# policy studies

*#10*

## Ukraine's environmental policy

*Ukrainian environmental legislation, though broad in scope, is largely declaratory in nature and lacks adequate enforcement mechanisms. Environmental procedures developed in Ukraine are not sufficiently transparent and provide little opportunity for the public to get involved in environmental decision making. However, they are anticipated to incorporate eventually applicable international experience.*

*march 2000*

*international centre for policy studies*

# Contents

# Ukraine's environmental policy[1]

*Iryna PIONTKIVSKA, Nadia SOSONKINA, Alisa SYVALNIEVA*

***Since 1991, in response to significant environmental deterioration, particularly due to the Chornobyl disaster, much effort has been concentrated on developing Ukraine's environmental policy. Although the scope of Ukrainian environmental legislation is broad, covering most areas of environmental protection and natural resource management, it is largely declaratory in nature and lacks adequate enforcement mechanisms. Environmental procedures developed in Ukraine are not sufficiently transparent and provide little opportunity for the public to get involved in environmental decision making. However, they are anticipated to incorporate eventually applicable international experience. Recent changes in environmental government bodies will contribute to improving the overall effectiveness of environmental and resource management, thanks to centralised strategic planning coupled with decentralised enforcement.***

## Objectives of environmental policy in Ukraine

*The main objectives of the environmental policy in Ukraine are to provide people with a healthy environment, and to promote economic development without causing damage to nature.*

Over seventy years of subordination in a command economy led to irrational resource use and sustained energy-intensive technological processes in Ukraine, which generated practically one-fourth of the Soviet Union's GDP. With the lack of competitive markets resources were wasted, modernisation was put off, and very little in investment funds were allocated through the planning system to install or upgrade pollution control. As a result, there is serious degradation of the overall environment in Ukraine.

Environmental policy was initiated in Ukraine when economic and political reforms were launched in the country in 1991. The main objectives of the national environmental policy in Ukraine are:

- to provide people with a healthy environment and with

[1] This report on Ukraine's environmental policy was prepared in February 2000 by the International Centre for Policy Studies for the Japan Association for Trade with Russia and Central-Eastern Europe (ROTOBO). We are grateful to ROTOBO for their kind permission to publish the report. We are also thankful to Anton Krawchenko for his valuable comments and suggestions.

natural resources necessary to promote economic development without causing damage to nature, and to preserve the diversity of landscapes and biodiversity, while taking into account economic development, transforming these approaches into a sustainable development strategy; and

- to harmonise and integrate national environmental policy into world policy processes in general, and the European policy process in particular.

Ukraine's environmental action plan is laid out in a document entitled "Principal Directions of Ukraine's State Policy on Environmental Protection, Use of Natural Resources, and Ensuring Environmental Safety". This document was adopted by the Verkhovna Rada of Ukraine on March 5, 1998. It defines the following priorities of environmental policy in Ukraine:

- to create a balanced system of resource use, promote clean technologies, and raise environmental awareness;
- to provide air quality management in regions with intensive industrial development (mainly southeastern Ukraine, around the Dnipro river and in the Donetsk region);
- to improve the condition of the Dnipro River basin and quality of drinking water;
- to improve treatment of municipal sewage and wastewater;
- to prevent pollution of the Black Sea and the Sea of Azov, and improve the conditions of their ecosystems;
- to preserve landscape diversity and biodiversity;
- to ensure radiation safety, radioactive protection of the population and the environment, and minimise the effects of the Chornobyl disaster.

## The natural environment in Ukraine

*The most serious environmental threats to human health in Ukraine are air, water, and land pollution, solid wastes, ra-dioactive contamination, and degradation of ecosystems.*

Ukraine suffers from the legacy of many environmental problems caused by the Soviet planned economy, when natural resources were significantly underpriced. Although industrial production has declined since 1990, this decline has not translated into an expected equivalent reduction in anthro-

pogenic pressure on the environment. In our opinion, the most serious environmental threats to human health in Ukraine are air, water, and land pollution, solid wastes, radioactive contamination, and degradation of ecosystems.

## *Air pollution*

Hundreds of chemical compounds and substances contribute to air pollution in Ukraine, although fifteen of them are subject to air quality control. According to Ukrainian ambient standards, the most widespread and harmful pollutants are total suspended particles (TSP), sulphur dioxide, carbon oxides, nitrogen oxides, hydrogen sulphide, benz[a]pyrene, phenol, ammonia, and formaldehyde. National reports on the state of the environment inform that the concentrations of these compounds exceed ambient standards (maximum permitted levels) by several times in most urban territories of Ukraine, making air pollution one of the most significant problems of urban communities.

### *Air emissions from stationary pollution sources, by main sectors of the economy in 1997–1998*

| Branches of the economy | 1997 | 1998 | 1998 | Change in 1998 on 1997 | |
|---|---|---|---|---|---|
| | Thousand (K tons) | | % of total emissions | K tons | % |
| Total | 4531.8 | 4156.3 | 100.0 | -375.5 | -8.3 |
| Agriculture | 12.1 | 9.4 | 0.2 | -2.7 | -22.3 |
| Extraction industry | 1194.0 | 1047.0 | 25.2 | -147.0 | -12.3 |
| Manufacturing | 1624.1 | 1488.0 | 35.8 | -136.1 | -8.4 |
| Power | 1464.7 | 1376.5 | 33.1 | -88.2 | -6.0 |
| Construction | 39.9 | 46.9 | 1.1 | 7.0 | 17.5 |

*Source: Ministry of the Environment and Natural Resources*

According to the National Report on the State of Environment (1998), the most hazardous air conditions are in the southeastern region of Ukraine, which includes Dnipropetrovsk, Donetsk, Zaporizhia, and Luhansk oblasts. It is the region where intensive ferrous metallurgy, coal mining and dressing, power generation, and machine-building industries are located. In addition, a large number of thermal

power plants were put in operation here. Technologies of the industrial sector are outdated and do not meet modern technical and environmental requirements. This region has the highest male death rate, the lowest female fertility, and the lowest life expectancy in Ukraine.

Transition to a market economy has stimulated new consumption patterns. For example, the use of private motor vehicles has increased sharply, making motor vehicles the second-largest source of air pollution across the country, and the first-largest source of pollution in some large cities. Thus, in 22 large cities of Ukraine, including Kyiv, Kharkiv, Sevastopol, Odesa, Zhytomyr, and Vinnytsia, transportation contributes 60–90% of pollution emissions into the atmosphere.

## *Cities of Ukraine with the highest air pollutant emissions, 1998*

| Rank | City | Emissions of pollutants | |
|---|---|---|---|
| | | Thousand tons | Percentage of total emissions in Ukraine, % |
| 1 | Kryvyi Rih (Dnipropetrovsk oblast) | 419.5 | 10.1 |
| 2 | Mariupol (Donetsk oblast) | 324.5 | 7.8 |
| 3 | Donetsk | 208.6 | 5.0 |
| 4 | Zaporizhia | 137.8 | 3.3 |
| 5 | Dniprodzerzhynsk (Dnipropetrovsk oblast) | 122.1 | 2.9 |
| 6 | Dnipropetrovsk | 122.1 | 2.9 |
| 7 | Yenakiive (Donetsk oblast) | 106.1 | 2.6 |
| 8 | Luhansk | 96.3 | 2.3 |

*Source: Ministry of the Environment and Natural Resources*

According to the Ministry of Transportation, transport contributes to about 31% of total pollutant emissions in the country. However, since the official statistics do not include private vehicles, this figure tends to be understated. In addition to large amounts of such emitted toxic compounds as

carbon oxides (54%), hydrocarbons (36%), and nitrogen oxides (25%), transportation is a source of lead contamination, due to the use of leaded petrol. About two-thirds (63%) of the total lead contamination in the country is emitted by motor vehicles (National Report on the State of the Environment in Ukraine, 1998).

## *Water contamination*

Relative to other European countries, Ukraine has scarce water resources. It gets about 570 cubic meters of surface runoff per capita annually, compared to 1,700 cubic meters in Poland, 3,500 cubic meters in France, and 6,800 cubic meters in the United States. The water resources in Ukraine have uneven geographical distribution and seasonal changes in quantity. Moreover, the economy tends to use the existing resources inefficiently and to discharge excessive pollution. Hence, the availability of clean drinking water is a major problem in all cities and the majority of villages in Ukraine.

Use of water for industrial consumption purposes has been decreasing, related to the decline in industrial production in the country. However, the distribution of water consumption between sectors remains constant: the major consumer is still industry, followed by agriculture and the household sector. Sewage and wastewater treatment is a serious problem, due to the lack of efficient technologies for treating industrial and municipal wastewater. The percentage of contaminated sewage water in total sewage water is greatest in the housing and municipal services sector (62%). On average, 8% of the total water used is discharged untreated, which causes chemical and bacteriological contamination of surface water.

