for therein are in line with the provisions in Regulation (EC) No. 761/2001 of the European Parliament and of the Council of 19 March 2001 allowing voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS) that defines the good management principles from the point of view of environmental protection. However, although the first domestic organisation was registered under this scheme already in 2005, the scheme has not been yet broadly known and applied in Poland.

It has to be mentioned here that apart from the above, also hundreds of organisations are

involved in activities being done by the Polish Cleaner Production Club (formerly, by 1998 - the Polish Cleaner Production Movement). Another such Programme (i.e. Responsible Care) brings together 37 biggest companies in chemical sector, while the certificates of compliance with the ISO 14001 Standard are being held by about 1,700 organisations. It is not too much, as that is the reason why the companies and institutions assuming ambitious environmentally sound targets gain only scarce benefits.

### 2.3.2. The medium-term objectives by 2016

The overall objective is to join EMAS in the most possible common way and to disseminate the system information widespread among the general public, as well as to raise economic benefits for the companies and institutions which have already acceded this scheme.

### 2.3.3. Directions for action in 2009-2012

In 2009-2012 it will be required that the mechanisms are established which stimulate the companies' and institutions' accession to the Environmental Management Systems. These mechanisms are to:

- introduce the „green procurements” promoting the companies which hold Environmental Management Certificates giving them additional score when applying for the public procurements,
- disseminate the EMAS and the ISO 14001 Standard, and also the CP logos as the environmental quality marks featuring the company as manufacturer of a given product or as provider of a specific type of service,
- upgrade prestige of the public institutions which hold their Environmental Management Certificates through promotional actions among the public on significance of such certificates,
- reduce the frequency of environmental inspection in entities holding their Environmental Management Certificates, and simplify the inspection procedures,
- limit the costs to companies and institutions with regard to implementation of the Environmental Management Systems.

## **2.4. Public participation in environmental activities**

### 2.4.1. The current status

Aware and active society forms foundations of the national democratic system, and since this refers to the wholesomeness of the State's performance it also includes the protection of the environment. Thus, the environmentally aware communities used to undertake numerous local actions enabling them to control the specific activities of enterprises and institutions. In order to perform efficiently, these communities must have access to information on the environment and the protection thereof, and on the activities under way at the institutions active in environmental sector.

Non-Governmental Environmental Organisations play particularly important role in this regard

while bringing together the most active and aware members of the general public, and through that they are the most respectful partners in controlling the performance of the Governmental authorities and also companies in environmental terms. The legal provisions guarantee such participation of the general public, including in particular the Non-Governmental Environmental Organisations, in environmental procedures, making comments on the draft proposal for legal acts, as well as projects financed with the public resources and those to be financed with resources of the European Union. Generally, the compliance with the legal provisions is satisfactory in Poland, although many conflicting situations arise between officials and the general public, thus making difficult the cooperation in some cases.

#### 2.4.2. The medium-term objectives by 2016

The overall objective is to raise environmental awareness of the general public pursuant to principle „Think Globally, Act Locally” which leads to:

- environmentally friendly consumer behaviours,
- environmentally sound habits of the public and stimulation of their aware responsibility for the state of the environment,
- managing environmentally sound local actions,
- public participation to the legal and control procedures in the field of environmental protection.

#### 2.4.3. Directions for action in 2009-2012

The Directions to meet the medium-terms objectives are following:

- provide for the excellence of the methods for making information on the environment and the protection thereof available for all public institutions,
- develop school curricula in the field of environmental protection, accessing environmental information, and develop behaviour compliant with the principle of sustainable development (actions, training courses for teachers),
- promote labelling which indicates environmental aspect of products in order to facilitate the consumers' environmentally friendly behaviours,
- support financially with Environmental Funds the implementation of projects of non-governmental organisations,
- secure participation of Non-Governmental Environmental Organisations in all environmental decision-making bodies,
- train staffs of the public authorities and the operators of public/private companies in the scope of legal provisions on the public access to environmental information,
- cooperate tightly with the media representatives in the field of environmental education of all groups of the general public - provide for more intensive than so far share of the Environmental Funds in this field.

### **2.5. Research and development activities and technology progress**

#### 2.5.1. The current status

Chronic underinvestment of scientific studies in Poland has caused that our country has not to far extent contributed to the global or European technology progress. Also in the field of environmental protection the number of novelty solutions is insignificant, although Poland has a considerable number of scientific establishments and well educated scientists. This situation results from poorly equipped research laboratories and underinvested pilot technical surveys and still underdeveloped contacts thereof with both the industries in Poland and the scientific establishments abroad. It has to be yet stated here that the Polish industries do not focus at implementation of the solutions which are the effects of native Polish technical ideas, but prefer rather proved technology from renowned foreign companies. Therefore, maintaining the environmental technology monitoring system is anticipated that has to become a coupling which links the demand on industrial side and the offers originating from scientific and research entities, thus stimulating development of environmentally sound technology.

#### 2.5.2. The medium-term objectives by 2016

The overall objective is to enhance the role of the Polish research establishments in implementation of the eco-innovations in industries and in manufacture of environmentally friendly products, and to lead to satisfactory status of environmental monitoring system.

#### 2.5.3. Directions for action in 2009-2012

The following activities have to be undertaken in order to implement the aforementioned objectives:

- set up the foreign scientific scholarship system for outstanding university graduates in the field of environmental protection,
- make available financing by the Environmental Funds of implementation of eco-innovations developed at the Polish scientific and research establishments,
- enhance (as supported financially from the Environmental Funds) exchange of research teams between the Polish institutes and their best foreign counterparts,
- provide (while financed with the resources of the National Fund for Environmental Protection and Water Management) the state-of-the-art scientific equipment to scientific institutes and universities, and for the purpose of the monitoring systems,
- provide support from scientific centres and businesses to the technology platforms as the sources from which innovative solutions originate,
- implement the sectoral „Environment” IT System, including the „EKOINFONET” Information and Communication Technology System for Environmental Protection Inspectorate,
- set up the national system for monitoring environmental technology.

### **2.6. Liability for environmental damage**

#### 2.6.1. The current status

The Act on Environmental Protection Law distinguishes two types of liability for damage caused in the environment, i.e. administrative liability and civil liability.

Environmental hazards and the risks to the occurrence of damage resulting therefrom may be borne by manufacturing, transportation and servicing activities. A duty has been conferred on the Environmental Protection Inspectorate to control economic operators and to inform the governmental or self-governmental administrative authorities on any infringement of the legal provisions in force. The authority granting the permit to operate installation is committed, depending upon situation, to issue order calling for restoration of the natural environmental status, cessation of the operation processes, withdrawing the permit to operate the installation, or charging definite monetary fine in case of failure to execute the obligation to the natural restoration.

The perpetrator of environmental damage bears also civil liability subject to court action. These matters are regulated as a rule under Civil Code, unless otherwise provided in the Act on Environmental Protection Law, whereas those pertaining to liquidation of damage caused in result of operation of a mining plant are provided for in the Act of 4 February 1994 on the Geological and Mining Law (Official Journal of 2005, No. 228, Item 1947, further amended).

The system of liabilities for environmental damage was modified and expanded in 2007 when the Act of 13 April 2007 on the prevention of environmental damage and its remedying entered into force (Official Journal No. 75, Item 493, further amended) which has implemented into the Polish legal framework the Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

The overall objective of transposition of the Directive 2004/35/EC is to secure real implementation of „polluter pays” principle and eliminate barriers to competitiveness of business entities operated in various Community countries, the operation of which could have become the source of direct hazard of potential or actual risk for environmental damage. The provisions of Directive 2004/35/EC were timely introduced into the Polish legal framework, i.e. on 30 April 2007, and also prior to effective date of the administrative provisions to the said Act of 13 April 2007.

#### 2.6.2. The medium-term objectives by 2016

The objective of environmental policy is to establish a system aimed at the prevention of environmental damage and warning about potential damage. Where an environmental damage occurred its full remediation costs must be covered by perpetrators thereof.

#### 2.6.3. Directions for action in 2009-2012

In 2009-2012 the following activities are envisaged:

- complete full transposition of the provisions in Directive 2004/35/EC into the Polish legal framework by means of amendment in the Act on the prevention of environmental damage and its remedying,
- establish database on environmental damage and remediation actions thereof,
- manage training courses on polluter's liability for environmental damage as designed for the target groups from administration, judicature and business entities sectors,
- strengthen human and technical resources of Environmental Protection Inspectorate to provide for complete implementation of their inspection activities, and secure the State budgetary resources for land reclamation measures in the areas polluted before 30 April

2007.

## **2.7. Environmental aspect of physical planning**

### 2.7.1. The current status

Physical planning has since many years not been performed correctly in Poland. The local management plan, following the 2003 Act on physical planning and management, is considered the major legal instrument for provision of spatial order enabling rational land management in Municipalities. Besides the local plan, also the auxiliary instruments in form of the location decision are possible in the physical planning system. Although the aforementioned Act is in force now, and also other acts are available which determine competence of the self-governmental authorities at all levels in this scope, a considerable proportion of the national territory has not been covered by the local physical management plans. Such situation causes taking many location and economic decisions disregarding the requirement to keep the spatial and orderly development of residential, industrial or recreational areas. Also, the environmental protection principles are often disregarded when making the location decisions.

### 2.7.2. The medium-term objectives by 2016

In the medium-term perspective it is necessary to restore adequate role of physical planning throughout the whole national territory. This refers in particular the local physical management plans which have to form the basis for location of new investments.

### 2.7.3. Directions for action in 2009-2012

The activities required be complete by 2012 are following:

- implement the guidelines for and methodology on integration of the environmental protection and water management requirements in physical management plans, in particular those which result from the eco-physiographic elaborates, environmental impacts prognoses (including improvements in the quality of the aforementioned documents),
- implement the provisions which will facilitate carrying out strategic environmental impact assessment already on the stage of the feasibility study and the directions for physical management (that is a planning elaborate which covers the whole Municipal area),
- approve all Natura 2000 European Ecological Network sites and draw up their management plans,
- implement the concept of ecological corridors,
- consider the areas under flood risk,
- define the principles for determination of so called environmental capacity and spatial absorptivity depending on the type of the environment,
- introduce mechanisms for the protection of the fossil mineral deposit resources against any management methods making impossible their future use,
- integrate into the physical management plans the results of environmental monitoring, in

particular those concerning air, waters and noise.

