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NOTE

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Preface

The second Environmental Performance Review (EPR) of Ukraine began in May 2005 with a preparatory mission, during which the final structure of the report was discussed and established. After this the review team of international experts was established. It included experts from Belarus, Germany, Hungary, Lithuania and Sweden and from the secretariats of the Organisation for Economic Co-operation and Development (OECD) and the United Nations Economic Commission for Europe (UNECE).

The review mission took place from 23 October to 3 November 2005. The draft EPR report, translated into the national language with support from the Organization for Security and Co-operation in Europe (OSCE), was submitted to Ukraine for comments in May 2006. Comments and suggestions were discussed during a followup mission by the secretariat in June 2006. In October 2006, the draft was submitted for consideration to the Ad Hoc Expert Group on Environmental Performance. During this meeting, the Expert Group discussed the report in detail with expert representatives of the Government of Ukraine, focusing in particular on the conclusions and recommendations made by the international experts.

The EPR report, with suggested amendments from the Expert Group, was then submitted for peer review to the thirteenth session of the UNECE Committee on Environmental Policy on 9 October 2006. A high-level delegation from Ukraine participated in the peer review. The Committee adopted the recommendations as set out in this report.

The UNECE Committee on Environmental Policy and the UNECE review team would like to thank the Government of Ukraine and its experts who worked with the international experts and contributed their knowledge and assistance. UNECE wishes the Government of Ukraine further success in carrying out the tasks involved in meeting its environmental objectives, including the implementation of the conclusions and recommendations in this second review.

UNECE would also like to express its deep appreciation to the Governments of Austria, Estonia, Germany, Hungary, the Netherlands and Sweden, as well as the OSCE and the United Nations Development Programme for their support to the Environmental Performance Review Programme and to this review.

Executive summary

This second Environmental Performance Review (EPR) of Ukraine was carried out seven years after the first Review in 1999. It intends to measure the progress made by the country in managing its environment since then, and in addressing upcoming environmental challenges.

POLICYMAKING, PLANNING AND IMPLEMENTATION

Since its first Environmental Performance Review in 1999, Ukraine's economy has improved remarkably, with a strong increase in GDP every year. The economy has also undergone multiple structural reforms, which, however, have resulted in a loss of clear direction in many sectors, including environmental management. In recent years, environmental protection and sustainable development have been low on the political agenda.

Although a series of new laws and revised technical standards have significantly improved the basis for enforcement… Environmental legislation continued to develop rapidly until 2000, but the pace has slowed since then. Overall, environmental legislation is now comprehensive, with about 200 laws and by-laws, but it is also complex and sometimes inconsistent. It now needs to be arranged into systematic codes and harmonized with the European Union *acquis communautaire*, a huge and expensive task which would require about US$ 1 billion. Still, pollution standards need to be simplified and updated. The single-media-permitting system inherited from the past is not based on best available technologies, and it applies uniformly to all kinds of small and large pollution emitters. The sharing of responsibility between national, regional and local inspection bodies is unclear. Priorities for inspections are not defined. Self-monitoring by enterprises is not properly carried out and related data are not closely analysed. Last but not least, findings from inspections end up in statistical databases and are not followed up with in-depth analysis and appropriate actions. Although the transparency of administrative mechanisms has improved, the dialogue between the environmental authorities and the regulated community is below reasonable standards. Ukraine needs to anticipate the introduction of an integrated permitting system by giving proper training to inspection staff.

…development of environmental policies and strategies still has a long way to go. The strategic directions of the country for protecting its environment are unclear and are still based on a 1998 document that the first EPR already qualified as too vague. A solid environmental strategy is urgently needed, along with updated priorities. Whatever the time necessary for its elaboration, successful implementation will depend on the establishment of more stable institutional structures. The instability of environmental institutions is a recurrent and critical problem in Ukraine.

Ukraine has considerably broadened citizens' rights with regard to accessing environmental information and participating in environmental decision-making, a fact that is praised by non-governmental organizations (NGOs) themselves. The country has also made *remarkable progress in environmental education.* The public, mostly through NGOs, has access to environmental information and can participate in environmental projects. On the other hand, *environmental monitoring still needs major improvement.* Even though a monitoring programme was adopted in 2004, the related budget strengthened and the monitoring network developed, there are still significant gaps in the monitoring coverage; priorities are often absent or contradictory; the treatment of data is inappropriate; and the data are practically unavailable. Moreover, there is no process for reconciling the data collected by different ministries, which results in different sets of values being issued for the same indicator. Some oblast environmental authorities have recently established online databases linking all monitoring institutions and polluting enterprises in their regions, an effort that needs to be replicated in other oblasts and at the national level.

Ukraine's record of achievements in international cooperation is mixed. International technical assistance is based on a sound set of national laws and on three-year programmes that establish national priorities, but a reporting system would help give an accurate and updated picture of progress in project execution. Ukraine's implementation of international conventions benefits from effective laws and has in recent years been carried out actively in the area of nature and biodiversity protection. However, certain projects have been suspended

and are being audited upon donors' request. Another important issue for Ukraine is the Kyoto Protocol, which it ratified in 2004 and under which it could benefit from its unused carbon dioxide quotas by trading them, and from the introduction of cleaner technology through joint implementation mechanisms. Thus far, however, Ukraine has been slow to set up the necessary infrastructure and procedures to put the Kyoto mechanisms into practice, and many national enterprises are queuing up to secure a government decision on their proposed projects.

MOBILIZING FINANCIAL RESOURCES FOR THE ENVIRONMENT

Since the first review, there has been little progress in the development of economic instruments as incentives for environmental protection. The taxes on natural resources (mainly on land, extracted minerals and water) make the bulk of the environmental revenues and represented an average 1.1 per cent of GDP over the period 1998–2004. Revenues from emissions charges, which constitute a more modest 0.1 per cent of GDP, have doubled since 1998, mostly due to improved tax collection and some rate adjustments. Also positive is the decrease in the subsidization of energy, heat, water and other utility prices since 1998. Nevertheless, the system of environment-related taxes and pollution charges is still too complicated and the charge levels too low to act as a sufficient incentive for complying with regulatory targets.

There are more than 10,000 environmental funds in Ukraine over which the revenues from pollution charges are scattered, making the fund expenditures difficult to prioritize, rationalize and streamline within the scope of often unclear environmental priorities. In 2003, 84 per cent of National Environmental Fund expenditures were capital expenditures spent on water protection (36%), waste management (20%) and air protection (11%). However, it is a real challenge to assess whether local environmental funds spend money efficiently and on environmental purposes and priorities. The number of environmental funds needs to be reduced, their expenditures aligned with environmental priorities, and their managerial structures improved to follow international best practices.

Environmental expenditures doubled in absolute terms in the period 2002–2004, 80 per cent of them by enterprises. Expenditures from the environmental funds have also increased significantly since 1998. However, it is difficult to identify on what issues the money is actually spent, because the methodology for data collection, reporting and accounting for environmental expenditures is neither unified nor easy to trace. Also, there are no clear priorities for public and private investors regarding what Ukraine should focus its environmental spending on, as there is no national environment strategy giving directions, priorities and targets.

INTEGRATION OF ENVIRONMENTAL CONCERNS INTO ECONOMIC SECTORS, AND PROMOTION OF SUSTAINABLE DEVELOPMENT

Since 2002 there has been a slight decoupling between economic growth on one hand, and energy intensity and related pollution on the other hand. The insufficiency of domestic energy sources is a serious problem for Ukraine, which is only rich in low-quality coal with a high sulphur and ash content. In this context, energy savings are of key importance. The observed decoupling was partly due to the implementation of the Programme on Energy Savings (1997) and the decrease in the use of domestic coal. However, this trend is being increasingly offset by the resurgence of heavily polluting traditional industries, such as metallurgy, which are still using obsolete technologies. In 2006 Ukraine updated its Strategy on Energy until 2030, and it is adopting many new laws in this field. Economic measures are being introduced to promote energy efficiency. Nevertheless, energy supply remains a difficult problem. Energy prices are still cross subsidized, and the ever-rising world-market prices for natural gas and oil are slowing down the scheduled closure of coal mines and causing a new increase in the use of domestic coal. In parallel, the political trend toward energy independency for the country is reactivating projects to expand nuclear energy production. Meanwhile, the development of renewable energy sources is not getting enough attention.