## *Industrial water intake and discharge in Ukraine, 1990-1998*

| | 1990 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|
| Total water intake from natural water bodies, $km^3$ | 35.6 | 24.4 | 20.9 | 25.8 | 23.5 | 21.1 | 19.0 |
| Discharge of waste water to surface waters, $km^3$ | 20.3 | 16.7 | 15.9 | 15.0 | 14.0 | 12.5 | 11.0 |
| Contaminated water discharge | 3.2 | 4.7 | 4.9 | 4.7 | 4.1 | 4.2 | 4.2 |

*Source: State Statistics Committee of Ukraine*

The main source of drinking water for the northern, central, and eastern regions of Ukraine is the Dnipro River and its watershed. Consequently, the ecosystem of the Dnipro undergoes heavy over-use. In addition, the condition of the Dnipro River condition is worsened by the regulation of the river—today, the Ukrainian section of the Dnipro is actually a cascade of six water reservoirs—which has led to eutrophication and erosion. Out of the 3,079 kilometres of reservoir shoreline, 36% are subject to erosion, as a result of which 6,176 hectares of land have been lost and 337 million cubic meters of erosion products have gone into the river during the last 35 years.

The decline in flow turbulence is another negative impact of the construction of hydroelectric power stations on the Dnipro River. Declining flow turbulence results in changes of the temperature regime in the river, and impairs water quality. Biological species living in the river suffer as a result, affecting fisheries.

Black Sea pollution is no less an important environmental problem for Ukraine, as well as for other countries of the region. Experts believe that the Black Sea ecosystem is the most polluted marine ecosystem in the world. It is an enclosed marine system; consequently, heavy nutrient flows and other discharges from rivers feeding into it, as well as industrial and municipal discharges from coastal cities, pollution from heavy shipping traffic, and illegal dumping of hazardous waste accumulate in the Black Sea.

Rising levels of accumulated pollutants have resulted in the Black Sea losing its biological and economic value. During last decade, fishery yields have dropped from one million tons per year to a few thousand tons per year. In addition, the number of species have declined.

## *Land contamination*

Current land resource usage in Ukraine does not meet the requirements of effective natural resources management. Ecologically admissible ratios of arable land, natural pasturelands, and forested areas are unbalanced, which has a negative impact on the stability of the agricultural landscape. The tilled area is the biggest in the world, and has reached 56% of the country's territory and 80% of its agricultural land. Inefficient agriculture has led to a decrease in soil fertility due to its over-consolidation, to the loss of lumpy-granular structure, water permeability, and aeration capacities, all with negative environmental implications.

The quality of the soil is deteriorating. Presently, 14.8% of the total irrigation area is eroded, and more than 4% of the area is saline-soil and salted. In the 20 years from 1961 to 1981, the average content of humus in the soil of Ukraine diminished from 3.5% to 3.2%. Every year, 11 million tons of humus, 0.5 million tons of nitrogen, 0.4 million tons of phosphorus, and 7 million tons of potassium are washed off with soil.

Substantial environmental damage to land resources is inflicted by pollution from industrial effluents (heavy metals, acid rain, etc.), as well as the use of toxic compounds (mineral fertilisers and pesticides) in the agricultural sector. Over 40% of all organic substances produced at large cattle-breeding complexes and poultry farms contribute to environmental pollution, instead of being used as potential organic fertiliser.

## *Solid wastes*

Industrial production, which constitutes one-third of the Ukrainian economy, lacks efficient waste treatment technologies. As a result, a great amount of industrial waste is produced annually and is accumulated without treatment. According to national statistics, 84 million tons of toxic industrial wastes were produced by industry in 1998 (State Statistics Committee, 1999). Slag collectors and dumps cover 160,000 hectares, which is 0.27% of the total area of Ukraine (compare 2.6% of total area covered by protected lands).

### *Generation of toxic waste by industrial enterprises, ranked by hazard and payment norms for waste allocation*

| | 1995 | 1996 | 1997 | 1998 | Payments per ton |
|---|---|---|---|---|---|
| | Thousand tons | | | | UAH ($) |
| Total | 129,645.6 | 135,158.6 | 91,796.0 | 84,032.7 | — |
| level I | 25.5 | 30.1 | 28.7 | 18.7 | 55 (9.89) |
| level II | 524.7 | 605.7 | 923.6 | 183.2 | 2 (0.36) |
| level III | 3,012.7 | 2,515.1 | 2,209.1 | 2,252.2 | 0.5 (0.09) |
| level IV | 126,082.4 | 132,007.7 | 88,634.6 | 81578.6 | 0.2 (0.04) |

*Source: State Statistics Committee of Ukraine*

The accumulation of municipal wastes is another big problem in Ukraine, specifically in Ukrainian urban areas. In the Soviet era, dumping was the only method of disposing of municipal waste. The situation has not changed radically since that time, even taking into account the construction of garbage-disposal plants in several big cities. Ukrainian dumpsites do not meet EU environmental standards. Almost 80% of urban dumping grounds have no measures in place to prevent air pollution or ground water contamination, jeopardising the health of the population.

### *Handling of toxic waste of all hazard levels in 1998*

| | Thousand tons | % |
|---|---|---|
| Total toxic waste generation, incl: | 84,032.7 | 100.0 |
| Used wastes | 19,387.2 | 23.1 |
| Disposed wastes | 1,585.6 | 1.9 |
| Accumulated in regulated places | 56,028.2 | 66.7 |
| Accumulated in unregulated places | 4,108.0 | 4.9 |

*Source: State Statistics Committee of Ukraine*

Factors hindering effective waste disposal are:

- The lack of properly organised collection (delivery) and disposal (burying) of toxic industrial waste.
- The lack of incentives for enterprises to solve their environmental problems independently.
- The lack of monitoring or control over municipal waste and sewage water treatment.
- The lack of a system of municipal waste management, including sorting and recycling/reuse.

## *Radioactive contamination*

The Chornobyl nuclear power plant disaster of 1986 remains the most notorious and tragic symbol of Ukrainian environmental degradation. Radioactive contamination is spread over substantial areas across Ukraine, causing technical, ecological, political, and social problems. By 1993, 127,000 per-

sons were evacuated in Ukraine, and over 1 million people (1.9% of the 1994 population) lived in areas contaminated by cesium. Cleanup and relocation costs, along with the value of lost power and farmland, agricultural production, and water supplies, have been estimated at $250 billion.

Nuclear power plants currently operating in Ukraine undermine the country's environmental safety. Radioactive wastes are accumulated mainly at the stations, where they undergo primary reprocessing and temporary storage. The power plants do not have a complete cycle of primary reprocessing of wastes, which leads to inefficient use of underground storage and increases the risk of radionuclide contamination.

Enterprises for the mining and dressing of uranium ore are located in Dnipropetrovsk, Mykolaiv, and Kirovohrad oblasts. Wastes from uranium processing contain natural uranium, thorium-232, and by-products of the breakdown of uranium and thorium, including the radioactive gas radon. The main environmental risks from the uranium industry come from the large amount of mining and processing residues and the radioactive materials that are part of residues, thus contributing to radioactive contamination.

## *Ecosystems and biodiversity*

In Ukraine, whole ecosystems rather than individual species are threatened with extinction, due to the negative impacts of air and water pollution, and radioactive contamination.

To preserve ecosystems, the Ukrainian government established protected reserves and parks. Protected reserves and parks in Ukraine currently represent 2.6 percent of the total area of the country, including the Carpathians (unique beech forests), Askania-Nova (steppe region), and the Danube Delta and other wetlands of the Black Sea.

These unique ecosystems are protected from irrational use, however they are still subject to air and water pollution that is spread over the whole territory of Ukraine. Industrial emissions of pollutants diminish the natural resistance and self-regulation capacity of the ecosystems. Great nuclear damage was sustained by natural ecosystems (especially the forest ecosystems of the Polissia–Woodlands) by the Chornobyl disaster. The famous Ukrainian steppe ecosystems are now practically a myth, as well as the marshlands of Polissia. The forest ecosystems of the Carpathian Mountains have become

degraded because of extensive approaches to forest management.

Compared to some other European countries, Ukraine has a rich biological diversity due to its large territory and favourable climate. However, preserving that diversity is of special concern, and a necessary measure to avert the loss of productivity due to the failure of ecosystems.

## Addressing environmental problems: on the way to the European Union

*The basic principles of the national environmental policy are similar to those of EU countries. With regard to the task of harmonising Ukrainian and European legislation, the explicit set of principles should underlie environmental decision-making in Ukraine.*

The basic principles of the national environmental policy in Ukraine are confirmed by the Constitution of Ukraine (1996) and incorporated into various environmental legislation adopted in 1991–98. These principles are similar to those of EU countries and Central and Eastern European countries that are integrating into Europe. With regard to the task of harmonising Ukrainian and European legislation, set out in the Co-operation and Partnership Agreement between Ukraine and the European Union (enacted in 1998), the following principles should underlie environmental decision-making in Ukraine:

**PRECAUTIONARY OR PREVENTION PRINCIPLE.** In most of cases, environmental damage recovery costs are higher than those for damage prevention. Therefore, prevention is a more rational technique than attempts to solve a problem after it has occurred. Precautionary principle implementation must be based on environmental expertise and environmental monitoring, since among the actions of monitoring is analysing and forecasting environmental conditions. Presently, environmental policy in Ukraine does not incorporate these procedures in a full scale.

**"POLLUTER/USER PAYS" PRINCIPLE.** This principle has been implemented in Ukraine since 1991. However, social and economic losses due to pollution or inefficient use of resources are only partly covered by polluters/users. Polluters covers the costs of waste treatment and/or emission mitigation, but the payments for resource use are not adjusted for risks of inefficient use.