## **CHAPTER 3**

### **PROTECTION OF NATURAL RESOURCES**

#### **3.1. Nature conservation**

##### **3.1.1. The current status**

The place of the Polish national territory in the Central Europe, the absence of any natural climate barriers on the eastern and western directions, and the superposition of the marine and continental climate impacts are the factors decisive for specific natural features in Poland on the European background. Abundant forest and marshy habitats can be found there as interwoven by meadow complexes, and the complexes of high bogs and lowland bogs. The Vistula River and a number of other rivers are not regulated on their long sections which form unique ecological niches for various fauna and flora species. Altogether, the biological diversity in Poland is among the most abundant in the Central Europe. The protection of biological diversity against uncontrolled anthropopressure impacts is then the major challenge. The legally protected areas are primarily designated to this end, and those include in Poland:

- 23 National Parks (1% of the national territory),
- 1,395 Nature Reserves (0.5% of the national territory),
- 120 Landscape Parks (8% of the national territory),
- 449 Protected Landscape Areas (22.5% of the national territory).

Thus, the total of about 30% proportion of Poland's national territory accounts for the areas mostly valuable in terms of nature and landscape being currently covered by various protection forms.

In the Nineties, the Natura 2000 European Ecological Network was established in the European Union, the objective of which is to form the sites protected legally irrespective of any such national systems. The principles to establish this network are regulated under two EU Directives:

- Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (Birds Directive),
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).

The Republic of Poland as the Member State of the European Union is committed to designate its Natura 2000 sites in compliance with the provisions of both aforementioned Directives.

Natura 2000 sites are designated in Poland since 2004 on scientific basis. In 2006-2008, widespread action of inventory and valuation of flora, fauna and natural habitats was performed with the aim of strengthening the scientific premises for designation of the Natura 2000 sites. This action was carried out principally by the Forest Service jointly with naturalists representing scientific circles and Non-Governmental Environmental Organisations. As of June 2008 the following such areas were designated in Poland:

- 124 special protection areas for wild birds that occupy about 5,400 thousand ha total combined area,

- 364 special areas of habitat protection that occupy about 2,889 thousand ha total combined area.

The completion deadline for designation of Natura 2000 sites is scheduled in the first quarter of 2009.

In 2005, the monitoring requirements on the habitats and birds areas were developed pursuant to the provisions in both the Polish and Community laws.

However, the issue of potential conflicts between the investments likely to deteriorate the state of the environment and the protected areas was not solved by the end of 2007. The Polish law was at that time incompliant against the Community legal provisions, and that consequently led to conflicting situations between Poland and the European Commission.

On 3 October 2008, Parliament of the Republic of Poland passed the Act on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments which, while being in compliance with the Community laws, has provided for, amongst others, the organisational mechanisms aimed at radical acceleration of the procedures for environmental decision-making. At the same time, the Act on nature conservation was amended respectively in order to introduce into the Polish legal framework the provisions conforming to the Birds Directive and Habitats Directive. Thanks to these efforts the design and implementation of investments is possible even in protected areas, provided the conditions set forth in the aforementioned legal acts are met.

Designation of the high nature value (HNV) areas throughout the Polish national territory is planned that will play key role in monitoring of implementation of the policy instruments aimed at the protection of biological diversity in agricultural and forest areas, including in particular the Programme for Development of Rural Areas in the EU. To this end, appointment of an Inter-Sectoral Working Group is planned on initiative launched by Minister of Agriculture and Rural Development, with input to be provided by Minister of the Environment that will bear the responsibility for prepare proposals to designate the HNVs.

The opportunity to release genetically modified organisms (GMOs) into the environment is another key issue relating to the protection of biological diversity in Poland. However, when aiming at introduction into the environment of artificially generated live organisms and having not fully known the direct and indirect effect of such experiment, one should apply the precautionary principle and the principle of responsible care, since the long-term effects of these organisms on biocenoses have not been yet known. Thus, while not neglecting the need to continue scientific research *in vitro* and *in situ* man should necessarily establish the respective barriers in order to keep such an experiment under its control.

### 3.1.2. The medium-term objectives by 2016

The overall objective is to preserve the wealth of biological diversity of nature in Poland on various organisational, i.e. intra-species (genetic), species and supra-species (ecosystem) levels, jointly with securing the national sustainable economic development coexistent in non-conflicting manner with biological diversity.

### 3.1.3. Directions for action in 2009-2012

In 2009-2012, it is necessary to finalise inventory and valuation of biological diversity in Poland. That will form the basis for compilation of complete list of protected birds and habitats sites under Natura

2000 European Ecological Network.

The tasks will be implemented under the National Strategy for the protection and sustainable use of biological diversity that include restoration of adequate status of natural habitats (ecosystems) and species refuges in protected areas jointly with preservation of species endangered by extinction and genetic diversity of plants, animals and fungi, restoration of viable connectivity of terrestrial and aquatic ecological corridors enabling mobility of animals and continuity of their populations at the country scale, support to development of the management plans for protected areas, and upgrading the public awareness in the scope of the needs of and suitable methods for environmental protection, nature conservation and landscape preservation.

Valuation of biological diversity should be carried out as soon as possible in the areas where the infrastructure investments are planned to implement with donations from the European Union resources, in particular, under the 2007-2013 Infrastructure and Environment Operational Programme.

On 17 November 2008, new specialised environmental authority, i.e. Directorate General of Environmental Protection, and its respective 16 Regional Directorates of Environmental Protection, began their governmental service on the central and regional administrative levels. Their activity profiles include participation to environmental impact assessment procedure (in different scope of their competence) from projects planned, control the cases of liability for environmental damage, cooperation with territorial self-governmental authorities on environmental impact assessment and nature conservation issues, and participation to strategic environmental impact assessments and transboundary environmental impact assessments. They also manage the cases of the Natura 2000 European Ecological Network, as referred to in the Act on of 16 April 2004 on Nature Conservation (Official Journal No. 92, Item 880, further amended), thus supervising the implementation of Natura 2000 sites and monitoring their performance, as well as approving the forms of natural compensation where there is a need to intervene in a protected area, and collecting data and preparation of the relevant reports on both the Natura 2000 sites and other protected areas, and on environmental impact assessments.

Besides, it is necessary to enforce the nature conservation requirements as included in the local physical management plans and provide for rigorous compliance with environmental protection principles. Working out the methods for application effective conservation of naturally valuable roadside coppices and urban greenery is required. It is also important that development of the national network of protected areas be continued with regard to establishment of new National Parks, Nature Reserves, Landscape Parks, as well as creation of the further nature conservation forms and areas. Also the ecological corridors as the sites performing supplementary role to that of the spatial forms of nature conservation have to be considered in nature conservation system.

Minister of the Environment anticipates also preparation of:

- The National Strategy for Conduct of Invasive Alien Species (under the Convention on the Conservation of European Wildlife and Natural Habitats, done in Bern on 19 September 1979 (Bern Convention - Official Journal of 1996, No. 58, Item 263),
- The National Strategy for the Protection of Large Carnivores (also as the result of the Bern Convention ratified).

Besides, the ratification of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) is planned under Convention on the Conservation of Migratory Species of Wild Animals done in Bonn on 23 June 1979 (Bonn Convention - Official Journal z 2003, No. 2, Item 17). Implementation into

the national nature conservation law of the European Landscape Convention, done in Florence on 20 October 2000 (Official Journal of 2006, No. 14, Item 99) is also necessary.

As regards the release of GMOs into the environment, a new Act is planned to pass in 2009, i.e. the Law on Genetically Modified Organisms, in line with intensive activities to be carried out by Poland at the European Union forum in the field of the opportunity to establish the GMO-free zones.

It is also important that tight cooperation bonds with NGOs in the field of nature conservation and widespread educational actions among the general public be carried out.

### **3.2. Protection and sustainable development of forests**

#### **3.2.1. The current status**

Forest land covers presently 28.9% of Poland's national territory (about 9 million ha). In 1945-2006, the national woodiness grew by 8.1% with the most intensive afforestation having taken place in 1950-1980. In recent two decades, about 20 thousand ha area was afforested. Following the plans pursued by Minister of the Environment, as included in „The National Programme for Expansion of Woodiness”, the woodiness in Poland has to be increased up to 30% in 2020 and to 33% in 2050, however achievement of the targets so defined encounters continuously growing obstacles caused by low supply of land for afforestation purposes.

As for their ownership structure forest possessed by the State Treasury predominate in Poland accounting for 81.2% of the total forest land area. The most forest areas are under governance of the "State Forests" National Holding which manages 78.1% of the forest land area, whereas other State Treasury forests are under management of the National Parks and other entities. Private and municipal forests account for 18.8% forests land area in Poland.

Pine forests are the prevailing majority of tree species in Poland. The share of pine as the dominating species declined currently to 69%. The increasing share of broadleaved species in forest stand structure results primarily from adjustment of the composition of the stand species to the habitat requirements and redevelopment of pine monocultures growing in fertile habitats. It is also noteworthy that the acreage of the forest promotional complexes in which the principles of sustainable forest management undergoes improvement for the sake of reconciliation of nature conservation functions with the economic ones has been continuously expanding. Organisation of training courses for forest service staffs as well as environmental education of the general public are important functions in the responsibility scope of the Forest Promotional Complexes. Currently, at the "State Forests" National Holding there are 19 such forest complexes occupying almost 1 million ha total combined area and those provide model solutions of the future forest management in Poland.

In 2006-2008, the natural inventory of the "State Forests" National Holding was carried out to cover the species and habitats protected under Natura 2000 network. That resulted in acquisition of valuable information on plant and animal habitats and species occurring in forest areas. The results of this inventory are of considerable significance for programming forest management in conformity to nature conservation principles and with the aim of forecasting and monitoring the changes in forest ecosystems that emerge from both the anthropogenic activities and climate change. Such type of knowledge supports the more intensive implementation of the challenges facing multi-functional forest management.