The environmental pressure from industry has remained almost unchanged since the first review (in particular those from the heavy manufacturing industries), as the structure of industry is still the same. Overall, air emissions have increased, as have greenhouse gas emissions, a large proportion of which come from methane emissions from mines. Environmental data related to industrial activities (for example, on common and hazardous waste, wastewater, pollution of soil and water bodies) is lacking, and therefore the exact environmental impact is

difficult to evaluate. Although overall capital investments have grown significantly since 2002, the environmental performance of industry has not improved much. This is shown by the small number of enterprises that have introduced environmental management systems (about 30 enterprises had ISO 14000 certification by the end of 2005), the handful of pilot projects initiated on the introduction of integrated pollution prevention and control, and the insufficient capacity and low efficiency of clean technology centres. Moreover, the industrial sector lacks strategies and policies for its sustainable development. Political pressure to encourage industry to put priority on environmental protection is strongly needed. There is a big potential to modernize industrial technology through developing joint implementation projects under the Kyoto protocol, but this potential is unexploited.

The growing environmental pressures from the transport sector have not yet caught sufficient attention of the authorities. There is no national strategy for transport. The little interest paid to the environmental impacts of this sector is reflected in the very poor related statistical data available. The deteriorating quality of urban air is a growing concern, linked to the use of bad quality fuels, obsolete vehicle engines, increasing number of private cars and resulting traffic congestion problems. With the economic recovery and improving standards of living, the ageing public transportation fleet is at risk to be offset by the development of private cars. The government and the municipalities underestimate the environmental problems brought by the transport sector. Strategic concepts for the sustainable development of this sector are badly needed, as the sector is under rapid and profound transformation.

The sustainable management of rural and urban land is another challenge for Ukraine. With the privatization process well advanced, the number of landowners and land parcels in private ownership has increased dramatically. This has not solved the many existing land management problems: large areas of eroded land (5.8% severely eroded), land degraded by human activities (18%), reduced soil fertility and contaminated land; soil acidification, compaction and salinization caused by agricultural practices; fragmentation of habitats; uncontrolled development of infrastructure; and urban sprawl. The state has permitted privatization of areas that should have been protected, and it now needs to buy back plots if it wants to increase the share of protected land (currently only 4.5% of the territory). The Land Code of 2001 stipulates all the provisions for sustainable land management, but the key tools are still missing: there is no land cadastre or title registry system, and therefore the land market is not functioning properly. Moreover, privatization has resulted in land fragmentation, which seriously complicates the implementation of good agricultural practices and impairs the protection of biodiversity. Urban development, land protection and land use lack an appropriate strategic, legal and institutional framework that would ensure a more rational use and protection of land.

Conclusions and recommendations

Chapter 1: The legal and policymaking framework and sectoral integration mechanisms

Progress in developing environmental strategies and policies since the first EPR has been clearly insufficient. Now that the key strategic document *Main Directions of the National Policy of Ukraine for Environmental Protection, Natural Resource Use and Environmental Safety* is outdated, there is a need for an environmental policy that identifies priority environmental problems and related actions in the context of the country's short and longer-term socio-economic development. A new policy should focus on introducing incentives to improve environmental performance by enterprises and households. These incentives should be combined with effective instruments to deter violations of environmental requirements and respond swiftly and proportionally to non-compliance. The development of such a policy requires the participation of relevant stakeholders.

The current approach to environmental planning may benefit from a wider application of the "planning cycle" approach used in a number of OECD member countries, which includes:

- Setting explicit objectives and targets within a clearly specified time frame;
- Evaluating progress in achieving them;
- Providing feedback to policymakers; and
- Adjusting priorities on the basis of results achieved and lessons learned.

Analysis of the costs of achieving environmental goals, combined with a robust analysis of possible funding sources, could be a powerful instrument for environmental authorities in their discussions with other relevant government bodies about resources for environmental improvement. The current period of political change provides an opportunity to introduce modern approaches to environmental management and to influence sectoral policies.

Recommendation 1.1:
The Ministry of Environmental Protection, with the participation of relevant stakeholders, should:

(a) Develop a policy document on the environment, setting short-, medium- and long-term goals and targets and identifying key approaches to implementation; and

(b) Further adjust the directions and scope of targeted state programmes on the basis of the provisions of this new environmental policy and ensure that they are supported by sufficient financing.

Since independence, environmental legislation in Ukraine has undergone profound changes. Recently, emphasis has shifted from creating new laws to drafting lower-level regulations, including government decisions, and methodological and procedural documents which provide better guidance for interpreting, implementing and enforcing existing laws. Nevertheless, environmental laws and regulations need to be made more consistent and coherent. The Ukrainian authorities should continue a review of key environmental legal acts to eliminate major discrepancies and gaps between the principal laws and their executive regulations, using tools, such as regulatory impact analysis (RIA). The process of approximation of environmental requirements with those in the European Union should be used to prioritize and facilitate this review.

Recommendation 1.2:
The Ministry of Environmental Protection should strengthen its legal department and, in cooperation with the Ministry of Justice and the State Committee on Entrepreneurship, improve its legal expertise in order to accelerate the approximation to the EU legislation, possibly using modern assessment tools such as regulatory impact analysis (RIA).

Over the last five years, a number of steps have been taken to build and strengthen the institutional system for environmental management in Ukraine. However, these actions may not have achieved the expected results because of the too frequent reorganizations of environmental authorities. These frequent changes of the Ministry of Environmental Protection leadership have led to the dilution of the strategic vision and its

coherence and have resulted in weakening the efficiency of staff's work, scattering of technical and human resources and inefficient use of financial resources.

Furthermore, fragmentation and an unclear division of responsibilities between agencies responsible for environmental protection and their subnational structures have led to overlaps in objectives, responsibilities, functions and operations. They have also contributed to inefficient use of financial, material and human resources. The decentralization of environmental management to elected government structures has not been accompanied by a clear division of responsibilities and has not resulted in the expected better use of resources.

Therefore, there is a need to strengthen the capacities of environmental administration in Ukraine and to review the institutional setting and the division of responsibilities. As a matter of priority, the Ministry of Environmental Protection should review its staff, assess its capabilities, and allocate responsibilities according to objectives so that priority issues are addressed more effectively. This may mean that the Ministry and the Oblast Administrations concentrate their efforts on "core" public functions and a smaller number of priority issues and focus on solvable problems. The changes would also require adjusting the salaries of staff according to their responsibilities and introducing incentive-based structures to enhance employees' performance. All these steps can help ensure a fair, effective and transparent framework of policy-making and enhance the institutional capacity for implementation.

Recommendation 1.3:
The Ministry of Environmental Protection should prepare proposals to the Cabinet of Ministers to clarify the distribution of responsibilities and accountability in the environment administration between the national, oblast and local levels, and should identify ways to make the system more integrated and to appropriately delegate powers.

Some progress has been achieved in introducing mechanisms for integrating environmental concerns into economic and sectoral policies, and in injecting economic and social considerations into the design and implementation of environmental policies. However, the two major attempts to establish intersectoral mechanisms for working on integration of economic and social policies – the sustainable development strategy and the implementation of the NEHAP – failed because of insufficient political and management support. Ukraine still needs a strategy for sustainable development that would integrate updated policy directions for environmental protection, as called for in recommendation 1.1.

To ensure that the strategy will be efficiently implemented, there is a need to strengthen formal but flexible mechanisms for analysis and consultations in the integration of environmental considerations into specific sectoral issues such as energy, taxation, agriculture, health, transport, insurance and liability. Working groups and task forces, including those existing already, should have specific tasks to be performed within a clearly defined time frame. Adequate resources should be allocated for their proper functioning.

Also to guarantee efficient implementation of the strategy, the Ministry of Economy and the Ministry of Environmental Protection, jointly entrusted with its development, should ensure that environmental considerations are reflected in socio-economic development policies, that overlaps and contradictions are reduced and that synergies between the functions of different bodies are maximized. Lessons learned from previous failures to set up such mechanisms should be taken into account in considering the available options.