**USE OF BEST AVAILABLE TECHNOLOGIES NOT ENTAILING EXCESSIVE COSTS.** Due to lack of funding, this principle remains a declarative one and is rarely applied.

**EFFICIENT USE OF NATURAL RESOURCES.** This principle maintains that resource use must ensure a balance between environmental and economic development. The approach when use of natural resources should be guided by the rules of inter-generational economic efficiency is rather new for Ukraine, and has not been properly implemented yet.

**PARTNERSHIP AND SHARING OF RESPONSIBILITIES.** This principle is at the end of the list cited in the 1991 Law of Ukraine "On environmental protection". Meanwhile, it should be of crucial importance, since doubling responsibilities and lack of co-operation between administrative bodies is a serious obstacle to the successful implementation of environmental policy.

**FREE ACCESS TO ENVIRONMENTAL INFORMATION.** This principle is aimed at developing mechanisms of public participation in decision-making processes, and involving people in the formulation of environmental protection policies. The implementation of this principle is laid out in the 1995 Law of Ukraine "On ecological expertise".

**ENVIRONMENTAL LIABILITY PRINCIPLE.** This principle requires establishing responsibility for any infringement of environmental law. The principle has been applied broadly in the framework environmental laws in Ukraine.

# Environmental legislation in Ukraine

Since 1991, in response to significant environmental deterioration, particularly due to the Chornobyl disaster, Ukraine has been developing environmental legislation at the local, regional and national levels. Ukraine's environmental legislation is mostly oriented towards mitigating the effects of natural disasters and negative externalities from the use of technology, particularly those externalities which harm the country's economic potential.

The scope of Ukrainian environmental legislation is broad, covering most areas of environmental protection and natural resource management. Moreover, Ukraine has joined many international agreements on global environmental issues. However, Ukrainian environmental legislation is largely declaratory in nature; it lacks adequate subordinate legislation (regulations, guidelines, bylaws, etc.), which constitute the essential enforcement mechanisms for environmental statutes and international agreements.

*The scope of Ukrainian environmental legislation is broad, covering most areas of environmental protection and natural resource management. However, Ukrainian environmental legislation is largely declaratory in nature; it lacks adequate subordinate legislation, which constitute the essential enforcement mechanisms.*

## *Principles of environmental legislation in Ukraine*

Environmental legislation in Ukraine has developed according to principles set down in the Constitution of Ukraine (1996). The Constitution proclaims the rights of citizens to life, safety, a healthy environment, public health services, medical aid and medical insurance, as well as the right to use natural resources as defined by law (Articles 13, 49, and 50 of the Constitution). In addition, citizens are obliged not to harm the environment, nor to damage cultural heritage sites, and to provide compensation for damage if the latter occurs (Article 66). The state guarantees environmental safety on the territory of Ukraine, and promises to overcome the consequences of the Chornobyl disaster and to preserve Ukraine's genetic heritage (lit., "gene fund"; Article 16).

With regard to environmental protection, legislation is aimed at ensuring that:

- environmental and economic interests are balanced, and nature and society interact harmoniously;
- environmental safety in the country is maintained;
- natural resources are used rationally;
- fees are charged for natural resource use and pollution-producing activities;
- natural resources are exploited in a sustainable way;
- environmental impact assessments (the expanded Ukrainian version is called "ecological expertise") are conducted on projects with government involvement.

## *Evolution of environmental legislation in Ukraine*

In 1991, when Ukraine gained independence, it was declared an environmental catastrophe zone in response to the Chornobyl disaster. Therefore, laws regulating relations in this area were considered to be of the highest priority at that moment. Parliament passed the Law of Ukraine "On the legal status of territories exposed to radioactive contamination in consequence of the Chornobyl disaster" and the Law of Ukraine "On the status and social protection of citizens suffering in consequence of the Chornobyl disaster", both dated February 28, 1991.

Most basic environmental laws were adopted from 1991 to 1995, including the Law of Ukraine "On environmental protection" (June 25, 1991). This law defines the basic principles and scope of environmental protection, outlines state environmental programs, and provides for ownership rights regarding natural resources. It also provides guidelines for the development of legislation regarding land, water, forests, animals, mountain areas, and other specialised topics.

The objectives of the environmental protection law are:

- to regulate environmental protection, natural resource use, and the maintenance of environmental safety;
- to prevent environmental damage from economic and other activities;
- to preserve natural resources, genetic diversity, landscapes, unique territories, and natural objects that are part of Ukraine's historical and cultural heritage.

After the adoption of the Law "On environmental protection", Parliament passed a number of laws aimed at the regulation of natural resource use (including sustainable resource management), the protection of specific environmental amenities, and the maintenance of environmental safety.

They include :

- The Land Code of Ukraine, 13 March 1992;
- The Law of Ukraine "On protected areas", 16 June 1992;
- The Law of Ukraine "On the protection and use of atmospheric air", 16 October 1992;
- The Law of Ukraine "On fauna", 3 March 1993;
- The Forest Code of Ukraine, 21 January 1994.
- The Code of Ukraine On Underground Resources, 27 July 1994;
- The Law of Ukraine "On nuclear energy use and radiation safety", 8 February 1995;
- The Law of Ukraine "On ecological expertise", 9 February 1995;
- The Law of Ukraine "On the exclusive (maritime) economic zone of Ukraine", 16 May 1995;

- The Water Code of Ukraine, 6 June 1995;
- The Law of Ukraine "On the handling of radioactive wastes", 30 June 1995;
- The Law of Ukraine "On wastes"—this long-awaited law, which entered into force in March 1998, defines hazardous wastes and regulates waste treatment.

A fundamental weakness of environmental legislation in Ukraine is the absence of detailed enforcement mechanisms. For instance, the Law of Ukraine "On ecological expertise" dated February 9, 1995 provides for public participation in environmental assessments. However, the procedures for public participation have not been set out. In an attempt to fill in this gap, the EcoPravo environmental NGO is developing draft rules of public participation entitled "On public participation in making important environmental decisions".

## *Ownership rights*

Ukrainian environmental legislation defines three categories of ownership rights regarding natural resources:

- **STATE PROPERTY.** According to the Constitution, land, underground, air, water, and natural resources are property of the Ukrainian people. The bodies of central and local government exercise these ownership rights on behalf of the Ukrainian people. While air, sun, and wind energy cannot be appropriated, land, forest, water, underground, fauna, and other natural resources can be designated for "general" (free of charge) or "special" (chargeable and time-constrained) use. Special use of natural resources by households and enterprises is allowed on a fee or time-determined basis. A special license is necessary to obtain the right to special use of natural resources.
- **COLLECTIVE PROPERTY.** Agricultural land on collective farms is collectively owned. However, due to agricultural reform, collective ownership of land will be eliminated.
- **PRIVATE PROPERTY.** Currently, Ukrainians possess private ownership rights to non-agricultural land. With the progress of reforms in agriculture, ownership rights to agricultural land will be defined. Forests, animals, and protected areas cannot be privately owned.

## *Environmental liability*

Under Ukrainian law, civil liability exists for the causation of certain forms of environmental damage. For instance:

- harm caused by infringement of environmental legislation;
- harm caused to endangered animal and plant species registered in the Red Book of Ukraine;
- infringement of environmental safety requirements, including radiation safety;
- harm caused by infringement of the environmental rights of citizens, including rights to environmental safety and environmental information.

Tortious liability for environmental harm may include an award of damages or specific performance (i.e., court orders to physically rectify the harm caused). The valuation of environmental harm for an award of damages is done in accordance with relevant Acts of Parliament, or the regulations and procedures of relevant administrative bodies.

Administrative sanctions may include fines, cancellation of user rights, or seizure of property used in the offence. Administrative offences include:

- exceeding permitted levels of natural resources use;
- unauthorised use of natural resources;
- improper use of protected natural objects;
- infringement of rules and standards regarding storage, preservation, recycling, disposal. and utilisation of waste products;
- exceeding pollution emission and waste disposal limits; and
- non-compliance with the orders of administrative bodies.

With regard to environmental safety requirements, administrative liability can flow from:

- improper design, construction, reconstruction, and demolition of buildings and other man-made objects;
- improper application of mineral fertilisers, toxic chemi-

cals, and radioactive substances;

- failure to prevent and eliminate the consequences of environmental disasters and other extreme environmental situations.

Applicable penalties for the violation of environmental safety requirements include the standard administrative remedies: fines, cancellation of user rights, and seizure of property used in the offence.

Criminal liability is reserved for acts or omissions which are characterised by high levels of risk to individuals and the environment. The Criminal Code of Ukraine provides for criminal liability in cases of:

- unauthorised use of land;
- illegal extraction of minerals, deforestation, or hunting;
- abuse of animals;
- infringement of legislation regarding the continental shelf; and
- illegal purchase, storage, use, transfer, or destruction of radioactive materials.

Criminal sanctions include imprisonment and participation in correctional programs. For some crimes, additional sanctions are provided, such as prohibition from occupying certain public offices, seizure of property, and confiscation of illegally extracted resources.

However, environmental liability has not been properly enforced, due to high monitoring costs. Also, civil society (and individuals) is do not effectively monitoring environmental violations due to a lack of awareness, restricted access to information, inadequate resources, and the absence of a legal framework which supports private prosecutions.