### 3.2.2. The medium-term objectives by 2016

In the medium-term perspective, it is assumed that the activities will be further continued to provide for rational use of forest resources through development of their adequate species and age structure in line with preservation of their biological wealth. That means development of the idea of sustainable and multi-functional forest management.

### 3.2.3. Directions for action in 2009-2012

A challenge important for 2009-2012 is to implement „The National Programme for Expansion of Woodiness” by the "State Forests" National Holding, while updating this programme is necessary and planned in 2009. Afforestation is being carried out also by private entities which benefit from donations with the European Union resources under Rural Development Programme for 2007-2013. Afforestation of about 50 thousand ha including 75% in private sector is assumed by 2010. Essential here is to establish coherent forest complexes connected by means of ecological corridors and adaptation of forest management to the requirements under the protection principles of the Natura 2000 network, since the wooded land must not endanger maintenance of extensive use of meadows and pastures being valuable habitats of rare plant and animal species.

Important role of forests is to keep up considerable water retention and also its expansion by means of restoration of wetland areas overdried in result of drainage systems. In this regard, the "State Forests" National Holding will implement two big multi-year programmes co-financed with the resources under „Infrastructure and Environment” Operational Programme.

Adaptation of the forest stand species composition to habitats' requirements, and enhancement of genetic diversity and forest species biocenoses including implementation of the fir restitution programme in Sudeten Mountains and that for the protection and restitution of yew in Poland are also the most challenging tasks.

In 2009-2012, enhancement of the forest gene banks functions and implementation of an alternative forests certification system are also planned.

## **3.3. Rational management of water resources**

### 3.3.1. The current status

Poland is a country having scarce water resources. When calculated per capita, these resources amount to 1,700 m<sup>3</sup>/year, and 1,450 m<sup>3</sup>/year in dry years, on average. Poland ranks 22 in Europe in terms of water resources available. River water resources amount to 60 billion m<sup>3</sup>/year which equals to 5 l/s km<sup>2</sup> specific runoff, while the European mean being 9.5 l/s km<sup>2</sup>. The annual precipitation in near 20% of the national territory amounts to below 500 mm H<sub>2</sub>O which corresponds to the most arid regions of Europe.

Data cited above indicate that the rational management of disposable water resources has to be one of the most important national priorities, yet because in view of unavoidable climate change this water deficit is still expected to increase in Poland. On the other hand, increasingly labile climate will cause the more frequent than so far the torrential rain periods being the cause of summer floods.

However, management of water resources is not conducted as a priority and it has for many years faced continuous lack of sufficient financial resources as required for rationalisation of its adequate

performance. The relevant expenses, including those for flood protection, are far insufficient and furthermore a downward trend can be noted in this regard. The age of about 50% of continuously water damming hydrotechnical structures is more than 50 years, while only inconsiderable resources are being allocated to their maintenance thus having caused their decapitalization. The drainage systems being in operation for decades have significantly reduced (because of dewatering) the opportunities to natural water retention in the areas of waterlogged meadows, peat swamps and marshes and in forest areas. Also the retention capacity of water reservoirs is small while accounting for only 5.7% of the mean annual runoff that makes impossible provision of the opportunities suitable for emergency response in cases of flood or drought risks.

The unavailability of effective physical planning system during the last two decades caused that building and construction projects encroached into the areas under risks of landslides being the consequence of rainfall on the inundation areas that in case of big flood means considerable expansion of material losses (and sometimes heavy tolls).

The low water prices still cause excessive water consumption in Polish industries that is 2-3 times as much higher than in West European countries. Industrial branches use 72% of water volumes designated to economic, while agriculture and forestry consume 10% altogether, leaving 18% water to be used for municipal purposes. However, it has to be emphasised that when compared to 1990, the consumption of water for production purposes dropped in 2006 by 10%, including as much as by 30% in municipal sector. It is commonly agreed that these savings are underpinned by common introduction of water meters as well as elimination of a lot of leaks in water supply networks.

Documentation of groundwater resources in Poland is to far extent complete and those can be found in various hydrogeological formations throughout 96% of the national territory. The total number 163 Major Groundwater Basins are identified in result of geological surveys that contain water requiring application of specific protective measures. These resources are considered strategic ones for case of chronic periods of water deficit however already now they are significant sources of water supplies to populations. More than 65% of water volumes abstracted for municipal purposes originate from groundwater intakes. Protection of the Major Groundwater Basins against pollution by both waste water and leakage from waste deposited directly on the ground is the principal challenge. However, despite sufficient geological exploration of these areas no such protective measure has been implemented which could under Act of 18 July 2001 on Water Law (Official Journal of 2005, No. 239, Item 2019) be performed by the Regional Water Management Authorities and the National Hydrogeological Survey.

The activities aimed at rationalisation of water management have been carried out for many years. In 2005, the Council of Ministers approved Water Management Strategy which however should be updated because of its current inconformity to the European Union law. It also does not refer to operation of the National Water Management Authority which was established in 2006. It is also required that the principles set forth in the EU water Directives mentioned below have to be urgently introduced into the Polish legal framework, i.e.:

- Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (daughter Directive of the Framework Water Directive), and
- Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (Flood Directive).

The Water Framework Directive was introduced into the Polish law through the Act on the Water Law. Nowadays, some activities are still under way on transposition of its certain definitions and making the more specific certain already existing provisions, including the Regulations to be issued pursuant to the legal delegation included in Articles 38a, 121 and 155b in the Act on the Water Law, and the necessary amendments in the Act itself.

Moreover, under the Helsinki Convention the Republic of Poland participates actively to cooperation in the Baltic Sea area that is aimed at restoration of marine waters purity and rational management of marine biological resources. Poland cooperates also within European Union under Marine Strategy Framework Directive and the Blue Book on an Integrated Maritime Policy in the EU.

### 3.3.2. The medium-term objectives by 2016

The overall medium-term objective is to rationalise management of surface water and groundwater resources, so as to protect the national economy against water deficit, and to prevent flood impacts and enhance self-financing of water management. The general challenges are to provide for maximum savings of water resources for industrial and household purposes, enhancement of water retention, and effective protection of the Major Groundwater Basins against pollution.

### 3.3.3. Directions for action in 2009-2012

The current status of water management requires in-depth and rapid reform. Adoption of the National Strategy Water Management by 2030 (with special regard to phase ending in 2015) by the Government and Parliament will be the first step on this way. The Strategy should formulate the major directions for their relevant activities, including:

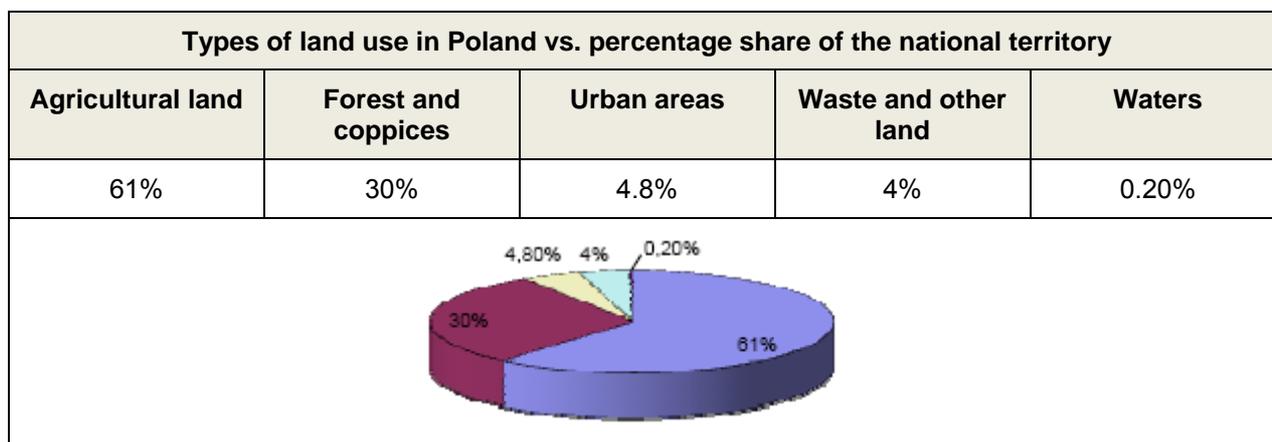
- mutual separation of two sub-sectors within overall water management sector, i.e. water management sub-sector (to perform function of an authority competent for management and inspection of water resources), and the State Treasury property administration sub-sector (for maintenance of waters and waterworks, as well as planning and implementation of water management investments),
- gradual introduction of end-users' charges for using water resources with regard to environmental impacts thereof,
- complete adaptation of the Polish water law to the relevant Community laws,
- development and implementation of the Water Management Information and Communication Technology System fully coherent with „The Environment” sectoral ICT System,
- preparation of the flood risk assessments indicating the areas under flood risks for which the flood risk maps have to be produced by 2013,
- designation of the inundation areas where those have not been so far designated,
- implementation by the National Hydrological and Meteorological Service and the National Hydrogeological Survey of the tasks under Act on the Water Law,
- development of small water retention with financial assistance under the EU programmes,
- implementation of projects under Priority 3 of the „Infrastructure and Environment”

Operational Programme with the aim to provide for securing sufficient quantities of water resources for human and national economy needs and the flood protection purpose,

- modification of land drainage systems by means of furnishing them with water damming facilities for runoff control purpose,
- completion of the landslide area monitoring system,
- beginning to implement the protective measures against pollution of the Major Groundwater Basins,
- encouraging behaviours and habits friendly for water savings through education and promotion activities (actions and campaigns addressed to all target groups of the general public).