Recommendation 1.4:

- *The Ministry of Economy and the Ministry of Environmental Protection should speed up the development of the draft framework strategy on sustainable development, with the involvement of all relevant stakeholders, including NGOs and the business community. The framework strategy should focus on sectoral policies in areas such as transport, agriculture, energy, industry and taxation.*
- *Where they do not exist, formal coordination and communication mechanisms should be established by the Cabinet of Ministers to ensure the integration of environmental considerations into these sectoral policies, especially in those sectors where discussions about the trade-offs between economic and environmental impacts may be the most difficult to conduct.*

Chapter 2: Compliance and enforcement mechanisms

In Ukraine, the inspection duties are split among several inspection services. In 1999, after some changes in the Law on Environmental Protection, local authorities were given certain control functions, which is a new element in the institutional structure. However, the law is unclear and results in conflicting views on how the responsibilities should be shared. While delegation of some responsibility to the local level may have positive effects, the responsibilities of the respective levels need to be clarified. Similarly, efficiency could be greatly improved by reducing overlaps in responsibilities and activities of inspection bodies at the national level, namely between the MEP inspectors, including the special inspectorates for the Sea of Azov and the Black Sea, and the other independent inspection institutions for forestry, fisheries and others. Merging closely related entities is one option to consider; another is splitting and clarifying the responsibilities of the different entities.

Recommendation 2.1:

(a) The Ministry of Environmental Protection should review the organization of the inspection services and the related legal framework with the objective of increasing the effectiveness and efficiency of the inspection services and making sure responsibilities are clear and do not overlap. Based on the results of this analysis, the structure of the state inspection bodies for environmental protection should be streamlined.

(b) The Ministry of Environmental Protection should provide regular training on a non-commercial basis to ensure that inspection staff adjusts their skills in particular at territorial level.

The Law on Environmental Audits (LEA) of 2004 is a positive new element in Ukraine's environmental legislation. Currently it is used mainly as an instrument for introducing environmental considerations and decisions into business transactions. However, in the future it could also be used as a situation analysis instrument in an integrated permitting regime. Currently, measures proposed by the auditor are binding in cases where an audit is compulsory. However, if an audit were to be used in a permitting context, as was proposed in the first EPR, it would not be reasonable for the auditor to assume the authorities' role by setting permit conditions. The present strong power given to an auditor may also invite corruption, threats and other illegal activities. Finally, the LEA lacks the transparency and stakeholder involvement of the LEE.

The environmental permitting system is based on individual permits for different resource uses and single-media impact. There is no differentiation between large and small pollution sources. The result is a heavy administrative burden on permitting authorities and the regulated community, without any ranking of major pollution sources by priority. The present system, based on single-media standards, has a tendency to result in end-of-pipe solutions. Giving single-media permits makes it difficult to prioritize the most pressing environmental problems.

The MAC is also difficult to use as an instrument for regulating emissions when several sources contribute to the pollution. The introduction of an integrated permitting system for major pollution sources, based on the use of cleaner production/BAT options (which would eliminate or reduce emissions during the production process) rather than end-of-pipe treatment could reduce or overcome some of the weaknesses in the present system. The EU IPPC Directive could be used as a benchmark for such an approach. However, even with a "one-stop shop" ("one window principle"), such a system could be administratively cumbersome. Therefore, for minor sources, a simplified system proportionate to the environmental impact should be considered.

Recommendation 2.2:

(a) The Ministry of Environmental Protection (MEP) should take the lead in introducing an integrated permitting regime based on the use of BAT and case-by-case considerations, similar to the EU IPPC-Directive for major pollution sources. For minor sources, simplified permits, based largely on general binding rules or technical standards, should be considered. Territorial MEP offices, local authorities, industry and NGOs should be involved, as well as relevant Ministries.

(b) After establishment of an integrated permitting and pollution prevention and control regime, environmental audits might become a voluntary instrument. The revision of the law on environmental audits should include a less powerful role of the auditors.

The quality of environmental self-monitoring by enterprises is low in Ukraine. Only a few companies monitor their emissions properly. Continuous online monitoring is more or less absent in industry.

To control and minimize emissions and avoid accidents, industries need an effective self-monitoring system. Ideally such a system should continuously track the performance of industrial processes and emissions of major pollutants to enable quick responses by operators to prevent excessive emissions. Often an ideal monitoring system cannot be established for reasons such as lack of financial resources or suitable instruments. But instruments for continuously tracking emissions of sulphur dioxide, nitrogen oxide, particulate, mercury, volatile organic compounds and other pollutants are now affordable and available and are widely used internationally. In any case, even when traditional laboratory analysis is used, it is vital to get quick feedback to operators so they can take preventive action. Monitoring by the authorities can only rarely provide data that are timely enough for this purpose, as such data are "post-event" by nature. Frequent benefits of improved self-monitoring in industries are better process performance and more effective production, which often pay off in economic terms. For all these reasons, self-monitoring in Ukrainian industries should be improved.

Recommendation 2.3:
The Ministry of Environmental Protection, in cooperation with concerned sectoral ministries and the State Committee on Statistics, and in dialogue with business and industry, should improve environmental monitoring and reporting by enterprises. In this process, current legal requirements should be improved aiming at (a) the creation of a legal base for the implementation of the PRTR Protocol to the Aarhus Convention, and (b) incentives to facilitate an effective self-monitoring system.

See also related Recommendation 3.3 in Chapter 3.

Environmental regulations can be effective only when the rules are known and understood and, preferably, also accepted by the regulated community and the public. The key to achieving this is to establish a good dialogue between the various stakeholders when preparing, introducing and implementing new legislation. The dialogue between the MEP and environmental NGOs has improved in the years since the implementation of the Aarhus Convention requirements. The dialogue of the MEP with the regulated community does not seem to have progressed to the same extent, and consequently the implementation of the legislation is below reasonable standards. Some reasons for this include a weak dialogue between industry and the authorities and a lack of actions by the authorities to promote compliance with permits and related obligations.

Recommendation 2.4:
The Ministry of Environmental Protection should take the lead in promoting better implementation of and compliance with the legal framework, rules and conditions. This should include actions such as:

- *involving stakeholders in the development of the legislation as suggested above;*
- *arranging regular meetings with stakeholders to exchange views on how to best solve environmental problems; and*

organizing seminars to inform stakeholders about the implementation of new laws and decrees.

Chapter 3: Information, public participation and education

Since the first EPR in 1999, Ukraine has made some progress in observing its environment. It has enhanced its surface water quality observation network and has installed more transboundary water-monitoring stations. Nevertheless, the current monitoring networks are insufficient to meet the requirements of the country's national legislation and international obligations. The existing observation networks have not been reviewed or revised since their inception. There is no background monitoring in the country, and a number of important pollution parameters are not measured.

Various monitoring institutions reporting to different governmental bodies often measure the same pollutants but use different equipment, methods and procedures. There is no harmonized methodology for use by all institutions involved in monitoring the same environmental media. As a result, the monitoring data are distributed among various sources, disintegrated, and not comparable. Sporadic observations by environmental and sanitary inspectorates frequently duplicate each other.

To better coordinate environmental data collection in the country, the Cabinet of Ministers established the Interdepartmental Commission on Environmental Monitoring in 2001. The Commission has not met since 2004. The Ministry of Environmental Protection prepared a draft State Programme of Natural Environment Monitoring covering the period from 2006 to 2010. Its speedy approval by the Council of Ministers would give impetus to much-needed activities such as the modernization of monitoring stations, the optimization of networks, the creation of background and additional transboundary monitoring stations, and the establishment of computerized databases for multiple users.

Recommendation 3.1:
The Cabinet of Ministers should accelerate the adoption of the State Programme of Natural Environment Monitoring. The Ministry of Environmental Protection should reinvigorate the Interdepartmental Commission on Environmental Monitoring to serve as a driving force in:

(a) Monitoring the implementation of the State Programme of Natural Environment Monitoring;

(b) Ensuring the harmonization of monitoring formats, measurement and analytical methods, and data quality control and storage procedures used by different government bodies; and

(c) Coordinating existing monitoring networks and their extension, particularly those for background, transboundary (air and water) and marine environment monitoring.