## *International treaties*

The Ukrainian Parliament has ratified numerous international environmental agreements. These agreements concern both issues of global environmental protection (such as the Montreal Protocol on Substances Depleting the Ozone Layer, the UN Convention on Climate Change, the Convention on Long-Range Transboundary Air Pollution, and the Convention on Environmental Impact Assessment in a Transboundary Context), and issues of protection and pres-

ervation of biological and genetic diversity (such as the UN Convention on Biodiversity, and the Wetlands (Ramsar) Convention).

The objective of the Montreal protocol on ozone-depleting substances is the phasing out of ozone-depleting substances (ODS), such as chlorofluorocarbons and related substances. The protocol and its amendments contain explicit commitments and timetables for phasing out ODS. Most transition economies are classified as developed countries for the purposes of the protocol, and as such were expected to phase out ODS by 1996 (2010 for developing countries, which have different commitments in Article 5 of the Protocol). Ukraine has committed to phase out ODS by 2002.

In March 24, 1994 the UN Framework Convention on Climate Change came into force. Ratification of the convention and effective compliance by convention parties are desirable for Ukraine. Due to its geographic location, economic profile, and environmental conditions, Ukraine belongs to the group of countries which will suffer directly from climatic change. Therefore, the Ministry of the Environment and Natural Resources is carrying out necessary activities to implement the convention and to achieve effective compliance with it.

Based on the 1979 Convention on Long-Range Transboundary Air Pollution, the Protocol on Reduction of Sulphur Emissions and their Transboundary Fluxes was ratified in 1985. As of the beginning of 1994, the protocol requirements were met with a 30% reduction of sulphur emissions. In June 1994, Ukraine joined the new protocol in Oslo. Ukrainian obligations include a 40% reduction of sulphur emissions in 2000–2010 (in comparison with 1980 as a base year).

In addition, Ukraine has joined numerous regional environmental agreements, including the UNEP Convention on Regional Seas, the Convention on Prevention of Sea Pollution from Sea and Air Crafts, the Paris Convention on the Prevention of Sea Pollution from Land Sources, the Bucharest Convention on Preventing Black Sea Pollution, the Convention on Balanced Use and Protection of the Danube River, and the Agreement Between the Governments of Russia, Belarus, Ukraine, and the International Atomic Energy Agency on an International Study of the Consequences of the Chornobyl Disaster.

*Due to the legacy of central planning in Ukraine, environmental enforcement mechanisms relied primarily on command-and-control instruments. However, the use of incentive-based instruments is now being expanded.*

# Evaluation of enforcement mechanisms

Due to the legacy of central planning in Ukraine, environmental enforcement mechanisms relied primarily on command-and-control instruments. However, the use of incentive-based instruments is now being expanded. In 1992, a system of environmental charges was introduced in Ukraine. These charges have become a major source of revenue for environmental agencies, and allowed them to partly cover monitoring and enforcement costs. Other incentive-based schemes such as tradable permits have not yet been contemplated, nor have alternative approaches to enforcement, such as public participation. This is unfortunate, because increasing environmental awareness among Ukrainian citizens and fostering public participation in the enforcement of environmental laws would contribute to a more efficient and effective enforcement regime.

Currently, the Ukrainian economy is struggling to overcome the legacy of central planning. Changes in the economy's institutional and regulatory framework are essential if there are to be gains in efficiency and a resumption of economic growth. In many cases, government regulations are simply too cumbersome to be effective, or they are administered ineffectively because of overlapping responsibilities between multiple government bodies. Environmental regulation is no exception. Administrative reforms begun in December 1999 sought to reorganise government environmental bodies; however, there is no evidence that the current administrative structure will operate more efficiently.

Environmental laws adopted in Ukraine provide a good legislative background for effective environmental management. However, this legislation provides little more than a management "framework", because of a chronic absence of effective enforcement mechanisms.

The Polluter-Pays Principle (PPP) should be one of the main factors in Ukraine's environmental enforcement mechanisms. According to this principle, the polluter bears the costs of pollution prevention, control, and administrative measures, and must provide compensation for environmental damage, whether intentional or accidental. The PPP is partially incorporated in Ukrainian environmental legislation. This may provide a basis for acceptance of market-based environmental approaches, as envisioned by the Coopera-

tion and Partnership Agreement between Ukraine and the EU. The PPP is implemented through the use of environmental instruments, which can be divided into two groups: a) command-and-control instruments; and b) economic tools (incentive-based instruments).

## *Command-and-control instruments*

The command-and-control (CAC) approach to environmental management involves direct regulation by the government. For instance, rather than use a fee-based system to reduce pollution emissions from industrial plants, under the CAC approach the government will set ambient or end-of-pipe standards for permissible levels of pollution emission (lit., "ecological passports"). Under this system, firms do not have any incentive to reduce their emissions below the mandated amount, and firms which do invest in pollution abatement simply put themselves at a competitive disadvantage by raising their costs of production. Other CAC approaches include mandated environmental impact assessments (Ukrainian acronym: OVNS ), nuclear safety standards, and direct regulation of limits on natural resource use and waste disposal.

Environmental standards in Ukraine are based on ambient concentrations of hazardous substances which negatively impact human health. The Ministry of Health and environmental authorities have developed these standards ("sanitary norms") based upon toxicological research. Environmental quality standards in Ukraine have been established for ambient air, water (drinking, surface, and ground water), and soil.

In order to comply with European environmental policy, Ukraine's system of environmental standards should be reformed. For instance, there are more regulated substances in Ukraine than in the EU, which results in higher monitoring costs. Ukraine should be concentrating on better enforcement of a more limited list, rather than poor enforcement of a much larger one. Also, Ukraine uses ambient standards, while EU countries use both ambient and technology-based standards. Best-available-technology standards set for specific industries are generally acknowledged to be less costly to introduce and monitor (though ambient standards can more accurately tailor abatement requirements to the specific absorption capacity of the environment).

Ambient standards are used to set emission (effluent) limits for individual enterprises. Research institutions develop pollution limits, based on the data and information provided by an enterprise, and on modelling pollution dispersion and dilution. Legislated pollution limits become part of firm-specific documents known as "ecological passports", which provide information about allowable emission levels for each substance subject to regulation. If an enterprise restructures or adopts new technology, it must undergo a new ecological expertise and revision of its pollution limit. Pollution limits are automatically reviewed every 3 years.

CAC instruments are measures of a preventive and precautionary nature, focused on the avoidance of environmental accidents, prevention of air, water, and soil pollution caused by agriculture and industry, the protection of endangered species, preservation of natural areas, and sustainable use of non-renewable natural resources. Although CAC instruments have a distorting effect on economic decision making, they are necessary in addressing certain environmental problems. These include biodiversity, exhaustion of renewable resources, over-exploitation of non-renewable resources, and the destruction of unique ecosystems. However, in Ukraine, the regulation of industrial pollution can largely be accomplished using economic tools. This will reduce the regulatory burden on firms, and create incentives for greater efficiency in production, as well as promote the development of innovative pollution abatement strategies.

## *Economic (incentive-based) instruments*

The objective of using economic instruments in environmental management is to induce both producers and consumers to use natural resources rationally, to reduce the production of pollution and waste, and to ensure better market conditions for environmentally friendly products. In the former Soviet Union, and in newly independent Ukraine (1991), incentive-based environmental instruments were rarely used, with the exception of fines and penalties for the violation of environmental standards ("sanitary norms"). These were the only economic tools used in the Soviet central planning system. However, these fines were not properly enforced, largely because economic policy aimed to physically expand production capacities and output of basic industrial goods, rather than to encourage efficiency gains and innovation (such as the production of less-polluting consumer or high-tech goods). Moreover, the collection of envi-

ronmental fines was not sufficiently controlled, since fines went to extra-budgetary funds, which were not subject to planned targets.

Fines and penalties produced weak incentives to behave in compliance with environmental standards. Environmental standards were excessively stringent for most enterprises, and at the same time they were not properly enforced. Consequently, firms ignored them in making internal resource allocation decisions. Recently, as Ukraine started to move toward a market economy, environmental authorities have switched to the use of more market-oriented instruments, and have modified enforcement mechanisms (though fines for violations of environmental standards have been maintained).

**ENVIRONMENTAL LEVIES.** In 1992, a system of environmental levies was introduced, including emission charges, fees for the use of natural resources, and waste disposal and water effluent charges. Since that time, the rates charged for polluting activity have been adjusted four times to account for inflation and monetary reform. Pollution levies include a "normal rate" levied on emissions below the pollution limit, and a penalty fee (5 times the normal rate) for emissions that exceed that limit. The list of pollutants, assigned to a specific rate per ton depending on the damage caused by the pollutant, include more than 300 hazardous compounds. The Ministry of Health Care determines these rates on the basis of ambient maximum concentrations to which humans could be exposed without negative health effects. Recently, the list of regulated compounds has been reduced. The amount payable by polluters is calculated according to the formula:

Pollution Payment = K*KK*Sum(Substance*Levy Rate),

where K is a coefficient which accounts for the economic and social importance of the area subject to pollution (e.g., level of local employment generated by the polluting activity, or the presence of cultural heritage sites); and KK accounts for the level of exposure sustained by a population. The coefficients for heavy industrialised regions are the highest (about 25% higher than the mean). Payments for emissions within the pollution limit are planned, expenditures included, in the operating costs of the enterprise, while penalty fees are deducted from profit.