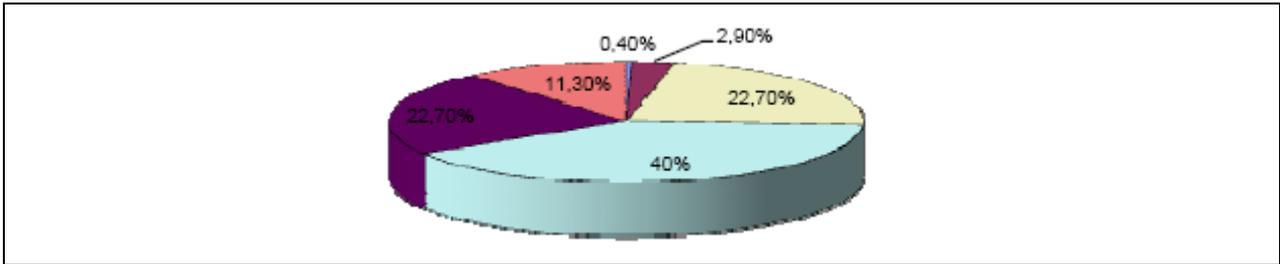
### 3.4. Land protection

#### 3.4.1. The current status



The above table illustrates structuring the Poland's national territory into types of land use. Thus, agricultural land occupies almost 2/3 of the country area, including arable land accounting for 45%, and meadows and pastures for about 13%. Poland (with its 12.2 million ha) ranks third in the European Union list of the countries' arable land areas with, just following France (18.5 million ha) and Spain (13.7 million ha). The shares of arable land in the total national area at the level higher than Poland's are only in Denmark, Hungary and Lithuania. Hence, Poland's potential to produce foodstuffs is merely high, however agriculturally used soil is not abundant.

Soil quality classes in Poland and their percentage share					
Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
0.4%	2.9%	22.7%	40.0%	22.7%	11.3%



Thus, the poorest quality soil accounts for more than 1/3 of agricultural land falling in the 5th and 6th soil quality classes, whereas the most fertile soil (classes 1-3) accounts for only 26% of agricultural land area.

Heavy acidification is the feature characteristic of soil in Poland. Acid soil occupies more than 50% of the total acreage and this status has not changed for the past two decades. Moreover, soil is endangered by both natural and anthropogenic impacts. Natural soil degradation is caused primarily by wind and water erosion which to far extent endangers just the poorest quality soil. It is estimated that more than 25% of soil in Poland is endangered by wind erosion (including 10% endangered to medium and high degree), and 28% of soil - by water erosion (including 14% endangered to medium and high degree). Counteracting these unfavourable phenomena is possible by means of the in-field afforestation and planting forest belts alongside watercourses, the protection of vegetation cover, and the renounce of deep ploughing. Education of farmers is mostly important in this regard that has been carried out by the Voivodship (i.e. Provincial) Agricultural Consulting Centres. These Centres provide essential consultancy services, while disseminating good agricultural practices among farmers, as adapted to the quality of land they manage.

The anthropogenic causes for soil degradation result from both the farmers' bad agricultural practices (inadequate application of fertilisers and chemical plant protection agents, soil acidification and salination), as well as the adverse pollutant emission impacts from industrial plants, and also the designation of agricultural land for building and infrastructure investments, however, the scale of the latter phenomenon is rather inconsiderable. In 2006, the area of 4,075 ha arable land was designated mainly for housing and industrial purposes.

In 1990-2006, the acreage of both degraded and devastated land (e.g. waste heaps at mine and power plants) requiring application of the land reclamation measures diminished by 30%. In 2006, this type of waste land occupied 65 thousand ha area, including only 1,400 ha where land reclamation measures were applied. That is by 50% lesser than in 1990, thus proving insignificant interest in such type treatment on the part of self-governmental authorities in the areas under whose jurisdiction such land is situated.

#### 3.4.2. The medium-term objectives by 2016

The overall medium-term objectives for land protection and in particular for the protection of agriculturally used types of soil are:

- dissemination of good agricultural and forestry practices compliant with the principles of sustainable development,
- counteracting anthropogenic degradation of arable, meadow and wetland areas,
- enhancing the scale of land reclamation practices on degraded and devastated soil in

order to restore its natural, recreational and agricultural functions.

#### **3.4.3. Directions for action in 2009-2012**

In 2009-2012, the following activities have to be undertaken or continued:

- develop the National Soil Protection Strategy, including combating soil acidification,
- promote ecological agriculture and integrated agriculture,
- perform valuation of the areas with regard to their usefulness for production of healthy food and promotion of such foodstuffs,
- develop soil monitoring system,
- provide financial support with the Environmental Funds to the initiatives concerning reclamation of degraded and devastated land,
- complete the Anti-Landslide Protection System under development by Polish Geological Institute.

### **3.5. Managing geological resources**

#### **3.5.1. The current status**

Adequate management of geological resources should lead to the protection of fossil mineral resources and the use of geological environment for production purposes. The status of geological exploration in Poland is considered good. The multi-year surveys of geological formations in Poland resulted in more than 9 thousand documented deposits, including 3 thousand currently managed ones. The status of exploration of the opportunities to underground storage of natural gas, petroleum and carbon dioxide resources as well as of thermal water deposits only remains insufficient. It is also necessary to continue exploration of hard coal, unconventional hydrocarbons and aggregate. However, considerable exploration of the lithosphere seismic structure in the national area of Poland was achieved that has gained recognition as the best all over Europe. The first phase of registration and inventory of mountain slope landslides endangering inhabitants in result of torrential rains has been completed in the framework of establishment of the Anti-Landslide Protection System. These activities will underpin the further development of methods to forecasting landslide phenomena in the future.

Important, and being for many years pursued task is drawing up the geo-environmental map of Poland, scale 1:50000 presenting such thematic layers as, amongst others, documented fossil mineral deposits, valuation of waste storage areas and protected areas. This map is of key importance for preparation of physical management plans at all administrative levels.

The EU legislation in force does not regulate the matters of geological prospecting and leaves this regulation with the Member States' discretion. The Act on the Geological and Mining Law is the major legal act mandatory in this field in Poland, and it provides that concessions are required for prospecting and extraction activities of fossil minerals, while the Minister responsible for the environment, the Voivodship (i.e. Provincial) Marshall, or the County Head are the authorities competent to grant such concession. The concession for extraction of fossil minerals from deposits has to be preceded by acceptance of geological documentation, proposal for deposit management, and decision to be granted on environmental conditions of project implementation, where necessary. Thanks to the aforementioned requirements the control over the protection of fossil mineral resources is secured, including also

groundwater resources being considered the fossil minerals, i.e. healing, thermal and saline waters, against any irrational, wasteful or damaging exploitation thereof.

### 3.5.2. The medium-term objectives by 2016

The overall objective is to rationalise provision of fossil minerals and water from underground resources to both the populations and the economic sectors, and also securing these resources against their qualitative and quantitative degradation. By 2016 it will be required to:

- improve legislation on the protection of fossil mineral and groundwater resources,
- reduce environmental pressures in course of management of geological and extractive works on fossil minerals,
- eliminate illegal extraction of fossil minerals,
- strengthen protection of non-managed fossil mineral deposits in physical planning process,
- perform balance of capacity of geological structures where sequestration of carbon dioxide is feasible in the area of Poland,
- carry out geological survey on the rock salt deposits, depleted petroleum deposits and other geological formations in view of storage of petroleum and natural gas therein, and also waste storage, including radioactive waste,
- complete documentation of disposable resources of healing and thermal waters, and the Major Groundwater Basins.

### 3.5.3. Directions for action in 2009-2012

Correct geological work requires most frequently a long time-horizon. In 2009-2012 the tasks mentioned in 3.5.2 above will be initiated or continued. However, there are certain types of activities for which the time-horizon is shorter. These include:

- provision - by means of adoption of New Geological and Mining Law - of the relevant facilities to the companies carrying out exploration and prospecting works,
- making accessible geological maps and data,
- supplementing the geo-environmental map of Poland scale 1:50000 with its new thematic layers,
- supplementing geological and engineering databases for urban agglomerations,
- establishment of documentation posts and geo-parks for the sake of legal protection of Poland's geological heritage, and making inventory of the geological stands and establishment of central register thereof,
- completion of the activities on establishment of the Anti-Landslide Protection System and creation of central register of landslides and the areas endangered by the mass earth movements,
- determination of the areas endangered by natural seismic micro-shocks,
- managing concession policy aimed at enhancement of documenting raw materials deposits for energy purposes with parallel promotion of new technology for acquisition of energy carriers from deposits, particularly coal, in order to maximise any negative

- environmental impacts caused by the current operational methods,
- promoting utilisation of methane from coal deposits.

## **CHAPTER 4**

### **IMPROVE ENVIRONMENTAL QUALITY AND SAFETY**

#### **4.1. The environment and human health**

##### 4.1.1. The current status

The quality of the environment has significant effects on human health. In the Seventieths and the Eightieths, Poland was (in line with the Soviet Union and the German Democratic Republic) one of these three most environmentally polluted European countries. About 30% of its population dwelled in the areas environmentally endangered where the exceedance of the permissible concentrations of many air, water and soil pollutants was noted. Environmental pollution in the Upper Silesian Region, as well as the Cracow, Wałbrzych and Legnica agglomerations, and also in all big urban areas was ubiquitous. A lot of analytic results have proven correlation between the environmental pollution in these areas and the occurrence of civilisation diseases such as allergies, respiratory, enteric or neoplastic diseases, as well as excessive infant mortality and reduced life expectancy. That was the price the general public had to pay for practical implementation of the national industrialisation doctrine disregarding the principles of environmental protection.

A considerable progress in environmental protection management which was initiated in 1989 had contributed also to improvement in health status of the general public. Thus, the infant mortality declined from z 19.3 in 1990 to 6.0 in 2006 per 1,000 live births, and the average life expectancy increased by 4 years in that time. However, the values of these factors have been still below the European Union or the OECD countries' mean.

Hence, the further intensive efforts are required to improve environmental safety of the general public through both the implementation of environmentally sound investments, and the preventive actions and raising their awareness of the unavoidable hazards. The major activity directions are outlined in the „Environment and Health” Governmental Programme carried out in 2003-2005 in the framework of cooperation between Ministry of the Environment and Ministry of Health.