The State Committee of Statistics has updated existing forms of environmental statistics data collection and introduced new forms. Some institutions in Ukraine have expanded their environmental databases and improved environmental information management and reporting. However, each monitoring institution continues to use its own software and databases. There is poor exchange of environmental data. Some oblast environmental authorities have recently established online databases linking all monitoring institutions and polluting enterprises in their regions, and this experience needs to be replicated elsewhere.

The Ukrainian Research Institute of Environmental Problems has developed integrated environmental assessment indicators to help compare the environmental situation in oblasts around the country and develop environmental policy. However, there is no evidence that integrated indicators and resulting maps have actually been used in Ukraine.

National reports on the state of the environment in Ukraine were published annually in Ukrainian and English through 2002; since then none has been published. According to a 2005 order of the MEP, the generation of future reports will follow a new approach, with the institution responsible for the report selected annually through tendering. This approach, which may jeopardize the consistency and continuity of the reports, should be discouraged in favour of the designation, pursuant to the *Guidelines for the Preparation of Governmental Reports on the State and Protection of the Environment* endorsed by the Kiev Ministerial Conference "Environment for Europe" in 2003, of a permanent, specially authorized State environmental body to be responsible for the production and subsequent distribution of reports.

Recommendation 3.2:
The Cabinet of Ministers should designate or establish a lead environmental monitoring and information institution (e.g. an environmental agency) to assist the Ministry of Environmental Protection in:

(a) Developing a national electronic database of data communicated by operators of leading environmental monitoring and observation networks according to agreed indicator sets;

(b) Maintaining national registers of state monitoring stations and analytical laboratories;

(c) Developing environmental assessments using geographic information systems (GIS) and other modern techniques;

(d) Publishing the national state of the environment report and other assessment reports, based on modern indicators, for use in policy- and decision-making and public information;

(e) Training experts in monitoring and information management.

Many big polluting enterprises in Ukraine monitor their emissions, discharges and wastes. For instance, 703 enterprise laboratories monitor water quality. The number of accredited laboratories has increased substantially

since the first EPR. Much remains to be done, however, as few enterprises operate modern self-monitoring systems (see also Chapter 2).

Both the State Ecological Inspectorate and the sanitary and epidemiological inspectorates of the Ministry of Health are checking the compliance of enterprise laboratories with accreditation documentation. Nevertheless, inter-laboratory comparisons of enterprise laboratories are still insufficient, as is training of laboratory staff.

While Ukraine signed the PRTR Protocol to the Aarhus Convention that was adopted in Kiev in 2003, there is no evidence that the country has launched any discussions involving key monitoring institutions, compliance authorities, sectoral ministries, business and industry, and NGOs in creating the legal, institutional and technical frameworks needed in order to establish a national PRTR.

Recommendation 3.3:
The Ministry of Environmental Protection, in cooperation with concerned sectoral Ministries and the State Statistical Committee, and in dialogue with business and industry, should improve environmental monitoring and reporting by enterprises by:

(a) Reviewing current legal requirements for enterprises' routine data collection on their emissions, discharges and wastes and their reporting to environmental authorities, and preparing proposals for strengthening these requirements and making them as specific as necessary;

(b) Establishing pilot PRTRs in a few oblasts (such as Zaporizhzhia, where the prerequisites for such a register have already been met with the launch of a regional environmental database covering major polluters), which would eventually lead to the creation of a national PRTR;

(c) Considering incentives to facilitate the collection and transmission of environmental data by enterprises, as well as corporate voluntary environmental reporting; and

(d) Helping enterprises train their staff members responsible for environmental data collection, analysis and management, and preparing and disseminating to enterprises guidance material using relevant international guidelines and manuals.

Ukraine has considerably broadened citizens' rights with regard to accessing environmental information and participating in environmental decision-making. Public councils have been established at the MEP and at oblast environmental authorities. There are examples of public participation in policy-making relating to the environment, such as the preparation of draft laws on environmental audit and environmental insurance. The creation of a Web portal for the Cabinet of Ministers and websites for government bodies has also broadened opportunities for the public to receive information.

Ukraine has to further develop its legal and regulatory framework so as to more effectively implement the requirements of the Aarhus Convention. There are no procedures in place for organizing public participation in state ecological expertises. There is no public participation requirement for the sanitary and hygienic expertises that evaluate the environmental health impact of proposed activities. There is discussion in Ukraine of merging all state expertises into a single one and entrusting the process to a new government institution in order to facilitate business development in the country. There is a risk that public participation may be overlooked in new legislation.

Recommendation 3.4:
The Ministry of Environmental Protection and Ministry of Health should review the existing legislation on ecological expertise and on sanitary and epidemiological expertise to clarify or establish detailed procedures for public participation consistent with the requirements of the Aarhus Convention. If the Cabinet of Ministers proceeds with the planned development of new legislation on merging all existing expertises, it should ensure that there are detailed procedures for public participation in assessments of the environmental and health impacts of proposed activities.

Ukraine actively promotes environmental education. The reform of primary and secondary schools was accompanied by the introduction of new environmental education programmes and standards. Ecology has been introduced as a mandatory subject in all higher education institutes, and a number of new environmental

curricula have been initiated. State educational standards and mandatory curricula for environmental experts have been approved.

The Ministries of Education and of Environmental Protection cooperate closely in promoting environmental education in vocational schools, universities and other higher education institutions. The Environment Commission of the Scientific and Methodological Council of the Ministry of Education includes representatives of both Ministries as well as university instructors and other academics. It does not deal with preschool or grade school education, "continuing education" for adults, or broader issues of education for sustainable development. Ukraine has not started discussions involving all stakeholders regarding the implementation of the UNECE Strategy for Education for Sustainable Development.

Recommendation 3.5:
The Ministry of Education, in consultation with the Ministry of Environmental Protection and other relevant Ministries responsible for certain areas of professional education (such as the Ministry of Health), should consider broadening both the mandate and the membership of the Environment Commission of the Ministry of Education. This body could be supplemented by experts in preschool, grade school and vocational education and non-formal and informal education, and by representatives of other stakeholders, including NGOs and the mass media, to help promote and facilitate the implementation, at the national level, of the UNECE Strategy for Education for Sustainable Development.

Chapter 4: Implementation of international agreements and commitments

Since the first EPR, Ukraine has devoted considerable efforts to developing cooperation with a number of international organizations. A number of international technical assistance projects have been implemented to improve water management and biodiversity conservation, develop strategic policy documents, and ensure adequate public access to environmental information and public participation in environmental decision-making. In the last few years, Ukraine has generally improved its compliance with international reporting obligations, although more needs to be done.

In particular, a number of programmes developed to make good on international commitments are insufficiently budgeted. To ensure implementation of the Convention on the Protection of the Black Sea against Pollution (the Bucharest Convention), the State Programme on Protection of Environment of the Black Sea and the Sea of Azov for 2001–2010 was approved, but financing for it has been insufficient. Similarly, the Comprehensive Programme on Top-priority Provisions for Centralized Water Supply in Rural Areas that Utilize Imported Water for 2001–2005 and forecast until 2010, which is critical for reaching interim targets under the Millennium Development Goals, has not been fully implemented due to a lack of financing.

This situation results partly from the common practice of financing environmental programmes with money left from other programmes and partly from the excessive number of state programmes related to implementation of international commitments that require financing from national sources. Given that effective implementation of these programmes may remain difficult, Ukraine should better prioritize the targets included under these programmes and secure their financing.

Recommendation 4.1:
The Government of Ukraine should devote more attention to fulfilling its international obligations in the field of environmental protection and make sure that the necessary financial resources are earmarked for the proper implementation of any national strategic documents. When such documents are approved, the Government should prioritize their targets and take all necessary steps to secure the financial resources. The option of decreasing the number of national strategic documents so as to ensure their financial viability, and thereby their implementation, should be considered.

Chapter 8 of Agenda 21 calls on countries to adopt national strategies for sustainable development. A 2003 Resolution by the Cabinet of Ministers approved a comprehensive programme for implementing the decisions taken at the World Summit on Sustainable Development for 2003–2005 that included the preparation of proposals for the National Commission on Sustainable Development, cooperation with international organizations on this matter, and development of a draft comprehensive programme for scientific research for

sustainable development. It did not, however, include any provisions related to development or implementation of a national sustainable development strategy. In 2004, with the support of international organizations, the Ministry of Environmental Protection (MEP) prepared a draft national strategy for sustainable development that has gone through several rounds of discussion by relevant government bodies but has not yet been approved. Such a strategy could significantly contribute to enhancing cross-sectoral cooperation and the integration of environmental issues into other sectoral policies. Therefore, its development should be pursued and its subsequent adoption swift.