Until 1999, environmental agencies were in charge of monitoring environmental violations and enforcing the system of levies. However, the cost of enforcing these regulatory meas-

ures was too high for the environmental authorities, and consequently was ineffective. In 1999, as the Resolution No. 303 of the Cabinet of Ministers came into force, environmental levies were transformed into taxes. Responsibility for enforcement therefore fell to the State Tax Administration. As a result, the enforcement of environmental liability has improved—the Tax Administration has much better resources (and experience) in enforcing payments. Environmental authorities are now simply in charge of reporting and approving environmental tax payments.

The taxes should be paid on a quarterly basis and are payable as follows:

- 20% to local environmental funds (separate accounts in village and town budgets);
- 50% to oblast environmental funds (separate accounts in oblast budgets and the budget of the Autonomous Republic of Crimea);
- 30% to the State Environmental Fund (government account at the National Bank of Ukraine, controlled by the State Treasury).

For environmental taxpayers located in Kyiv and Sevastopol, payments are distributed in the following way: 70% to the municipal environmental fund and 30% to the State Environmental Fund.

Such distribution of payments favours the decentralised enforcement of environmental legislation. Also, local environmental authorities have an incentive to work effectively, since part of the revenues raised goes to the local environmental fund.

The pollution fee system should provide an incentive for polluters to invest in reducing pollution emissions and thus avoid pollution charges. However, this has not been the case in Ukraine. The reason is that fees should be high enough to make investment in pollution abatement economical, but many firms are currently able to afford neither the high fees nor new investments, making compliance with the whole system unrealistic. Moreover, whereas private firms consider environmental levies when planning their future operating expenses, government-owned enterprises are often subject to soft-budget constraints or may simply negotiate exemption from tax payments.

**Tradable pollution permits.** An alternative to pollution fees is tradable pollution permits. Tradable permits are a market-based approach to environmental regulation that shifts the costs of pollution abatement to those firms which can achieve it at lowest cost. However, a tradable permits scheme is far from being introduced in Ukraine. At this moment, pilot projects on pollution permit trading are under development under a project funded by the U.S. Environmental Protection Agency.

**Access to information.** In order to improve public participation, access to information is needed. Government does not currently have the capacity to disseminate information, and the public consequently lacks information on environmental issues. The Ministry of Environmental Protection has published an annual environmental report, but the number of copies in circulation is not sufficient to meet demand. The main sources of information on environmental decision-making are periodicals and television, which usually provide information on important cases that deserve special attention, but miss daily decisions which cumulatively have significant impacts on environmental and human health.

## *Public participation*

At present, Ukrainian civil society is not organised or influential enough to affect decision making by business and government. Although non-government organisations have shown great initiative, their efforts tend to be focused on local environmental problems. One future challenge for Ukrainian NGOs is to communicate and cooperate effectively at the national level.

### *Public awareness of environmental issues*

Since the Chornobyl disaster, the general public has been alarmed by environmental issues that could affect their health. A survey on environmental awareness conducted by the EU's Tacis programme in 1997 revealed that 95% of Ukrainians felt that the environment was important, but environmental issues were not of the highest priority for the public. People were more concerned with other issues such as social inequality, wage arrears, or the unemployment rate rather than the quality of the environment.

Ukrainians do exhibit greater concern on environmental issues that have a direct, immediate impact on their personal lives. According to the Tacis survey, the primary reasons for being concerned about the environment involved the health

and safety of oneself and one's family. Therefore, the following environmental problems have the highest levels of importance for the public: air pollution, contamination of drinking water, storage of nuclear waste, safety of nuclear plants, sewage waste, and pesticides in food. Global environmental problems were viewed as "Western concepts" which are irrelevant for Ukraine.

*Public initiative*

Since perestroika, numerous environmental non-government organisations (NGOs) have emerged throughout the former Soviet Union. The biggest Ukrainian environment NGOs include EcoPravo, Zelenyi Svit (Green World), MAMA-86, and the National Environmental Centre. Ukrainian environmental NGOs possess an independent point of view, the capacity to fulfil local environmental projects, and high awareness level. And even though the scope of their activities is broad, they have failed to exert any appreciable influence in environmental policymaking, due to:

- weak financial management;
- excessive attention to theory (rather than to developing action plans);
- lack of a strong environmental lobby;
- lack of access to the mass media; and
- absence of strong NGO coalitions.

# The administrative system

*The Ministry of the Environment and Natural Resources of Ukraine plays the leading role in environmental management in the country. In developing and implementing environmental policy, the MENR interacts with other government bodies.*

The Ministry of the Environment and Natural Resources of Ukraine (MENR) plays the leading role in environmental management in the country, both at national and local levels. The administrative reforms initiated in December 1999 have granted greater authority to the MENR in developing policy and undertaking regulatory changes necessary for policy implementation. Recent changes will eventually contribute to improving the overall effectiveness of the system, thanks to centralised strategic planning coupled with decentralised enforcement.

The procedures and practices which constitute environmental management aim to prevent environmental damage and the overuse of natural resources. These procedures include environmental impact assessments (part of the Ukrainian complex of reviews known as "State Ecological Expertise,

Environmental Monitoring, and Inspection"). Environmental procedures developed in Ukraine are not sufficiently transparent and provide little opportunity for the public to get involved in environmental decision-making. However, they will eventually be able to incorporate applicable international experience. The recently reformed administrative structure provides a good start for further development and strengthening of environmental management in Ukraine; this is an improvement from the situation in the early 1990s, when the environmental management system possessed only a weak regulatory capacity.

The MENR was established as part of the December 1999 administrative reforms, and now plays the leading role in environmental management in Ukraine. It emerged from the consolidation of the former Ministry of Environmental Protection and Nuclear Safety created in 1995 and a number of state committees regulating different fields of environmental and resource management, including the State Committee on Hydrometeorology (Derzhkomhidromet) and the State Committee on Geological Exploration and Underground Resource Usage.

The MENR has a broad range of statutorily-defined responsibilities, which make it a primary agent in environmental legislation enforcement and regulation. However, historically, environmental protection was a purely declarative matter, and the predecessors of the MENR were among the least-endowed of government institutions (the only exception being Nuclear Safety Committee). These institutions were underfunded and understaffed. Now that the restructuring of the environmental management system in Ukraine has been launched, improvement in the efficiency of the system can be expected. Presently, the MENR is, as enforcement authority, granted greater administrative and rulemaking powers than its predecessors. This will allow it to expand available enforcement tools in order to address effectively a range of environmental problems.

Environmental administrative bodies are vertically integrated, with the MENR at the apex of this system. The Central Board of the MENR includes the Department of Nuclear Safety, the Environmental Safety Department, and the Department of Environmental Protection and Natural Resources as well as the Coordination and System Development Department. Although information on the exact structure of the MENR is not yet available, after reorganisation we can expect some new structural units to be included.

## *MENR responsibilities*

The MENR should develop environmental policy for Ukraine, and set strategic goals for its implementation by local environmental offices. This approach reflects international norms: the national authority is responsible for centralised rulemaking, and local authorities perform decentralised enforcement .

In Ukraine, the responsibilities of the MENR include:

- executing environmental management;
- developing environmental policy and then implementing it through a network of its representative offices;
- coordinating the activity of agencies, enterprises, and other institutions in the field of environmental protection;
- gathering information on environmental performance through a system of national environmental monitoring;
- ensuring nuclear safety;
- setting environmental standards;
- regulating waste management;
- reviewing the activities of its oblast and municipal branches;
- organising and monitoring quality control, providing technical services, assessing health risks, and assessing technologies related to particular industries.

## *Oblast environmental authorities*

Oblast MENR offices regulate the activities of local administrative units at lower levels of the environmental management hierarchy. Each administrative unit consists of a standard number of departments that deal with corresponding areas of environmental activities. These areas include impact assessment (part of the Ukrainian "state ecological expertise" complex), environmental and natural resource economic analysis, public relations, monitoring, maintenance of nuclear safety, and environmental inspection. Environmental inspection departments contain subdivisions dealing with air and water resources, wastes and recycled materials, and preservation of biodiversity. Each unit of the environmental administration is equipped with laboratories, to support their

control the environmental performance of enterprises during their inspection visits.

Since pollution abatement activities must be planned and undertaken at local levels, responsibilities for policy implementation and enforcement fall upon MENR's oblast and municipal branches, working closely with local authorities. Consequently, more resources need to be directed to the local level. Local offices are accountable to the national office, but the national office is allowed to review a local office's resolution only in cases where it contradicts the law. Specifically, oblast offices are responsible for regional control over the use and protection of natural environment; they carry out environmental, landscape, and biodiversity management, and coordinate environmental efforts of local authorities. The responsibilities of oblast authorities are:

1. Performance of state environmental expertise (incl. EIA);

2. Preparation and administration of emission limits;

3. Implementation of protection measures for ecosystems and wildlife;

4. Environmental monitoring;

5. Environmental control at Ukraine's borders;

6. Reporting on main environmental indicators to the central MENR office and the public;

7. Ensuring the maintenance of nuclear safety norms;

8. Environmental inspection of enterprises operating in the region.

MENR offices have the power to suspend plant operations or eliminate polluting sources within an enterprise. The oblast MENR offices report to the Central Board of the MENR, as well as to oblast authorities such as the state administrations. For instance, the Chief of the Oblast Environmental Department is appointed upon mutual agreement between regional authorities and the central office of the MENR. However, under future administrative reforms this double reporting should be eliminated, since frequent interventions of regional (municipal) administrative authorities tend to diminish the power of the MENR and to distort its policies.