The above issues relate tightly to prevention of serious industrial accidents, since each such accident causes immediate and considerable health hazard to inhabitants in the adjacent area. In Poland, there is a control system active to supervise the installations which are likely to cause environmental risks of serious industrial accidents. This system is managed by the Environmental Protection Inspectorate pursuant to the requirements in the Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (so called Directive Seveso II), and in Directive 2003/105/EC of the European Parliament and of the Council of 16 December 2003 amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances. Complete adaptation of this system to the aforementioned Directives is planned in the mid 2009.

There is also a register of plants where such accidents could potentially happen. It covers more than 1,000 plants, including 336 high-risk ones. The Environmental Protection Inspectorate manages the

major accident warning system active 24-hour a day. The Republic of Poland ratified the UN/ECE Convention on the Transboundary Effects of Industrial Accidents, and the radiological safety is provided for in Poland by the National Atomic Energy Agency who manages the early warning system on radiation hazards that is active 24-hour a day and forms a part of the international warning system on nuclear and radiation accidents.

In the public health aspect, the participation of the State Sanitary Inspectorate in strategic assessments of environmental impacts is also important, in accordance with the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments.

#### 4.1.2. The medium-term objectives by 2016

The overall objectives are the further improvement in the environmental public health through the joint concerted actions of environmental sector and the health sector, as well as the efficient supervision throughout the national territory over all installations being potential sources of industrial accidents and causing environmental pollution.

#### 4.1.3. Directions for action in 2009-2012

Tight cooperation between the State Sanitary Inspectorate and the Environmental Protection Inspectorate is required on implementation of the above overall objectives in the scope of:

- collection and dissemination of information on the public health hazards (both the immediate and the long term ones),
- development of the principles for health risk analysis for the procedures required to authorise implementation of investments,
- improvement in performance of the National Environmental Monitoring System and the State Sanitary Monitoring System through provision of the state-of-the-art technical equipment and warning networks for the inspection services,
- joint concerted actions of the Environmental Protection Inspectorate and the State Sanitary Inspectorate aiming at improvement in the drinking water quality,
- joint management of educational and training activities for staffs of the respective services at industrial plants and the public administration authorities in the scope of prevention of industrial accidents and environmental pollution.

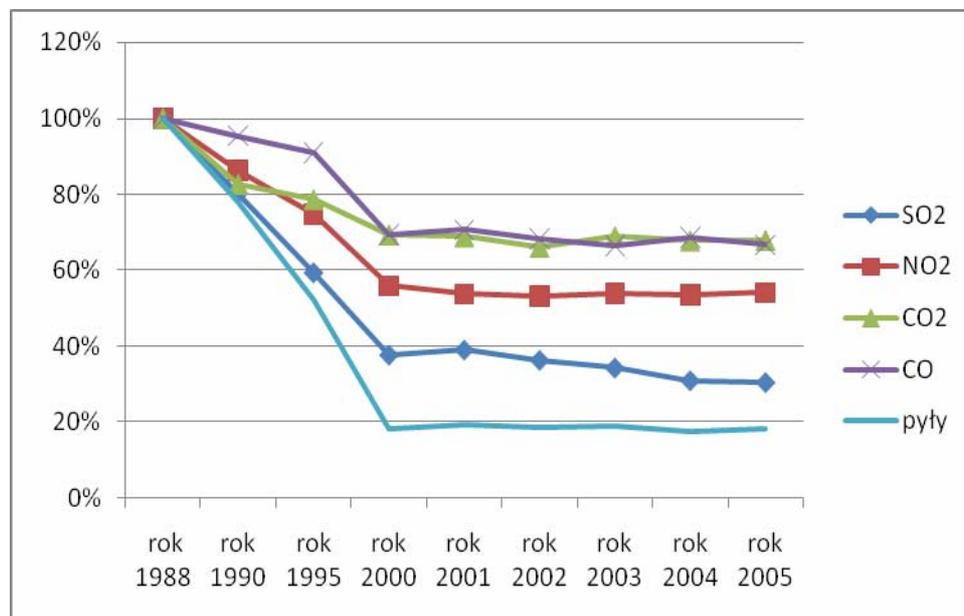
Besides, it is necessary to provide professional chemical and environmental rescue equipment to the Fire Service Units, and also to prepare the Voivodship (i.e. Provincial) and County Risk Management Plans for possible occurrences of industrial accidents.

## **4.2. Air quality**

### 4.2.1. The current status

By 1988, the air pollution in Poland was one the highest amongst all European countries. In reference to about 10% of the national territory, as inhabited by 30% of the population, the concentration of the major pollutants such as sulphur dioxide, particulate matter and nitrogen oxides, as well as concentrations of heavy metals, permanently exceeded their limit values in winter season, thus forming

acid smog episodes harmful to human health. Material losses being incurred by Poland in result of the air pollutants were estimated at about 5% of the national revenue.

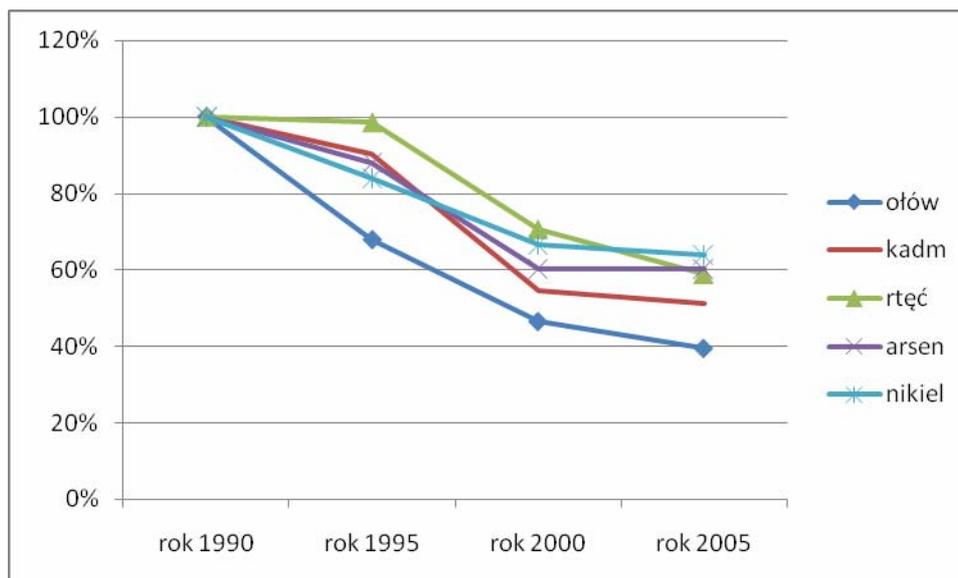


**Figure 4.2.1 Reduction in atmospheric pollutant emissions**  
(*pyły* = particulate matter, *rok* = year)

After 1988, tremendous progress was made in reduction of atmospheric pollutant emissions. Figure 4.2.1 shows that in 1988-2005, SO<sub>2</sub> emission was reduced by 65%, emission of particulate matter by 80%, emission of nitrogen oxides by 45%, and those of carbon monoxide and carbon dioxide by 30%. Figure 4.2.2 shows the change in heavy metal, i.e. lead, cadmium, mercury, arsenic and nickel emissions. Also, in their cases the emission reductions were mostly significant - by 38-60%.

Such considerable achievements were possible thanks to many factors being set up in result of initiation of the national political and economic transformation. The most important of them include:

- closure of numerous industrial plants operated with obsolete technologies,
- reduction of coal extraction and production drop in energy- and material-intensive industrial branches,
- increase of energy prices underpinning energy savings,
- improvement in the quality of coal supplied to energy generation systems,
- elimination of small boiler plants and household furnaces and development of district heating networks in many towns,
- construction of highly efficient flue gas desulphurisation and dust-removal installations,
- common application of catalyst in cars and elimination of lead compounds from gasoline.



**Figure 4.2.2 Heavy metal emissions in 1990-2005**  
(lead, cadmium, mercury, arsenic, and nickel - respectively; rok = year)

The improvements in the air quality had positive effects on nature and wildlife. Halting degradation and restoration of tree stands at the Giant Mountains and the Jizera Mountains was possible thanks to reduction of sulphur compound emissions by 60% from so called Black Triangle, i.e. the boundary area between the Republic of Poland, the Czech Republic and the Federal Republic of Germany. The forest health condition throughout the national territory of Poland also improved considerably. While yet in 1995, a half of the forest showed apparent damage to the assimilation apparatus, the percentage of endangered trees dropped to 20% in 2006. Also in agricultural areas, concentrations of atmospheric pollutants do not exceed the limit values.

However, despite so apparent progress the state of atmospheric air in Poland is not satisfactory in the light of the EU Directives. Just in both the Accession Treaty (2004) and the Emission Ceiling Directive, the Republic of Poland assumed commitment to reduce by 2010 its emissions of the major atmospheric pollutants, i.e. for SO<sub>2</sub> - to 1,397 tonnes/year, for NH<sub>3</sub> - 468 thousand tonnes/year, for NO<sub>x</sub> - 879 tonnes/year, and to 800 tonnes/year for Volatile Organic Compounds.

Besides, the Republic of Poland is committed to meet the requirements imposed in numerous UE Directives in the field of the air and climate protection, including:

- Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants (the LCP Directive),
- Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (CAFE Directive),
- Regulation (EC) No. 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases (so called F-Gas Regulation).

Apart from the above commitments, the Republic of Poland ratified the UN/ECE Convention on Long-range Transboundary Air Pollution and signed the Aarhus Protocol on Heavy Metals. The Kyoto Protocol to the United Nations Framework Convention on Climate Change, done in Kyoto on 11

December 1997 (Official Journal z 2005, No. 203, Item 1684) is another important commitment assumed by Poland. Under this Protocol Poland has to reduce its greenhouse gas (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O) emissions by 6% by 2012 in relation to their 1988 baseline levels. It is noteworthy that the Republic of Poland has achieved considerable surplus in meeting the latter commitment, since its 1988-2006 greenhouse gas emission reductions amounted to about 30%.