See Recommendation 1.4.

In 2000–2004, Ukraine consistently failed to deliver reporting data under the Protocols on nitrogen oxides and sulphur emissions of the Convention on Long-Range Transboundary Air Pollution, nor has Ukraine reported on its implementation of the Espoo Convention in the two reporting cycles to date. During the past two years Ukraine has also had problems with transboundary impact assessments and public participation, in particular relating to the reconstruction of the Danube–Black Sea shipping canal. In spite of these problems, Ukraine is considering joining other multilateral environmental agreements, among them the Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and Their Disposal, the Protocol on Civil Liability to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the Convention on the Transboundary Effects of Industrial Accidents. Before making new commitments, Ukraine should consider actions to better fulfil the provisions of those international agreements to which it is already a party.

Recommendation 4.2:
The Ministry of Environmental Protection, in order to respect Ukraine's commitments under relevant multilateral environmental agreements, should:

- *Establish effective legal and institutional mechanisms, where they do not exist, for implementation of multilateral environmental agreements;*
- *Make every effort to collect and submit to the secretariats of international conventions and protocols the due related reporting as fully as possible and in due time;*
- *Notify Romania on the Danube-Black Sea shipping channel in accordance with the Espoo Convention and implement the recommendations of the inquiry commission established under the Espoo Convention as appropriate;*
- *Strengthen sub-regional cooperation and multilateral and bilateral agreements with the neighbouring countries with the objective of conducting environmental impact assessments in transboundary context, taking into account the lessons learned from the case of the Danube-Black Sea shipping channel;*
- *Whenever possible, prioritize actions aimed at fulfilling provisions of those international agreements that Ukraine is a party to; and*
- *Take actions for implementation of a strategy for the introduction of Strategic Environmental Assessment and the implementation of the SEA Protocol.*

With EU assistance, Ukraine has prepared a procedure for certification of the joint implementation (JI) projects under the Kyoto Protocol that was approved in 2006 by the Cabinet of Ministers. The Ministry of Environmental Protection serves in practice as Joint Implementation secretariat even though the unit within the MEP is not designated as such officially. The Centre for Climate Change was established under the auspices of the MEP for facilitating JI projects preparation and implementation. In 2005, the Cabinet of Ministers approved the National Plan on approaches for the implementation of the provisions of the Kyoto Protocol. The Cabinet of Ministers also approved the regulation specifying the procedures for evaluation, approval and implementation of JI projects and issuance of endorsement and approval letters for them, as well as the regulation aimed at coordination of activities on the national system of evaluation and GHG emissions and absorption. A body dealing with GHG emissions inventories has not yet been identified, although creation of the National Inventory Centre is foreseen. Ukraine succeeded in submitting annual National Inventory Reports (NIR) to the UNFCCC secretariat since 2004. However, the lack of procedures for implementation of JI projects until recently has been an obstacle for cooperation with the countries that showed their intention to participate in such projects with Ukraine.

Recommendation 4.3:
The Cabinet of Ministers and the Ministry of Environmental Protection should ensure implementation of the National Plan on approaches for the implementation of the provisions of the Kyoto Protocol to the UN Framework Convention on Climate Change by:

- *Clarifying the functions of the different bodies involved in implementing the Kyoto Protocol and improving their coordination;*
- *Ensuring that there is an officially designated national body responsible for reviewing, adopting and tracking joint implementation projects to reduce the country's greenhouse gas emissions and serving as a Joint Implementation Secretariat;*
- *Setting up a clear, simple and transparent framework for the development, approval, endorsement, registering and monitoring of joint implementation projects, including national criteria for the evaluation of such projects;*
- *Establishing a framework for advising national enterprises on the preparation of joint implementation projects and helping them obtain endorsement and approval letters; and*
- *Setting up a procedure or strategy for targeting potential donors or investors interested in joint implementation projects in Ukraine, and for maintaining a related database.*

Several projects, among them the GEF/World Bank Azov–Black Sea Corridor Biodiversity Conservation project and the UNEP/GEF project on Development of National Biosafety Frameworks have experienced problems during the implementation phase that have caused their temporary suspension or even complete closure, with the work left unfinished. These problems could have been avoided with better compliance with the rules and procedures of the partner international organizations. More transparent hiring and tendering procedures on both sides (recipients and donors) would make it easier to tackle technical problems as soon as they occur and thereby facilitate successful implementation of projects.

Recommendation 4.4
The Ministry of Environmental Protection should cooperate closely with international organizations when developing and implementing international assistance projects. The Ministry should ensure compliance with the rules and procedures of the international organizations, when carrying out these projects. The Ministry should enhance coordination with other national agencies implementing international assistance projects and improve monitoring of the implementation process.

Chapter 5: Economic instruments and environmental funds

The system of pollution charges has remained basically unchanged, although rates have been raised to reflect past inflation. Institutional changes have boosted compliance with regard to payment of charges. However, in spite of some attempt to reconsider the system of pollution charges, going beyond their revenue-raising role and focusing on alleviating environmental pressures, results are still insufficient. This would require, in line with the recommendations of the first EPR, further simplification and increases in rates for specific pollutants that can be adequately measured to levels that represent a real incentive for pollution reduction, in view of abatement costs and economic feasibility. The effectiveness of economic instruments depends on the existence of a strong enforcement environment.

Recommendation 5.1:
The Ministry of Environmental Protection, in cooperation with the Ministry of Finance and State Tax Administration, should review the system of pollution charges, aiming at its simplification and possible introduction of automatic indexation mechanisms for rates. In particular, they should assess the appropriate level of rates for selected pollutants to achieve specific environmental objectives and enhance the incentive role of charges.

The review of the system of pollution charges needs to consider the use of alternative instruments, including product charges. In particular, charges for air pollution from mobile sources that apply only to enterprises could be replaced by a product tax on fuel products that does not differentiate between users but takes into account the different environmental impacts of the various types of motor fuels. This tax could be collected together with excise taxes to minimize administration costs, with revenues earmarked for environmental expenditure, as in the

current system of pollution charges. For instance, charges on SO_2 emissions could be replaced by the differential taxation of fuel according to its sulphur content.

Recommendation 5.2:
The Ministry of Environmental Protection, in cooperation with the Ministry of Finance, should extend the base for the emissions charges for air pollution from mobile sources to all users. This should be done by inclusion of these charges in the price of all motor fuels.

Utilities tariffs now more accurately reflect costs, and the non-payment situation has improved. However, cross-subsidization is extensive and charges do no yet fully reflect the "user pays" and "polluter pays" principles. This situation discourages the use of savings measures and makes it difficult for companies providing utilities to attract the necessary investment. Municipal utilities need substantial financing in order to maintain their decaying infrastructure. Higher user charges and a well-defined tariff-setting framework are required to raise the necessary funds. Provision costs are high and should be reduced through the introduction of incentives to improve efficiency.

Recommendation 5.3:
The Ministry of Construction, Architecture and Housing and Communal Services, in cooperation with the Ministry of Labour and Social Policy, should create conditions fostering increased investment in the improvement of services provided by municipal utilities. Also, reinforcement of payment discipline and a gradual increase in tariffs to reflect costs are important and should be implemented. It should promote the reduction of these costs through benchmarking (defining a point of reference for comparisons between providers) and performance-based contracts, which establish a link between the revenue accruing to the utilities and efficiency gains.

Revenue accruing to the system of environmental funds has increased significantly, chiefly as a consequence of improved compliance resulting from the transfer (in 1999) of collection responsibility to the State Tax Administration and (since 2003) rate increases. In addition, the end of the ecological-economic experiment brought more revenues back to the environmental funds. Increased emissions in the most recent period have also contributed to higher revenues.