Most pollution problems are centred in urban areas, thus the bulk of responsibility for pollution abatement falls on municipal and oblast MENR offices. This increases the respon-

sibilities of municipal environmental authorities located in cities where there are concentrations of heavy industry. These authorities need to deal especially with industrial environmental risk diversification, through municipal zoning and the regulation of economic development areas. Donetsk and Kyiv have achieved effective management by their municipal environmental authorities.

### *Other actors*

In developing and implementing environmental policy, the MENR interacts with other government bodies. These include primarily the Ministry of Health Care, Ministry of the Economy, Ministry of Finance, Parliamentary Committee on Environmental Policy and Chornobyl Disaster Affairs, Presidential Administration, and a respective department under the Cabinet of Ministers. Administrative reforms progressing in Ukraine are aimed at preventing the overlapping of responsibilities between government bodies, and removing conflicts of interest in policy development and implementation.

## Environmental procedures

*Environmental management aims to prevent or mitigate environmental damage and the unsustainable use of natural resources. Three environmental management tools are most significant in Ukraine: "state eco-logical expertise" (a complex review in Ukraine which includes EIA), environmental monitoring, and environmental inspection.*

Environmental management aims to prevent or mitigate environmental damage and the unsustainable use of natural resources. We will focus on the three most significant environmental management tools used in Ukraine: "state ecological expertise" (a complex review in Ukraine which includes EIA), environmental monitoring, and environmental inspection.

### *Ecological expertise (incl. EIA)*

In Ukraine, the state ecological expertise (SEE) is a process of reviewing and assessing projected environmental impacts of activities which present a risk to environmental health. Impact assessments are conducted by government authorities on a project-by-project basis. Although SEE differs from internationally acceptable environmental impact assessment (EIA) procedures, it nevertheless achieves the central objective of EIA: to identify environmental risks early in the decision-making process and to allow for intervention before irrevocable decisions or actions have been made.

The procedure of carrying out SEEs in Ukraine is defined by the Law of Ukraine "On Environmental Protection" (1991) and the Law of Ukraine "On the State Ecological Expertise"

(1994). These laws establish the basic principles and guidelines for conducting impact assessments. They also set out a comprehensive list of activities that are automatically subject to SEE. The list includes certain economic activities potentially hazardous for the environment, regardless of the actual scope of potential negative environmental impacts. Government investment programs and projects, industry development programs, technical construction and renovation projects, technical information on new technologies and methodologies, plans for urban and rural development, drafts of State Construction Standards, and registration documentation of new chemicals should all undergo state ecological expertise.

Ukrainian impact assessment rules are actually in line with up-to-date international EIA practices in that they include 'strategic' impact assessment: i.e., the assessment of impacts of certain government programs, expenditures, and rule-making procedures, not simply physical projects. However, environmental agencies lack the capacity to fully implement strategic impact assessments.

The law on SEEs states that public participation is a special component of SEEs. The project developer should inform the public about projects through the mass media, and interested citizens should organise public hearings on their own behalf, and produce recommendations toward project improvement. However, the precise procedures for public participation in SEEs have not been developed. There also does not yet exist any mechanism for the provision of intervenor funding.

Ukrainian SEEs are conducted in three stages: first, preliminary approval of the project site (assessment of preliminary design materials); second, approval of design documentation; third, designation of the site to an enterprise (firm, individual). Conducting impact assessments in these stages allows for impacts to be monitored throughout the process of a project's realisation.

Performing SEEs of projects valued less than 10,000 hryvnias is the responsibility of regional SEE Departments. Most nation-wide projects that are subject to environmental expertise (those valued at over 10,000 thousand hryvnias) should be put before the MENR's Central Board of Environmental Experts.

Each firm must submit a set of documents describing the environmental impact of its prospective project in accor-

dance with specific SEE requirements (laid out in the "SEE volume") and the recommendations of other involved authorities (such as the Sanitary and Epidemiology Department of the Ministry of Health, the State Fire Safety Committee, State Committee on Construction and Architecture, and Green Plantations Committee). The SEE volume includes technical information on the use of water and energy supplies, waste disposal, protection measures for trees and other plants located on the site, and the amount of pollution and waste produced annually. However, these extensive requirements for the SEE volume are not defined in sufficient detail. Consequently, the presentation of project documentation varies widely between project proponents.

The SEE experts assess the project documentation according to the following criteria:

- compliance with environmental standards and requirements;
- rational allocation of buildings within the site;
- use of modern energy-saving and low-waste technologies;
- rational use of water resources;
- use of pollution abatement technologies;
- waste utilisation measures (including recycling);
- preservation of 'green spaces' existing within the site; and
- protection measures regarding noise pollution and vibrations.

Each stage of the procedure takes at most 45 days, but in the case of complex assessments they could be extended to 60 days.

The outcome of the SEE is a resolution, a document that is legally binding for the project proponents. It provides approval for project activities, and has to be revised every 3 years. If the project documentation is incomplete or needs amendments, the SEE Resolution provides recommendations to facilitate reassessment. For projects which are considered irredeemably harmful, the SEE results in a negative resolution, without possibility for reassessment.

Currently, SEE departments of MENR consider about 3 to 5 thousand projects annually. According to the National Report on the State of Environment in 1998, 4,880 projects

were reviewed by SEE departments, with 15% of them rejected. In addition, 8,564 preliminary project submissions were considered in 1998. The heaviest burden in conducting SEEs falls on departments located in those urban areas which are seeing increasing business activity. The personnel of these SEE departments face a demand for their services that exceeds their capacity. This lack of capacity manifests itself in obvious way, such as long queues at Kyiv's MENR Office as project proponents seek to submit their project materials to SEE department officials.

The major shortcomings of the SEE procedure in Ukraine are as follows:

- SEEs are limited to either approving or rejecting projects, rather than providing recommendations on how to make project activities environment-friendly.
- SEE experts are authorised to assess projects as well as make decision on project approval. In the view of World Bank experts, this creates a conflict between assessment and decision-making, which are functions requiring separate skills.
- Since such a broad range of activities is subject to SEE procedures, the staff of SEE departments in regional MENR offices is overloaded with reports to assess. This leads to lower-quality assessment; it is reduced to technical checking of compliance with sanitary and environmental standards, and with the respective General Plan for Oblast (City) Development.
- SEE officials lack training in internationally-accepted environmental impact assessment procedures. This hinders the modernisation of the impact assessment profession, with negative consequences for the efficiency and effectiveness of environmental impact assessment work in Ukraine.
- Requirements regarding publication of project information and organisation of public hearings are not properly enforced. As a result, the system lacks transparency, and this leads to lower public awareness of environmental problems and lack of participation in preventive activities.

Future SEE developments in Ukraine aim to improve the effectiveness of the SEE process. These developments include:

- shortening of the list of activities and projects subjected to SEE;
- creation of unified standards for the presentation and substantive content of project documentation;
- standardisation of information collection, processing, and organisation; and
- elaboration and clarification of procedures for public participation.

## *Monitoring environmental performance*

Environmental monitoring entails the systematic collection, processing, and analysis of environmental data for the purposes of pollution control, forecasting, and developing environmental policy. Monitoring responsibilities are spread over various authorities that perform them for different purposes. The State Committee on Hydrometeorology monitors air and water quality from "natural" sources such as underground reservoirs. The Ministry of Health Care monitors the quality of drinking water and recreational water sites, as well as air quality in residential areas. The State Committee on Water Resources Management performs surface water monitoring, the State Committee for Geological Exploration and Underground Resources Usage monitors the state of groundwater, and the Ministry of Agricultural Policy carries out soil, surface water, and plant and animal monitoring. Although official documents provide for a national system of environmental monitoring, co-ordinating the efforts of the various authorities involved in the process of monitoring tends to be weak.

The State Environmental Inspectorate (SEI, a unit of the Ministry of the Environment and Natural Resources) monitors the compliance of enterprises with environmental standards and collects site-specific environmental data to be used in defining environmental requirements for enterprises. However, monitoring departments of environmental inspection units at regional and local levels lack modern equipment and facilities to process environmental data systematically. Consequently, in most cases environmental inspections rely on data provided either by enterprises themselves or by other authorities that collect corresponding data.

**AIR QUALITY MONITORING.** The State Committee on Hydrometeorology operates the most extensive network of air quality monitoring stations. It consists of 167 permanent

sites in 49 cities of Ukraine, of which 16 sites are located in Kyiv. The samples are usually taken four times a day, and then analysed for about twenty substances, including particulates, fine particulates, sulphur oxides, carbon oxides, lead, mercury, and formaldehyde. The Ministry of Health Care maintains an air quality monitoring network, which measures concentrations of about one hundred substances through stationary and mobile testing. Enterprises report on air emissions through oblast MENR offices. Environmental inspection authorities perform random checks of stack emissions for enforcement purposes. In addition, the MENR obtains data from the State Committee on Hydrometeorology and the Ministry of Health Care upon request, though there is no official requirement for these agencies to report to the MENR.