However, the situation is much more difficult as regards the 2007 Decision of the European Commission under which in 2020 the total greenhouse gas emission from the Community territory has to be by 20% lower than that in 1990. In January 2008, the European Commission prepared proposals of three Directives forming so called Climate and Energy Package which is in some aspects unfavourable to Poland. The Package is planned to approve by the Council of Europe in 2009 spring, at the latest.

#### 4.2.2. The medium-term objectives by 2016

The most important challenge Poland has to meet is to achieve commitments under the Accession Treaty and the two aforementioned EU Directives. The LCP Directive provides that emissions from large combustion plants, capacity above 50 MWth, have already in 2008 be more than 454 thousand tonnes for SO<sub>2</sub>, and 254 thousand tonnes for NO<sub>x</sub>. These limit values in 2010 are 426 thousand tonnes for SO<sub>2</sub>, and 251 thousand tonnes for NO<sub>x</sub>, and in 2012 - 358 thousand tonnes for SO<sub>2</sub>, and 239 thousand tonnes for NO<sub>x</sub>.

Moreover, those are the limits extremely hardly achievable for coal or lignite fired combustion boilers even with application of flue gas desulphurisation facilities. The same concerns the limit values imposed by the CAFE Directive, as regards concentration of PM<sub>10</sub> and PM<sub>2.5</sub> fine particulate matter (i.e. 10 µm and 2.5 µm in diameter, respectively).

It is assumed that by 2016 emissions of the substances which deplete ozone layer will be totally eliminated by their phasing out from any applications and use in the national territory of Poland.

#### 4.2.3. Directions for action in 2009-2012

As results from the above description of the challenges facing Poland in the scope of the air protection against pollution, it is necessary to:

- reduce further the SO<sub>2</sub>, NO<sub>x</sub> and fine particulate matter emissions from energy generation processes that is the task particularly difficult for implementation because the structure of energy generation sector in Poland is based principally on coal combustion and it cannot be changed in a several-year horizon,
- adapt possibly soon a new Poland's Energy Policy by 2030 that includes mechanisms both stimulating energy saving and promoting development of renewable energy sources, since these two approaches can in the most radical way reduce emission of all environmental pollutants and are cost-effective and socially acceptable; Poland assumed commitment to keep the share of renewable energy sources in 2010 on the level not lesser than 7.5%, and 14% in 2020 (according to the European Commission, this share has not to be below 15%); Poland can only achieve these ambitious objectives when pursuing widespread promotion of the use of renewable energy sources and applying respective economic and organisational incentives to this end,
- the soonest possible modification of the energy generation system not only with regard to

the environment, but first of all to provision of electric energy supplies; since the duration of implementation of investments projects in energy sector is long-lasting, the decisions on modification of the energy generation units and entire power plants should be made by 2010; this is only possible if prompt privatisation of the energy sector and related high investment capital is provided for,

- undertake coal gasification efforts (including also subterranean gasification projects) and introduce the underground carbon dioxide storage technology; only if the full scale implementation of the aforementioned activity profiles is secured it would be possible for Poland to comply with its commitments assumed under the Directives mentioned above,
- develop and implement the rehabilitation programmes (by territorially competent Voivodship Marshalls) in 161 urban zones where the exceedance of the Directive CAFE limit values for PM10 and PM2.5 particulate matter is noted.

The self-governmental authorities are held responsible for implementation of these programmes consisting mainly in elimination of the low emission sources and reduction of particulate matter emissions from transportation means.

It is also planned that by 2010 the first intermodal transport railway transit line will be set up for road trucks crossing Poland on the East-West direction. High engine fuel prices cause that the railway transit has become cost-effective.

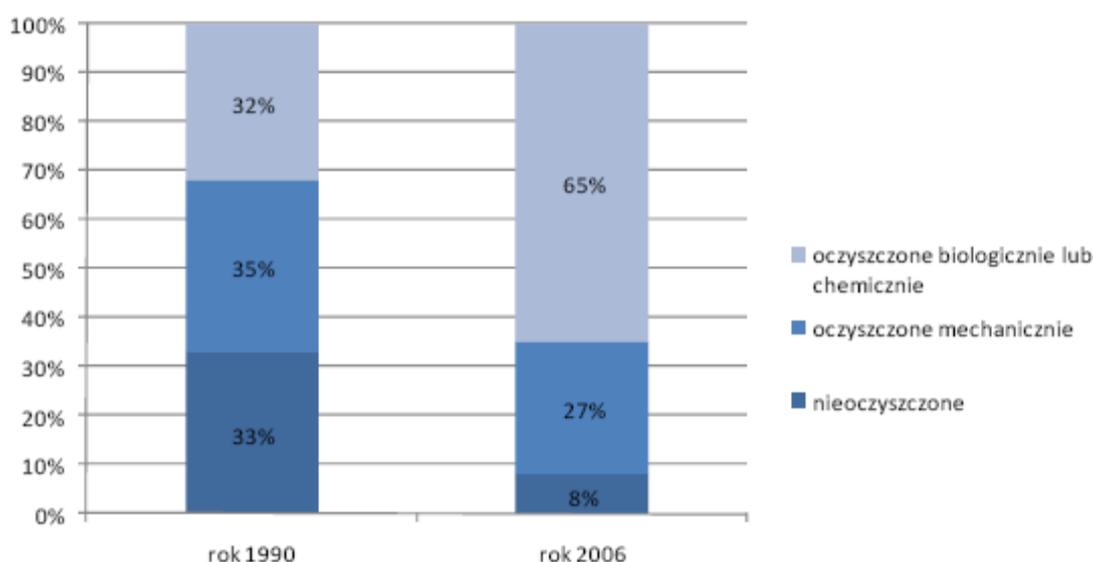
### **4.3. Water protection**

#### **4.3.1. The current status**

In Chapter 3, discussion concentrated, amongst others, on the need to rationalisation of water management in Poland, so as the likely water deficit for both the household and the economic purposes could be possibly avoided. It was stated there that water resources in Poland are scarce and therefore the activities guaranteeing high quality river and lake waters are mostly important. Unfortunately, in the Seventieths and the Eightieths, both the rapid national industrialisation pursued in disregard of the environmental protection principles and the prompt increase in the population number in urban and industrial districts led to dramatic deterioration of the state of inland surface waters and groundwater, and of the Baltic Sea marine waters.

W 1988, 420 cities in Poland had no waste water treatment plants or those were only mechanical-type ones. The same referred to the most industrial plants which discharged their untreated effluents directly into either rivers or existing waste water treatment plants, thus causing drastic reduction in the operational efficiency of the latter. Consequently, water in 35% of rivers was so heavily polluted that it did not fit even industrial purposes.

After the 1989-transformation, the restoration of water purity has become the highest priority in environmental sector. In 1990-2005, about 3,000 waste water treatment plants were constructed in Poland (including about 1,000 ones in urban areas and 2,000 in rural areas), all of them presenting high technology standard, including high operating efficiency.



**Figure 4.3.1. Municipal waste water treatment levels in 1990 and 2006**

(upper right = waste water treated biologically or chemically; only mechanically; and untreated; rok = year)

Figure 4.3.1 illustrates progress achieved in Poland during recent 17 years as regards the level of municipal waste water treatment. Currently, 86% of urban population and 22% of rural population benefit from the state-of-the-art waste water treatment plants. In 1995, this percentage was 65% and 3%, respectively.

Despite these unquestionable achievements the state of water purity is still far from its satisfactory level mainly because of nitric and phosphoric compounds contents and bacteriological pollution. Hence, „The National Programme for Municipal Waste Water Treatment” was prepared and consequently in June 2005 approved by the Council of Ministers. It includes detailed inventory of the agglomerations above 2000 population equivalent (or "pe", while one "population equivalent" is 100 gallons (380 l) of waste water per day, containing 0.17 pounds (77 g) of BOD5 (five day biochemical oxygen demand) and 0.20 pounds (91 g) of suspended solids) in which the waste water treatment plants and sewerage networks have to be constructed. This Programme was developed with the aim to implement effectively the commitments which the Republic of Poland assumed under the EU Accession Treaty. In accordance with these commitments all agglomerations with population equivalent above 2000 have to be by the end of 2015 provided with both the waste water treatment plants and the respectively widespread sewerage networks. Moreover, „The National Programme for Municipal Waste Water Treatment" will also include information on two other separate programmes, i.e.:

- the programme to provide municipal waste water treatment plants and combined sewerage systems to agglomerations below 2000 population equivalent,
- the programme to provide facilities securing compliance with water protection standards required in the Polish legal provisions to agricultural and food-processing industries size above 4000 population equivalent that discharge waste water directly into water bodies.

„The National Programme for Municipal Waste Water Treatment" includes also information on investment activities in the field of sewage sludge management in municipal waste water treatment plants. However, that document includes no detailed programme of conduct of sewage sludge as waste. These overall

activities have to be set out when implementing the objectives of the „National Waste Management Programme by 2010”.

In 2008, Poland for the first time designated the areas exposed to pollution by nitrates from agricultural sources in accordance with the Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive). These areas occupy currently 4630.47 km<sup>2</sup>, i.e. 1.49% of the national territory meaning a decline by 25% in relation to the previous planning period. New action programmes are developed for these areas, the implementation of which was began in 2008 and will be complete by 2012.

Implementation of the requirements in the Water Framework Directive is the utmost challenge for Poland in the field of water protection, since those provide the basis to achieve by the end of 2015 a good ecological and chemical state of surface waters, and a good chemical and quantitative status of groundwater. Preliminary identification of endangered single surface water and groundwater bodies being currently or potentially under risk of non-compliance with achievement of environmental targets in the Framework Water Directive was feasible in result of the analysis performed to this end.

#### 4.3.2. The medium-term objectives by 2016

By the end of 2015, i.e. on the completion of the National Programme for Construction of Waste Water Treatment Plants and Sewerage Networks in All Agglomerations above 2000 Population Equivalent, Poland should secure 75% reduction of the total nitrogen and phosphorus loads in municipal waste water. Achievement of this target will mean restoration of good state of surface waters and groundwater throughout the national territory and the implementation of the Baltic Action Programme on combating eutrophication of the Baltic Sea marine waters.