There has been less progress in expenditure management. The existing fragmentation, with thousands of local funds, leads to inefficient spending as a result of lack of consistency in overall environmental priorities. Local funds have reportedly allocated environmental funds to general-purpose expenditures of local governments. Project cycle procedures and criteria for appraising and ranking project proposals are better defined at the NEF, while serious shortcomings appear at lower territorial levels.

However, even at the national level the situation is far from satisfactory. The dispersion of functions within the Ministry of Environmental Protection and the absence of a unified management structure for dealing with these issues have prevented the adoption of clear guidelines and control procedures. The fragmentation of the system also leads to high costs and hampers alignment with environmental priorities. There is a need to develop a more solid foundation for identification of projects and prioritization of spending on the basis of formally rigorous effectiveness criteria. Transparency, financial planning and project-cycle management need to be improved, especially in view of the increases in revenues. Reform plans under consideration are steps in the right direction, but the opportunity provided by the planned change in the legal framework should be used to align the system fully with international best practices, as described in the so-called St. Petersburg Guidelines. The reform envisages giving funds an independent legal status, which is a positive step that should be accompanied by the creation of clear and transparent management and independent supervision mechanisms.

Recommendation 5.4:
The Ministry of Environmental Protection, in collaboration with the Ministry of Finance, should rationalize the system of environmental funds, drastically reducing their number and establishing a list of priority environmental actions for medium-term financing, including drafting of the necessary changes in the legal framework. These modifications should include the consideration of the few remaining funds as separate legal entities while applying good and transparent management rules

Chapter 6: Expenditures for environmental protection

Since the first EPR, and more precisely since 2002, Ukraine's expenditures for environmental protection have increased. Although the ratio of expenditures to GDP has remained fairly stable, in real prices environmental expenditures have doubled in absolute terms in the period 2002–2004. The share of expenditures by companies has been growing and now represents about 80 per cent of total expenditures. However, because of the insufficiently transparent accounting system, it is not possible to identify exactly on what areas these expenditures were spent and whether they financed the most pressing environmental measures.

Currently, Ukraine badly needs clear direction as to how it should spend its funds for improving its environment (see the discussion in Chapter 1). With the 1998 *Main Directions* outdated and Resolution No. 44 of 2001 cancelled, the Government and its ancillary bodies have no legal directives and simply use the list of activities in Resolution № 1147 of 1996 to label their environmental expenditures. Furthermore, the Ministry of Environmental Protection (MEP) is not involved in the decision-making process for environmental expenditures by other government bodies, and there is no cooperation between the different actors involved.

Under these circumstances, forecasting environmental expenditures is difficult. The unpredictability of revenue streams (due to possible exemptions granted by the Government) obliges the MEP to adjust expenditure programmes, usually to a smaller amount. Under the present system of unclear policy and poor planning, it is difficult for the MEP to plan environmental programmes whose implementation requires more than one year.

Recommendation 6.1:
The Ministry of Environmental Protection should identify and set priorities for environmental expenditures in collaboration with the Ministry of Finance, the Ministry of Economy and other relevant stakeholders (public authorities, business and environmental NGOs in particular) in line with updated goals and targets for environmental protection.

See also Recommendations 1.1. and 5.4.

Total expenditures for environmental protection may also be inaccurately estimated because of the existing methodology for data collection and reporting. The lack of a unified reporting system for all government bodies could hide expenditures that might be considered environment-related, or on the contrary cause expenditures to be identified as environment-related when in fact they are not. Sectoral ministries and other government agencies have expenditures that include an environmental component, but they do not account for them separately. The State Committee of Statistics and the MEP have developed a classification system for industry reporting on environmental expenditures that is compatible with international and EU practice and methodologies. A unified reporting system would allow policymakers to better forecast and control public environmental expenditures.

Recommendation 6.2:

- *The State Committee on Statistics should implement the statistical reporting system for environmental expenditure that it has developed together with the Ministry of Environmental Protection.*
- *The Cabinet of Ministers should update and approve the list of activities that are to be considered as environmental activities in line with the Eurostat European System for the Collection of Economic Data on the Environment (SERIEE).*

Due to the excessive fragmentation of the local funds (10,056), their efficiency is difficult to assess. Moreover, evidence of cost-efficient use of the funds is limited, as it is not based on an appraisal of the results of any programme implementation. It is recommended that such appraisal techniques be introduced at all levels of administration to increase efficiency in the management of expenditures. Also, good planning would give funds the possibility to use periods longer than one year as the basis of their work.

See Recommendation 5.4.

Chapter 7: Environmental management in the energy sector

Key problems of Ukraine's energy sector are the overly high energy intensity and the ageing technology associated with energy production. The resulting high levels of CO_2, SO_2 and NO_x emissions per unit of GDP have direct adverse effects on health and the quality of the environment. Slow restructuring of energy-intensive industries, old facilities and equipment, inadequate reforms and the slow privatization process are all factors contributing to the high energy intensity. Excessively low energy prices and extensive cross-subsidization have reduced the incentive effect of economic instruments. In turn, low energy prices and non-payments have put energy companies in huge debt and have impeded their modernization and the introduction of better technology.

The most pressing energy-related priority in Ukraine is to improve energy efficiency. Currently there are no economic measures for promoting energy saving or increasing energy efficiency, which are carried out through state regulation. At the same time, the use of renewable energy sources could be promoted – for instance, through the introduction of "green tariffs". Tax reductions should be granted to enterprises introducing energy-saving measures or using renewable energy sources.

Recommendation 7.1:

- *The Ministry of Economy, in collaboration with the Ministry of Finance, the Ministry of Fuel and Energy and the National Agency for Efficient Use of Energy Resources, should develop a policy of energy pricing that reflects the actual cost and signals to both companies and households that higher energy prices are unavoidable. A credible schedule should be devised for gradually increasing prices and reducing cross-subsidization.*
- *The Cabinet of Ministers should ensure implementation of energy saving programmes and foster a national information campaign to raise the awareness of the public and business sector regarding the importance and benefits of energy saving.*

National Energy Regulatory Commission (NERC), the national regulator of prices in the energy sector, is a formally independent governmental body that reports directly to the President and the Cabinet of Ministers. However, the actual independence of this regulatory body is questionable, which could lead NERC to make biased decisions and choose options harmful to environment. For instance, it might encourage the burning of domestic coal without introducing appropriate technology for preventing air pollution. Moreover, NERC in its current form cannot implement any reform of the electricity sector or implement market principles in the power sector. The current situation has a negative impact on the environment because of huge losses and overcapacity in the system and a lack of investments into rehabilitating and modernizing the power sector.

Recommendation 7.2:
The Cabinet of Ministers should complete the electricity sector reform, ensure the independence of National Energy Regulatory Commission, and create favourable conditions for rehabilitating the power sector and reducing its negative impact on the environment.

Economic incentives for promoting environmental compliance and energy saving are weak and do not send a strong enough signal to induce customers to modify their behavior. Cross-subsidization of households' and public institutions' energy consumption by industrial customers does not encourage the former to save energy. Energy consumption in Ukraine is not yet heavily dependent on energy prices, and price elasticity is low. The recommendation of the first EPR to introduce market pricing in the energy sector and remove energy cross-subsidies has not been implemented, except through a few readjustments of the energy prices since the beginning of 2006. If cost-reflective prices are not affordable for low-income consumers, then social measures should be devised to compensate for the price increases.

Recommendation 7.3:
The Cabinet of Ministers should introduce an energy tariff reform so that prices paid by end users reflect long-run marginal costs. Social measures should be worked out to mitigate the effects of the price increase on those who cannot afford it.

Energy issues should become one of the priorities of the Ministry of Environmental Protection. An integrated approach to achieve maximum fuel savings and emissions reductions should be pursued by implementing environment-friendly policies in the energy sector. Information campaigns to raise the awareness of energy providers and the public are needed. Ukraine has ratified the Kyoto Protocol and is preparing and implementing adequate legislation. Joint implementation projects and CO_2 tradable permits can contribute to moving the energy sector in a more sustainable direction, including energy saving and an increase in the use of renewable energy sources. The Kyoto Protocol's flexible mechanisms can be used to attract investments in developing renewable energy projects (windmills, biofuels and small hydropower plants) and implementation of clean coal technologies. These technologies could contribute to decreasing Ukraine's dependence on energy imports.