**WATER QUALITY MONITORING.** The water monitoring network includes sites managed by the State Committee on Hydrometeorology, the Ministry of Health Care, the State Committee on Water Resources Management, and State Committee for Geological Exploration and Underground Resources Usage. The above-mentioned agencies perform monitoring for various water sources, differentiated according the category of use. The State Committee on Hydrometeorology studies the water quality of "natural" sources; consequently, its sites are located in the least polluted areas. The Ministry of Health Care monitors drinking water and recreational water along rivers and seashores to evaluate health impact. The State Committee on Water Resources Management collects data on surface water quality, focusing on industrial effluents and wastewater discharges. Groundwater quality is monitored by State Committee on Hydrometeorology (103 stationary sites) and the State Committee for Geological Exploration and Underground Resource Usage (about 1,000 sites). Groundwater is monitored to measure concentrations of heavy metals, inorganic salts, and radionuclides.

**SOIL POLLUTION MONITORING.** The MENR monitors soil at nine permanent sites to detect pesticide pollution, and at eight sites to detect heavy metals in urban soils. In addition, the Ministry of Agricultural Policy maintains 900 monitoring posts for detecting pesticides and fertiliser pollution.

Radioactive contamination monitoring. This extensive monitoring network was established within the areas of heavy radioactive contamination after the Chornobyl disaster. This network is considered the most efficient in Ukraine, since it was created by joint efforts of national and foreign profes-

sionals, and it exploits modern equipment and methodology. Data on the state of the environment in the Chernobyl quarantine zone are analysed using Geographic Information Systems (GIS) technology. This data is placed on the Internet site of the Chornobyl Research Centre. In addition, the Ministry of Agricultural Policy and the State Committee for Geological Exploration and Underground Resource Usaage perform radioactive contamination monitoring.

**ANIMAL AND PLANT ("BIOLOGICAL RESOURCES") MONITORING.** The Ministry of Forestry operates 155 monitoring sites to evaluate primary forestry indicators, including deforestation, effects of pesticides, and blights such as disease and insect infestation. The Ministry of Agricultural Policy also monitors animals and plants for the impacts of pesticides, fertilisers, and heavy metals.

Monitoring units in Ukraine are not integrated into a unified system of environmental monitoring. Methods, facilities, and personnel skills vary across different laboratories. This has the effect of decreasing the reliability of data. Data are not fully reported to the public, though a small portion is presented in the National Report on the State of the Environment in Ukraine. Administrative reforms begun in December 1999 have stipulated that an integrated system of environmental monitoring be established, which would contribute to the improvement of environmental decision making.

## *State Environmental Inspectorate*

The State Environmental Inspectorate (SEI) deals with supervision and control over the implementation of legislation concerning environmental protection, rational use of natural resources, and nuclear safety.

The SEI's basic responsibilities include:

- to control the use of land, surface, and underground water resources;
- to protect biological species and marine ecological systems;
- to control compliance with nuclear safety standards, emission limits, and other environmental standards.

SEI provides the following services:

- assessment of risks from technical equipment of enterprises;

- installation of clean-up systems;
- investigation of solid waste landfills to reduce the adverse impact on the environment;
- review of applications for permits to use natural resources; and assignment of licenses and certificates.

The SEI is a primary agent in controlling compliance with environmental requirements, including pollution limits, and operation of clean-up equipment by industrial enterprises. Compliance is checked with regular inspections of enterprises.

State Environmental Inspectorate units visit enterprises two times per annum, although the frequency of visits can be higher if an enterprise has a history of poor environmental performance. But enterprises are informed about inspections in advance, thus reducing the effectiveness of inspections. In addition, inspectors lack the skills and modern measuring instruments to perform their duties effectively.

The SEI also implements measures on the reduction of air pollution from vehicles. Twice a year, the SEI conducts a "Clean Air" operation, where environmental inspectors test emissions from vehicles on roads and impose penalties on those drivers who violate emissions standards.

The SEI's Biological Resources Department performs protection measures for endangered species (plants and animals), as well as operations to restrict fishing and hunting in protected areas.

## Development programs

With constantly shrinking revenues, 0.2% of Ukrainian national budgets were spent on environmental protection in 1999. Government expenditures on environmental protection mostly aimed at supporting administrative bodies. Meanwhile, funding for particular projects or programs has been extremely limited. Consequently, Ukraine's environmental programs tend to be purely declarative.

*Ukraine's environmental programs tend to be purely declarative, as only 0.2% of Ukrainian national budgets were spent on environmental protection in 1999.*

In December 1999, a new reform-oriented government came to power in Ukraine. We expect that the new Minister of Environmental Protection and Natural Resources will elaborate and implement a strategy for the country's environmental policy as part of the new Government Action Program. However, the new program can borrow basic ideas from the envi-

ronmental section of the "Ukraine-2010" Program, elaborated by the former government.

The section on environmental policy in the Ukraine-2010 Program is entitled "Environmental Policy and Sustainable Development of Society" (one of nine sections). It outlines an environmental protection strategy for the country, connected to the strategy of the social and economic policies. The Ukraine-2010 Program declares sustainable development to be the priority of environmental policy.

A draft Conception for Sustainable Development in Ukraine has been elaborated on the basis of the principles of the Rio-de-Janeiro Declaration on the Environment and Development (1992). The Conception document determines the goals, main principles, specific tasks, and priorities of sustainable development for Ukraine. Stages of the transition to sustainable development are also outlined in the document. Although the draft was worked out two years ago, it has not yet been voted on by the Parliament.

Ukraine joined an international program on rehabilitating the Dnipro River that comes into force in 2000. In the first stage of implementation, the program entails a transboundary diagnostic analysis of water quality. Afterwards, a strategic action plan is to be worked out.

# Appendices

## *The main environmental laws of Ukraine*

| Name | Date | Content | Ownership Categories | Enforcement Mechanisms |
|---|---|---|---|---|
| **The Land Code of Ukraine** | March 13, 1992 | Land categories in Ukraine;<br>Property categories for land resources;<br>Procedures designating land use and property in land as collective or private property;<br>Payment for land purchase and lease;<br>Responsibilities of administrative bodies in land regulation;<br>Environmental rights and duties of landowners;<br>Control and supervision over land protection and exploitation;<br>Liability for the violation of land legislation. | State, collective and private property. Can be designated for permanent and temporary use. | Setting permitted levels of concentrations of chemical, radiation and other contaminants in the ground;<br>Supervision of land quality including the presence of radioactivity in land;<br>State land registry;<br>Economic incentives for the sustainable use of land. |
| **The Law of Ukraine "On protection and use of atmospheric air"** | October 16, 1992 | Standards and rates regarding air quality;<br>Relationships among air polluters;<br>Economic and social principles of air protection;<br>State control, supervision, and monitoring of air quality;<br>Measures to ensure air quality;<br>Liability for the violation of air legislation. | Exclusively state property. Can be designated to use by enterprises, institutions and organisations in accordance with special norms and special permits (licenses). | Environmental standards and effluent rates for air quality and safety;<br>Measures to protect air and reduce pollution including regulation of activities that have negative effects on air and climate;<br>Stimulating investments in new technologies and air protection activities. |
| **The Forest Code of Ukraine** | January 21, 1994 | Definition of the forest fund of Ukraine and land that belongs to the forest fund; | Exclusively state property. Forests can be desig- | Categorisation of forest categories with regard to their environmental importance; |

| | | | | |
|---|---|---|---|---|
| | | Organization of forestry;<br>Procedures for use of forest resources and forest lands, definition of user fees;<br>Responsibilities of administrative bodies in forest management;<br>Environmental rights and duties for forest users;<br>Measures to raise forest health and productivity;<br>Organization of the forest replanting and protection;<br>Liability for the violation of forest legislation. | nated to special use under permit (license). | Establishment of the state forest protection service;<br>Measures to prevent forest fires;<br>State registration and forest registries;<br>Stimulating implementation of environment-friendly technologies and forest replantation;<br>Binding application of environmental impact assessment recommendations to activities in the forest sector. |
| **The Code of Ukraine on Underground Resources** | July 27, 1994 | Definition of the state fund of underground resources and minerals;<br>Procedures for designating underground resources for special use;<br>Regulation of underground resources exploration and exploitation;<br>Environmental rights and duties of underground resources users;<br>Regulation of design and construction of buildings and other man-made objects in mining industry;<br>State control and supervision over the quality of underground resources;<br>Liability for the violation of underground resources legislation. | Exclusively state property. Can be designated to special use under permit (license). | State registration and cadastres of occurrences;<br>Quotas for minerals mining;<br>Requirements for mining (safety technologies, rational use of minerals, rational waste treatment);<br>Protection of areas that have environmental, scientific, cultural or economic value from mining. |
| **The Law of Ukraine "On nuclear energy use and radiation safety"** | February 8, 1995 | State policy in nuclear energy use and radiation safety;<br>Citizens' rights in nuclear energy use and radiation safety;<br>Rights of nuclear plant | State, collective and private property for nuclear devices and sources of ionizing ra- | Licensing activities in nuclear energy use and radioactive waste disposal;<br>Special status of areas around radiation objects; |