The supreme objective of Poland's environmental policy in the scope of water resource protection is to maintain or achieve a good state of all waters, including also preservation and restoration of the ecological continuity of watercourses. This long-term objective should be implemented by 2015 in a manner as provided in the Water Framework Directive for each individual Member State of the European Union. In the Polish legal framework, the Act on the Water Law is the relevant instrument to this end, pursuant to that the aforementioned objective will be implemented by means of preparation of the Water Management Plan for every separate river basin area in Poland, and the Polish National Water-Environmental Programme. These planning documents will include amongst others information on the activities to be undertaken by the end of 2012 in order to achieve the environmental objectives assumed. The Water Management Plans will be prepared by December 2009, and then those are to be, in accordance with the Act on the Water Law, approved by the Polish Council of Ministers.

#### 4.3.3. Directions for action in 2009-2012

The following clusters of activities have to be completed by the end of 2012:

- construct or modify waste water treatment plants provided with enhanced biogenic removal in all agglomerations above 15000 population equivalent, and expand sewerage networks for them while using the donation resources (for Priority I) from the „Infrastructure and Environment” Operational Programme,
- set up the activities provided for in both the Water Management Plans in river basin areas in Poland and in the Polish National Water-Environmental Programme,

- develop specific action programmes aimed at reduction of pollution caused by hazardous and priority substances which originate primarily from industrial sources,
- implement action programmes in the areas affected particularly by nitrates from agricultural sources,
- provide agricultural and food-processing industries with high-efficiency waste water treatment plants,
- provide the highest possible number of farms with liquid and farmyard manure storage tanks and pavements,
- establish protected areas for both the Major Groundwater Basins and the protective zones for groundwater intakes,
- develop the surface water and groundwater quality monitoring networks,
- cooperate tightly with the Baltic States on implementation of the protection programme for the Baltic Sea marine waters under the Helsinki Convention,
- implement in practice the most effective and economically cost-effective treatment methods for sewage sludge from large-size waste water treatment plants.

#### **4.4. Waste management**

##### 4.4.1. The current status

Unlike in case of the air and water protection against pollution, the progress in the field of rationalisation of waste management in Poland during recent 18 years is very sluggish and unsatisfactory. No efficient mechanism has been so far established for municipal waste management that would have provided for segregation and recovery of the majority of this type of waste. That is the reason why 91% of municipal waste is still being deposited on landfills. In 2006, 9.9 million tonnes municipal waste was collected including 9.5 million tonnes mixed waste. Just only 0.4 million tonnes undergoes segregation process in households. Only 0.35 million tonnes of the total waste collected mass was pre-selected in mechanical and biological type waste treatment plants, and the remainder (more than 9 million tonnes) was landfilled. This data prove the total ineffectiveness of currently pursued the organisational and technical methods for collection and recovery processes of municipal waste. Thus, the present system requires rapid and radical reform.

A slightly better but still unsatisfactory progress can be noted in the field of industrial waste management. Nevertheless, it is noteworthy that in 1990-2006, the mass of waste generated by industries in Poland decreased by 15% despite considerable increase in their production potential. In 1990, 46% of this waste mass was deposited on landfills, whereas in 2006 this percentage decreased to 23.6%, while the reminder has undergone recovery processes. In 2008, the Act on Extractive Wastes was adopted that transposed Directive 2006/21/EC into the Polish legal framework.

Among the bulk of industrial waste, the hazardous wastes being generated in chemical, metallurgical (heavy metals) and petroleum (petroleum derivative substances) processing industry branches are subject to special control. In 2006, the amount of 1.7 million tonnes of this type waste was generated, including 0.35 million tonnes, i.e. 20% deposited on company landfills. It has to be added, that the hazardous waste category includes also many usable hazardous products which must not be deposited on municipal waste landfills. Those are such products as waste batteries, accumulators,

transformers and capacitors, as well as worn out engine oils. This group includes also asbestos removed from roof covers, and outdated plant protection agents being stored for many years in so called burial grounds. Although certain progress was achieved in utilisation of this waste however the further improvement is required in its collection and disposal system.

The European Union issued as much as nine Directives in the field of waste management that have to be transposed into the Polish legal framework and implemented in practice. These are:

- Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste,
- Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC,
- Council Directive 91/689/EEC of 12 December 1991 on hazardous waste,
- Council Directive 1999/31/EC on the landfill of waste,
- Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste,
- European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste,
- Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment,
- Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC,
- Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles.

A lot of various commitments have to be met in of Poland, the most important of which are to:

- achieve in 2014 the minimum 60% recovery and 55% recycling levels of packaging waste,
- achieve in 2010 at least 25% recovery level of biodegradable waste so as they are not landfilled, and in 2013 - 50% recovery level of this waste,
- collect in 2012 25% of waste batteries and accumulators, and in 2016 - 45% of this waste. Besides, in the Accession Treaty the Republic of Poland assumed commitment to eliminate by 2012 all such waste landfills which do not comply with the requirements in Directive 99/31/EC.

Implementation of all these tasks has to lead to a radical improvement in waste management system in Poland, however rapid legal, educational, organisational and technology changes are first required to this end, as well as tight cooperation between the Government of the Republic of Poland and the self-governmental administrations.

#### 4.4.2. The medium-term objectives by 2016

The medium-term objectives concerning waste management are:

- uphold the current tendency towards decoupling the quantities of waste generated from the national economic growth (less waste per product unit, reduced packaging, longer product life cycles, etc.),
- increase considerably the energy recovery from municipal waste in a manner environmentally safe,
- close all landfills which do not conform to the EU standards and provide for land reclamation after elimination of these landfills,
- make inventory of closed and abandoned extractive waste landfills including identification of the sites having significant environmental impacts (obligation under Directive 2006/21/EC and the Act of 10 July 2008 on the extractive waste (Official Journal No. 138, Item 865)),
- eliminate deposition on landfills of waste electrical and electronic equipment and waste batteries and accumulators,
- complete organisation of the national system for collecting vehicle scrap and dismantling end-of life vehicles,
- organise the pre-selection, sorting and recovery system for municipal waste so that no more than 50% of waste produced in household are landfilled.

#### 4.4.3. Directions for action in 2009-2012

In order to achieve the medium-term objectives the following activities are to be done in 2009-2012:

- organise database on wastes (by the end of 2009),
- reform the present municipal waste collection and recovery system in municipalities so as to confer the more power on the self-governmental bodies to manage and control this system (by the end of 2009),
- increase the charge rates for deposition of biodegradable waste mixed with recoverable waste,
- provide financial support with the Environmental Funds resources to investments in waste recovery and recycling processes, as well as support implementation of new technology to this end,
- adapt waste landfills to the compliance with the EU standards (by the end of 2009),
- introduce the solutions which can improve efficiency of the end-of life vehicles recycling system,
- provide financial support with the Environmental Funds resources to modify technology leading to reduction in the quantity of waste per unit production (low-waste technology),
- implement projects for reduction of the quantity of municipal waste landfilled and enhance the share of municipal waste subject to recovery and disposal processes, as supported with donations under the „Infrastructure and Environment” Operational Programme,
- intensify environmental education promoting the minimisation of waste generation processes (e.g. packaging, plastic bags) and the pre-selection of waste in households,
- strengthen inspections managed by the Environmental Protection Inspectorate at the entities receiving waste from its producers, and the entities managing installations for waste recovery and disposal,

- finalise elimination of the burial grounds containing outdated plant protection agents and other hazardous waste, as well as phase out PCBs from transformers and capacitors (by the end of 2010).

Pursuant to the requirements in the Act on Wastes, the National Waste Management Plan has to be prepared each four years, as followed by preparation of the respective Voivodship (i.e. Provincial) Waste Management Plan. The current Plan in force was approved by the Council of Ministers in 2006, thus preparation of new updated Plan will be required in 2010, to include detailed guidelines for reforming waste management system in Poland, in order to achieve essential progress as required by the European Union law.

#### **4.5. Noise and electromagnetic field impacts**

##### 4.5.1. The current status

Excessive noise is one of the most arduous environmental pollutants in both the urban areas and alongside the communication routes. Following the assessments made, in Poland, about 13 million individuals, i.e. 35% of the total national population is exposed to excessive noise level in the day time (60 dB limit value) and in the night-time (50 dB limit value). More than 80% of this arduousness relate to noise impacts from public roads. Recently, due to dynamic development of the air transport also exposition to aviation noise has continuously increased.

The Polish law was in 2005 harmonised with the Community law through implementation to the Act on Environmental Protection Law of the provisions in Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise.

Also, new methods for assessment of acoustic climate were implemented and the reference methods for measuring environmental noise described. Nevertheless, it has to be stated that no sufficiently significant importance has been so far attributed to noise which as the environmental pollutant has to be attributed to. That is the reason why a complete set of acoustic maps is not available that have to be produced for use by self-governmental authorities, and this could even lead to unfeasibility of implementation of environmental protection programmes against noise. Noise monitoring in urban areas and alongside the public roads also leaves much to be done.

Likewise in case of noise, also the protection against electromagnetic fields impacts is a neglected sector. Emissions of these fields have significantly increased since several years in line with development of cellular telephony networks and construction of new power transmission lines for voltage above 110 KV. The Regulation Minister of the Environment of 30 October 2003 on the permissible levels of electromagnetic fields and the method for verification of the compliance with these levels provided for essential progress in this sector. Establishment of the monitoring system for electromagnetic fields in the framework of Environmental Protection Inspectorate dates from that time and the respective measuring equipment was purchased to this end as required.

##### 4.5.2. The medium-term objectives by 2016

The medium-term objective in the scope of protection against noise is to perform the reliable

assessment of the population's exposure to excessive noise, and also to undertake efforts aimed at reducing this hazard where necessary, i.e. in the areas where its intensity is the highest.

Similar is also the objective regarding protection of the general public against excessive impact from electromagnetic fields.