Recommendation 7.4:
The Ministry of Fuel and Energy and the Ministry of Environmental Protection should continue to promote the use of renewable energy sources by setting clear targets and timeframes, encourage decentralized heat and power systems and the implementation of clean technologies, in particular clean coal technologies.

See also Recommendation 4.3 on the implementation of the Kyoto Protocol.

Chapter 8: Environmental management in the industrial sector

Despite improvements since the first EPR, Ukraine still faces considerable barriers in developing its industry in a sustainable way. Progress on crucial structural reforms remains slow, and many industrial sectors, such as coal mining, are in poor shape. Progress in the implementation of strategies and programmes regarding industrial development has also been slow. Furthermore, there has been no integration of environmental sustainability issues into industrial policy.

Recommendation 8.1:
The Ministry of Industrial Policy, the Ministry of Coal, and the Ministry of Fuel and Energy, together with the Ministry of Economy and the Ministry of Environmental Protection, should establish clear policy objectives for sustainable development of the industrial sector and include them in the forthcoming national sustainable development strategy. This should be along the lines of the EU IPPC Directive and serve as a basis for industrial subsectors' planning.

The release of methane in coal mines and its subsequent ignition should be addressed, since these are the main factor in Ukraine's high rate of mine accidents and fatalities. This fatality rate can be reduced through adequate measures such as the installation of enhanced methane degasification systems, a decrease in levels of rock dust, underground water filtration, improved ventilation systems and the enforcement of safety regulations. Moreover, coal mine methane can be used for energy production. According to the EU-Ukraine Action Plan for 2005–2007, the country also has to take measures to advance the restructuring of its coal mines. So far the current Government's programme to restructure the coal sector (by closing a certain number of mines and modernizing some others whose coal output could be increased) has progressed very slowly, and the implementation of the 2001 Coal Programme has not had the expected results. However the establishment in 2005 of a Ministry of Coal shows renewed strategic interest in the exploitation of coal resources.

Recommendation 8.2:
The Ministry of Coal, with the cooperation of appropriate other ministries, should:

(a) Urgently develop and implement a national mine safety programme in order to reduce accident risks and improve safety at coal mines; and

(b) Take concrete actions to further implement the coal sector restructuring programme, including the compilation of an inventory of specific mines to be closed and these mines' related environmental, social and economic impacts.

There is significant potential to improve environmental indicators in industry by replacing obsolete technology with cleaner technology and best available techniques (BAT), which are connected with the gradual introduction of the IPPC Directive in Ukraine. First steps towards the introduction of an integrated permitting system have already been taken. At the same time, a National Strategy to Introduce Cleaner Production was

recently drafted. However, the development of a policy and legal basis, a BAT database, technical guidance on sectoral and horizontal BAT, and training on procedural and technical aspects of BAT are needed to ensure the effective implementation of integrated permitting in Ukraine.

Recommendation 8.3:
The Ministry of Industrial Policy and the Ministry of Environmental Protection should promote the adoption of the draft Strategy to Introduce Cleaner Production in Ukraine. Within the framework of introducing cleaner production, the Government should promote cleaner technologies and best available techniques (BAT), including by establishment of appropriate institutional structure.

See also Recommendation 2.2.

The new draft waste classification, based on the European Waste Catalogue, will require changes in the current waste monitoring and reporting system. In addition, regulations concerning the management of mine waste are needed and could incorporate the concepts included in the draft EU Mine Waste Directive, which deals with the management of waste rock and tailings from the extractive industry (since mining does not fall under the IPPC Directive). This draft directive also provides for financial guarantees to ensure full restoration of waste facilities based on BAT.

Recommendation 8.4:
The Ministry of Environmental Protection should:

(a) In cooperation with the State Committee on Statistics and the Ministry of Industrial Policy, revise the monitoring and reporting system for industrial waste, including hazardous waste based on the new waste classification and envisaging the introduction of integrated permits. A geographic information system (GIS) for obtaining more reliable information on wastes (e.g. places of storage, components, amounts) should be integrated into the national observation network system so that related information can be used in decision-making; and

(b) Develop regulations for the management of mine waste.

Recommendations related to the implementation of the Kyoto Protocol by industry and on pollution charges appear respectively in Chapters 4 and 5.

Chapter 9: Environmental management in transport

The impact of the transport sector on the environment in Ukraine has increased significantly during the last decade. In spite of insufficient and unreliable data, there is evidence that:

- Official calculations show an increase in all types of emissions from road transport;
- Associated with the emissions, energy consumption by road transport has also increased;
- Based on the increased stock of private passenger cars, there has been a corresponding increase in transport volume and vehicle mileage; and
- A modal shift has occurred in the overall traffic volume, with road transport increasing its share.

The local situation in Kyiv also supports the assumption of deteriorating environmental performance:

- The stock of private passenger cars has almost tripled in the past decade.
- Air pollution in Kyiv has worsened due to increased transport volume and a lack of catalytic converters, even in new vehicles.
- Nitrogen dioxide concentrations have increased since 2001 and are now about 2.75 times higher than the national standards.

Experience in other countries in transition has shown that improvements in the economic situation are generally accompanied by an increase in transport volumes. Therefore, it is likely that further economic growth will lead to an increase in transport activities and the use of private vehicles, and therefore an increase in energy consumption and air-polluting emissions. For all these reasons, the environmental impact of transport activities

is beginning to create serious health and environment problems, and Ukraine, which until now has paid little attention to this issue till now, urgently needs to address it.

Before any sectoral strategy is developed, reliable statistical data need to be collected and appropriate internationally recognized indicators used. These are necessary not only for determining policy directions but also for measuring the effects of any policy that is finally implemented. The serious inconsistencies and gaps in Ukraine's official data on transport indicators and related environmental impacts are cause for concern. These data are insufficient to support any decision-making and cannot be used to adequately reflect trends. This shows that government competencies are not being used appropriately and that cooperation between government institutions is lacking. In addition, the overall political responsibility for transport and its environmental impacts does not seem to be coordinated by one government body but rather is distributed among several ministries, institutions and oblast and local authorities.

Recommendation 9.1:
The State Committee of Statistics, in cooperation with the Ministry of Transport and Communications and the Ministry of Environmental Protection, should gather, manage and publish all information on transport and its environmental impacts, following internationally recognized statistical systems and indicators.

As their standard of living improves, Ukraine's inhabitants will increasingly purchase and use private vehicles. This will result in higher road transport volumes and mileage. Consequently, the modal shift from rail to road transport, which is already noticeable today, can be expected to continue. Further increases can be expected in transport-related environmental impacts, including energy consumption, carbon dioxide emissions, and air and noise pollution. More attention needs to be devoted to reducing these impacts.

Recommendation 9.2:
The Ministry of Environmental Protection, together with the Ministry of Transport and Communications, should:

(a) Carry out an analysis of the environmental impacts of the transport sector; and

(b) Based on the results of this analysis, elaborate strategic concepts for developing sustainable transport and solving related environmental problems. All data, definitions and concepts should be made publicly available and discussed with the stakeholders.

Better knowledge of the environmental impacts of transport and an improved sense of political responsibility are prerequisites for raising awareness of environmental problems and winning acceptance of mandatory improvements in the transport sector. Technical measures are generally accepted most readily because they do not influence traffic behaviour and because, at least in some areas, they have very high efficiency. For instance, emissions of major air pollutants from vehicles complying with current EU standards are up to over 90 per cent lower than emissions from vehicles complying with the current Ukrainian national standards. It is important that requirements of national standards on pollutants emissions for new vehicles are brought closer to EU emission limits as soon as possible. However, the purchase of new vehicles depends on their affordability for a potential consumer. Therefore many cars built to dated environmental standards will continue to be used for some time, as will low-quality fuels. To be effective, policies will need to include measures that improve the current vehicle stock.

Improving the quality of fuels and checking their compliance with quality standards would also reduce air pollution. Equipping vehicles with catalysts and filters further reduces emissions of nitrogen oxide, carbon monoxide, hydrocarbons and possibly particulate matter. In order to check the increasing energy consumption and the growing emissions of greenhouse gases, other measures have to be considered, and technical inspection of cars needs to be carried out strictly and regularly. Such measures, when accompanied by changes in driving behaviour, usually lead to a reduction in fuel consumption and therefore in air emissions.