| | | | | |
|---|---|---|---|---|
| | | personnel;<br>Procedure for obtaining permits for certain activities;<br>List of activities that are regulated by state;<br>Responsibilities of administrative bodies in nuclear energy use and radiation safety;<br>State supervision over nuclear and radiation safety;<br>Location, construction and exploitation of nuclear devices and radiation waste;<br>Export and import of nuclear technologies, materials and sources of ionizing radiation;<br>State regulation of epy safety of boats, cosmic and flying devices that carry sources of radiation. | diation on a special permit basis. Exclusive state ownership of nuclear materials. Radioactive waste reverts to state ownership after use of nuclear materials is at an end. | Social and economic compensation for personnel and citizens subject to negative impacts from exposure to ionizing radiation;<br>Prevention of military use of nuclear materials;<br>Binding application of environmental impact assessment recommendations to nuclear plants and activities. |
| **The Water Code of Ukraine** | June 6, 1995 | Definition of land that belongs to the water fund of Ukraine;<br>Categories and procedures for water resources exploitation;<br>Regulation of special use of water;<br>Environmental rights and duties of water resource users;<br>Responsibilities of administrative bodies in water regulation;<br>State control and supervision in water exploitation, protection and replenishment;<br>Measures to prevent natural disasters involving water bodies. | Exclusively state property. Can be designated into special use under a permit (license). | Standards and effluent rates to protect quality of water including rates of pollutant concentrations, permitted levels of toxic waste discharges into water;<br>Charging fees for water use for the needs of energy generation and transportation;<br>State registration and registries of water users;<br>Realization of state, international and regional programs in protection and reproduction of water resources;<br>Set of measures to protect rivers and lakes. |

| | | | | |
|---|---|---|---|---|
| **The Law of Ukraine "On waste"** | March 5, 1998 | Definition of waste and hazardous waste;<br>State policy in waste treatment;<br>Responsibilities of administrative bodies in waste treatment;<br>State control, monitoring and information in waste treatment;<br>Rights and duties of waste producers;<br>Procedures for changing ownership of waste;<br>Measures and requirements to prevent and reduce amount of waste. | State, collective and private property. | Limitations on waste generation;<br>Charges for waste allocation;<br>Register of enterprises dealing with utilization, processing and removal of wastes;<br>Certification of wastes;<br>Stimulating investments in technologies to reduce waste;<br>Binding application of environmental impact assessment recommendations to waste treatment activities. |

## *International treaties signed by Ukraine*

| Name | Date |
|---|---|
| On Protection of Workers from Ionizing Radiation | June 22, 1960 |
| On Liability to Third Party in Nuclear Energy | June 29, 1960 |
| Vienna Convention on Civil Liability for Nuclear Damage | May 21, 1963 |
| On Protection of Animals in International Transportation | December 13, 1968 |
| On Intervening the High Seas in the Case of Accident which Results in Petroleum Pollution | November 29, 1969 |
| On Prohibition of the Development, Production and Stockpiling of Bacteriological (biological) and Toxic Weapons, and on their Destruction | January 1, 1971 |
| On Internationally Important Marshlands as the Living Areas of Aquatic Birds | February 2, 1971 |
| On Civil Liability in Marine Transportation of Nuclear Materials | December 17, 1971 |
| On Conservation of Seals of Atlantic Region | June 1, 1972 |
| On Protection of the World Cultural and Natural Heritage | November 16, 1972 |
| On Prevention of Marine Pollution by Dumping of Wastes and Other Matters | December 29, 1972 |
| On International Trade of Endangered Wild Flora and Fauna Species | March 3, 1973 |

| | |
|---|---|
| On Civil Liability for the Damage Caused by Petroleum Pollution in Exploration and Mining of Marine Bottom Mineral Resources | December 17, 1976 |
| On Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques | May 18, 1977 |
| On Conservation of Migrating Species of Wild Animals | June 23, 1979 |
| On Protection of Wild Flora and Fauna and Natural Living Areas in Europe | September 19, 1979 |
| On Long-Range Transboundary Air Pollution | November 13, 1979 |
| On Physical Protection of Nuclear Materials | March 3, 1980 |
| On Conservation of Marine Live Resources in Antarctic Region | May 20, 1980 |
| Vienna Convention on Protection of the Ozone Layer | March 22, 1985 |
| On Aid in the Case of a Nuclear Accident or an Emergency Situation | September 26, 1986 |
| On Urgent Warning in the Case of a Nuclear Accident | September 26, 1986 |
| Basel Convention on Control over Transboundary Transportation of the Dangerous Wastes and Their Disposal | March 22, 1989 |
| On Environmental Impact Assessment in a Transboundary Context | February 25, 1991 |
| On Protection and Use of Transboundary Rivers and International Lakes | March 17, 1992 |
| On Transboundary Impact of Industrial Accidents | March 17, 1992 |
| On Protection of Marine Environment of the Baltic Sea Area | April 9 ,1992 |
| On Protection of the Black Sea from Pollution | April 21, 1992 |
| The Frame UN Convention on Climatic Change | May 9, 1992 |
| The UN Convention on Biodiversity | June 5, 1992 |
| On Nuclear Safety | September 20, 1994 |
| On Access to Information, Public Participation in Decision-Making Process and Access to Justice in Environmental Issues | June 25, 1998 |

## *Comparison of ambient air quality standards for common pollutants*

*mg/ m³*

| Pollutant | Duration | Ukraine | World Health Organisation | European Community |
|---|---|---|---|---|
| Particulate | 20 minutes | 500 | | |
| | 24 hours | 150 | 150 – 230 | 100 – 150 |
| | Annual | | 60 – 90 | 40 – 60 |
| Fine Particulate (PM10) | 24 hours | | | |
| | Annual | | | |
| SO2 | 20 minutes | 500 | | |
| | 1 hour | | 350 | |
| | 24 hours | 50 | 100 – 150 | 250 – 350 |
| | Annual | | 40 – 60 | 80 – 120 |
| CO | 15 minutes | | 100,000 | |
| | 20 minutes | 5,000 | | |
| | 1 hour | | 30,000 | |
| | 8 hours | | 10,000 | |
| | 24 hours | 3,000 | | |
| NO2 | 20 minutes | 85 | | |
| | 1 hour | | 400 | |
| | 24 hours | 40 | | |
| | Annual | | | 135 |
| Ozone (O3) | 20 minutes | 160 | | |
| | 1 hour | | 200 | |
| | 24 hours | 30 | | |
| Pb (Lead) | 24 hours | 0.3 | | |
| | 3 months | | | |
| | Annual | | 0.5 – 1 | 2 |
| H2S (Hydrogen Sulf) | 20 minutes | 8 | | |
| | 24 hours | | 150 | |
| Hg (Mercury) | 24 hours | 0.3 | | |
| | Annual | | | |
| CS2 (Carbon disul.) | 20 minutes | 30 | 100 | |
| | 24 hours | 5 | | |
| Formaldehyde | 20 minutes | 35 | | |
| | 30 minutes | | 100 | |
| | 24 hours | 3 | | |

*Source: World Bank, 1994*

*Comparison of effluent fees*

| Regulated Substance | Country | | |
|---|---|---|---|
| | Ukraine, UAH per ton (USD per ton) | Russia, USD per ton | Poland, USD per ton |
| CO | 2 (0.36) | 0.02 (permitted)<br>0.09 (above permitted) | 22 |
| $SO_2$ | 53 (9.51) | 1.22 (permitted)<br>6.10 (above permitted) | 83 |
| NOx | 53 (9.51) | 1.02 (permitted)<br>5.08 (above permitted) | 83 |
| BOD load | $BOD_5$ 14 (2.51) | — | $BOD_5$ 172 to 1,722 depending on source |
| TSS (Total Suspended Solids) | 1 (0.18) | — | 74 |

*Source: World Bank, 1994*

The **POLICY STUDIES** journal was established by the International Centre for Policy Studies in January 1999. **POLICY STUDIES** presents the results of policy research carried out by ICPS experts, partners, and other think tanks.

**POLICY STUDIES** is financed by the Open Society Institute.

Editorial Group:

Editor of **POLICY STUDIES:** Hlib Vyshlinsky
ICPS chief economist: Tetiana Sytnyk
English version editor: Maksym Mashliakivsky
Copy editor: D. (Ksenia) Ovcharenko

Our special thanks for assistance and advice go to the ICPS Director Vira Nanivska and employees of the Centre.



Printed in Ukraine by Pekotoff-print

Address of the International Centre for Policy Studies:
8/5 Voloska St., Kyiv 04070, Ukraine

Tel. 380-44-463-6337. Fax 380-44-463-5970.

E-mail: hlib@icps.kiev.ua Web: www.icps.kiev.ua

**THE INTERNATIONAL CENTRE FOR POLICY STUDIES** is an independent non-profit research organization with the objective of improving the Ukrainian policy development process. This is achieved by increasing the know-how of key government officials regarding policy alternatives, formulation, and debate, and the awareness of the public-at-large of the benefits of policy. ICPS focuses on key programs of importance for the reform efforts of the Ukrainian government.