#### 4.5.3. Directions for action in 2009-2012

The activities aimed at the protection of the general public against excessive noise impact fall in the self-governmental authorities' competence. There is an urgent need to produce the acoustic maps for cities above 100 thousand population and for the national roads and airfields, as well as to develop the resultant noise protection programmes, referring to specific technical and organisational projects to reduce the noise level where these are excessive. Extremely important is to eliminate the noise sources by means of establishment of traffic free zones, limitation of its intensity, replacement of tram stocks by less noisy ones, and also implementation of acoustic sound absorbing baffles. The use of physical planning methods is also essential for separation of potential noise sources from residential areas. Development of the respective noise monitoring system is also necessary.

As for the protection from electromagnetic fields impact, it needs that a reference laboratory for measuring the intensity levels of such fields be established within organisational structure of the Environmental Protection Inspectorate, and that training of the measurement specialists be managed, as well as the respective procedures prepared at Ministry of the Environment that will provide for safe location of the electromagnetic fields sources. It is also essential that operators of cellular telephony networks be made obliged to report to competent environmental protection authorities on their installations being the radiation sources.

### **4.6. Chemicals in the environment**

#### 4.6.1. The current status

Contemporary civilisation cannot perform without using hundreds thousand chemical substances, the presence of which cannot be even perceived, including all industrial products, foodstuffs and pharmaceuticals. There is no domain of human life that could apply no chemical preparations. Chemical industry is currently not only an important component, but also a driving force of economic and civilisation progress. However, chemical substances often cause also dangerous impacts to human health because of their toxicity in many instances. It is then obvious that the most countries, including Poland, have for many years pursued respective legal acts to provide for safe production of chemical substances and placing them on the market, and also phasing them out therefrom. On 1 June 2007, the European Union issued the REACH Regulation, which secures that all the issues which pertain to the production conditions of chemical substances and placing them on the market be regulated in a single comprehensive legal act. The primary objective of the REACH Regulation is to protect human health and the environment against chemicals, encourage to introducing new more safe substances, enhance transparency of placing them on the market, and reduce to minimum the use of vertebrate animals for testing chemical substances.

The burden of responsibility for the risk assessment and testing each new substance has been

shifted from the administrative authorities to the manufacturers of chemicals. Their producers and importers are made obliged to register their substances, and information on the risk being posed by specific chemicals must be available throughout their whole supply chain.

In 2008, Ministry of Health prepared and forwarded to the Parliament the draft Proposal for the Act on amendments in the Act on chemical substances and preparations and amending certain other Acts. The Proposal is aimed at adaptation of the Polish law in force to the requirements included in the REACH Regulation.

Besides, in 2005 Poland acceded to the Rotterdam Convention done on 10 September 1998, on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade. The Convention provides for the opportunity to control imports and exports of chemicals or pesticides banned or subject to stringent restrictions.

#### 4.6.2. The medium-term objectives by 2016

The medium-term objective of environmental policy in the field of chemicals is to establish an effective surveillance system of chemical substances permitted to placing on the market in conformity to the principles included in the REACH Regulation.

#### 4.6.3 Directions for action in 2009-2012

Once passed by the Parliament, the Act on chemical substances and preparations and amending certain other Acts will provide the basis for the major task, i.e. preparation of its respective administrative Regulations aimed at complete implementation of the provisions in both the REACH Regulation and other respective Community laws into the Polish legal framework. Also, the national programmes will be continued to remove PCBs from transformers, capacitors and other equipment containing these compounds, and to provide for their decontamination, and to dispose of asbestos and eliminate the burial grounds.

It is necessary to provide training courses on both the responsible use of chemicals and the conduct of their waste, and to support financially with the Environmental Funds' resources and promote the products made of biodegradable substances (e.g. shopping bags and non-reusable tableware).

Essential is also to participate to the activities being carried out by the European Chemicals Agency (ECHA), and to ratify the Stockholm Convention on Persistent Organic Pollutants (POPs).

## **CHAPTER 5**

### **THE EXPENSES FOR IMPLEMENTATION OF ENVIRONMENTAL POLICY**

Complete implementation of the objectives of the National Environmental Policy as approved for 2009-2012 and the following four years will require that respectively high expenses have to be incurred.

It is estimated that the outlays required to comply with the tasks set out in this National

Environmental Policy for 2009-2012 will amount to 66.2 billion PLN (2007 prices), and for 2013-2016 - 63.5 billion PLN (2007 prices). Following the data provided by the Central Statistical Office on the current investment level in environmentally sound projects, given the mean annual investment expenses being incurred in the recent years (current prices) for environmental protection and water management projects, a slight upward trend can be noted falling in the range between 6.4 billion PLN in 2002 and 8.9 billion PLN in 2006, and up to 9.8 billion PLN in 2007. However, if the environmental policy objectives, as referred to in this Policy, are to be implemented, then the expenses necessary to secure this implementation will require the further considerable rise in the annual outlays for environmental protection and water management projects during forthcoming 8 years.

The high environmental cost estimates required to incur by 2016 result first of all on the grounds of the commitments assumed by the Republic of Poland in the Accession Treaty. It is estimated that more than 80% of the financial resources demand for implementation of the environmental objectives result just from the need to implement the Accession Treaty, while the estimated expenses required thereto will amount to 54.3 billion PLN (2007 prices) in 2009-2012 and 52,8 billion PLN (2007 prices) in 2013-2016.

It is envisaged that outlays (2007 prices) required for implementation of environmental objectives in 2009-2012, with regard to specific environmental investment clusters, will be following:

- protection of the atmospheric air - 19.3 billion PLN,
- water protection and water management - 36.1 billion PLN,
- waste management - 6.7 billion PLN,
- various environmental objectives, such as projects in the field of protection against noise and electromagnetic fields impacts, land protection, nature conservation, protection of biological diversity and landscape, environmental research and development, environmental monitoring and other sectors of environmental protection (major accidents, chemicals, biotechnology and GMOs, ionising radiation) - 4.1 billion PLN.

It is estimated that the structure of environmental outlays in 2009-2012, by their origination source, will be following:

Source of origination	Outlays [%]	Estimated amount [billion PLN]	
		Total	Including for implementation of the accession commitments
Private resources	43	28.3	28.3
Public resources. including:	57	37.9	26.0

• self-governmental resources	11	7.1	1.0
• resources of the National Fund for Environmental Protection and Water Management and the respective Voivodship Funds	21	13.8	11.0
• State Budget	5	3.5	0.5
• Foreign resources *	20	13.5	13.5

\* The resources under the European Union assistance funds and the Financial Mechanism of the European Economic Area, the Norwegian Financial Mechanism, the Swiss Instrument, and from other bilateral assistance sources

If referred to the 2013-2016 time-horizon, It is estimated that outlays for environmental investments (2007 prices) as required to achieve the objectives of in this period, with regard to specific environmental investment clusters, will be following:

- protection of the atmospheric air - 21.3 billion PLN,
- water protection and water management - 34.4 billion PLN,
- waste management - 4.6 billion PLN.

The outlays for other objectives of environmental policy are estimated at 3.2 billion PLN in the aforementioned period.

It is estimated that the structure of environmental outlays in 2013-2016, by their origination source, will be following:

Source of origination	Outlays [%]	Estimated amount [billion PLN]	
		Total	Including for implementation of the accession commitments
Private resources	45	28.4	28.4
Public resources, including:	55	35.1	24.4
• self-governmental resources	7	4.4	0.6
• resources of the National Fund for Environmental Protection and Water Management and the respective Voivodship Funds	24	15.0	12.1
• State Budget	7	4.6	0.6
• Foreign resources *	17	11.1	11.1

\*The resources under the European Union assistance funds and the Financial Mechanism of the European Economic Area, the Norwegian Financial Mechanism, the Swiss Instrument, and from other bilateral assistance sources

Detailed data presented above on the outlays required to implement environmental policy indicate that in both periods discussed here, i.e. in the forthcoming years, by 2012, and in the 2016 outlook, the

major investment focus will concern the projects which pertain to the basic environmental branches, including water protection and water management, air protection against pollution, and waste management. Throughout these periods this Environmental Policy refers to, the level of expenses for financing environmental research and development activities and implementation of industrial eco-innovations that will be conditional for implementation of environmental policy should be increased since the projects being undertaken in this field have shown considerable underinvestment. The same refers to the expenses for environmental education and provision of access to environmental information on the environment that facilitate active involvement of the general public into activities aimed at implementation of the objectives of environmental policy.

Moreover, the quantitative data presented in the tables above shows that the investors' own resources will provide the basic funding sources in both the 2009-2012 period and in the further time-horizon by 2016. This concerns not only the sole private companies but also the municipal and self-governmental entities which bear the responsibilities for implementation of the Community requirements in, amongst others, water and sewage and also waste management sectors.

In the period by 2016, the environmentally sound projects will to far extent benefit also from donations in the framework of the national system of Environmental Funds that in case of the operators must additionally adhere to both the principles and ceilings of the permissible public assistance, as set forth in the Community legal provisions. After Poland's accession to the European Union the opportunities to use the foreign funds which in the period of 2009-2012 will play significant role in financing the protection of the environment, and perform the "financial leverage" function, i.e. will mobilise both the national public resources and own resources of the project implementing entities, have considerably grown.

It is also noteworthy that the system to finance environmental projects nationally in 2009-2016, while based upon resources being provided by the National Fund for Environmental Protection and Water Management and its respective Voivodship (i.e. Provincial) Funds for Environmental Protection and Water Management, will be yet supplemented by the support to be provided with the Eco-Fund, Environmental Protection Bank Inc., and commercial banks resources. In Poland, only the Environmental Protection Bank Inc. has so far specialised in servicing environmentally sound projects. However, it is estimated that the scale of the needs in this regard is merely big and it has been continuously growing. So, that proves the high potential existing to stimulate development of banking sector in this field. However if the companies and the self-governmental entities might use this potential, then the banking sector will have to seek for the relevant projects more actively and assist the investors in both the so called „financial montage” and that their project applications be prepared in a professional manner.