Recommendation 9.3:
The Ministry of Transport and Communications and the Ministry of Environmental Protection should:

(a) Request the relevant authorities, including State Customs Service, to swiftly implement the Euro 2 standards, and prepare steps for transition to Euro 3 and 4;

(b) In cooperation with the Ministry of Fuel and Energy, introduce EU standards on motor fuels EN 228-2004 and EN 590-2004 as national standards for vehicles with improved environmental indicators, facilitate improvement of fuel quality, in particular regarding sulphur content, and strengthen the enforcement of related quality standards;

(c) Develop incentives to encourage the renewal of the car fleet and preferably to give a comparative advantage to cars with good environmental performance; and

(d) Establish a national testing centre to check compliance of vehicle types with requirements of international standards.

Globally, it has been observed that increased use of public transport (relative to the use of private passenger cars or aircraft) normally leads to lower environmental impacts. This applies to passenger transport via railways, trams or metro (subways) as well as to freight transport by rail or inland navigation. Passenger transport in the large cities of Ukraine could have a particularly large environmental impact. These cities have well-developed public transport systems whose relevance could, however, decrease in the future given the growing numbers of private passenger cars. Municipal authorities should devise measures to maintain attractive and competitive public transport services.

Recommendation 9.4:
The Ministry of Transport and Communications should continue and intensify the promotion of public transport by:

(a) Developing a programme for modernization of the railway infrastructure;

(b) In cooperation with municipal authorities, introducing measures to improve public urban transport. This includes modernization of the passenger fleet to decrease its emissions (e.g. retrofitting diesel vehicles with particulate filters, use of natural gas and other cleaner fuels for buses, and extension of tram, trolleybus and metro networks), facilitation of public transport flows, optimization of schedules and connections, and introduction of other appropriate measures favouring public transport.

Chapter 10 Land management and protection

Given the multiple functions of land in society, the legal framework for land use has to be set up carefully, taking into account the balance between economic, societal and ecological needs. In recent years, environmental problems in the farming sector and in agricultural land uses are likely to have deteriorated in Ukraine. The traditional approach to land and soil protection remains the development of national programmes that are underfunded or not funded at all. This tends to create situations where state authorities do not assume their responsibilities – there is always a programme that is supposed to take care of the problems, but nothing or little can be done, as the funding is not forthcoming. National programmes could and should be developed, but they need to be focused and strongly prioritized – and fully funded.

Land protection

An important task in promoting environmentally sound land use is the development of a concrete and focussed national programme for land protection. The State Programme for the use and protection of land in 2006–2015 that has been proposed is very ambitious, and there is a risk that the considerable funding needed will make it difficult to approve and fund. Further prioritization may be needed.

Recommendation 10.1:
The Cabinet of Ministers should adopt the national programme on land use and protection and submit it to the Parliament for approval. Sufficient funding should be ensured to achieve its objectives.

Land administration

There is a lack of consistency and inter-ministerial coordination in the preparation of legislation affecting land reform. The government has specified that 38 first-priority laws have to be prepared to support the Land Code, of which a majority have still not been adopted by mid-2006. It could be recommended that the focus should be on improving existing laws and regulations (instead of creating new laws). Attention should also be given to

streamlining institutional responsibilities. During the last 15 years a number of new institutions and functions have been created in the area of land reform and land ownership rights, with the aim of promoting the market economy. Thus, it is no surprise that there are conflicting goals and overlapping responsibilities among different agencies, institutions and levels of the government, with wide distribution of decisionmaking authority. For example, the State Land Resource Committee and the Ministry of Justice take similar initiatives but act incoherently in establishing the land cadastre and land registration system. As a result, decision-making requires numerous interministerial consultations, which delays decisions on major issues and spreads confusion among citizens, the private sector and potential investors. Ukraine has a unique possibility to develop a land cadastre and land registration system from zero, which would allow the development of a single, unified system within one state agency (institution) in charge of all land administration policy and issues. This system should cover the whole territory and apply the same rules and principles throughout the country in order to secure land ownership rights and effective land market development and to perform mass valuation of land for taxation purposes. Provided that a unified state cadastre is developed, all necessary technical information required for rights registration should be held by a single agency. This agency must be neutral and must take fair and balanced account of the interests of all other administrations involved in the process. To improve customer services, the principle of a one-stop shop should apply. The possibility of locating cadastre offices and rights registration offices on the same premises should be considered, since in the present situation weak communication links are evident, especially in rural areas. It is necessary to fully use the potential of a unified cadastre as a fundamental source of aggregated information not only for real property rights registration but also for environmental monitoring, environmental impact assessment, landuse planning, municipal management and the like, and therefore the possibility of including information from other "cadastres" in the unified national cadastre at cadastre offices/chambers would be a plus.

Recommendation 10.2:
The Cabinet of Ministers should designate a single body (ministry, committee or agency) to be in charge of establishing a unified property cadastre (national cadastre) as a sole source of information on real estate property including land.

Land use in rural areas

As a result of land privatization, the number of landowners and that of land parcels in private ownership have increased dramatically. Thus, in order to ensure environmentally and economically effective land use, the government should address the issue of land consolidation and land reallocation. Given the current moratorium on agricultural land sales, there are two basic ways for land consolidation: (a) the renting of land by large- and medium-size farmer enterprises and (b) the expansion of small private farms by pooling the land shares of private landowners. As of now, there is no state policy on land consolidation. One of the main principles for an efficient and competitive agricultural production is to preserve and increase land fertility and prevent soil degradation processes, which are closely linked to land management practices. However, because of the slow land reform, the 47 per cent of the 6.9 million landowners in rural areas that still have land shares use land as if they were renting it, which makes them less motivated to use land in a sustainable way, implementing protection measures to preserve its fertility, than if they were real owners. The lifting of the moratorium on agricultural land sales is essential for the consolidation of land and for long-term planning in the agricultural sector. It is important to prepare territorial development schemes with transport infrastructure and development of offfarm economic opportunities in order to attract investments and reduce the possibility of conflicts when the Government has to buy the land for infrastructure development and other projects of national importance.

Recommendation 10.3:
The Cabinet of Ministers should establish, as a matter of priority, infrastructure essential for the proper functioning of a land market, including cadastre and land registration, valuation of land, and procedures for securing property rights and market transactions; give land owners unrestricted access to information on their legal rights and ensure that they receive information in a timely manner..

In the current economic situation, it is not easy to introduce environmental protection schemes in the agricultural sector. New practices are only likely to be introduced successfully if they also contribute to improved production and an improved standard of living. More sustainable agriculture that optimizes productivity, agricultural practices and use of inputs would have a positive impact on soil and land

management. Training is a key issue in the development of private agriculture in Ukraine. Although many farmers are skilled and have considerable experience, training and extension services are very important elements in the development of the economy as well as the introduction of sustainable agriculture. Maintaining a well-developed and well-balanced rural economy is also crucial for the protection of the environment and natural resources, including the long-term preservation of soil and landscape. At the national level, it is important to further support the development of extension services in order to promote principles of sustainable and efficient agriculture. The establishment of good agricultural practices, possibly on a regional basis, is a key element in this process. Practices protecting against land and soil degradation are one important issue.

Recommendation 10.4:
The Ministry of Agrarian Policy should establish a process for the development and promotion of good agricultural practices and guidelines for their implementation to guide policy development and extension services in the agricultural sector. Advising farmers on how to counteract land and soil degradation should be a central component of this work.

Considerable areas of non-utilized land are found in Ukraine. Much of this land, frequently seriously degraded agricultural land, should be planted with forests. Not only does the new forest protect and regenerate the degraded land and provide opportunities for future income, it also contributes to creating new stabilized ecosystems. The State Programme "Forests of Ukraine" for 2002–2015 could be an efficient instrument for increasing forest areas if sufficient funding were allocated for its implementation. The establishment of a National Ecological Network of Ukraine in accordance with the State Programme on Developing Econetwork is a commendable and ambitious endeavour. In a country where agriculture is so dominant, the establishment of the network is an important step for the protection of biodiversity as well as landscapes. Although the establishment of the network is developing, there are considerable problems. One of them is the difficulty of introducing management restrictions in the now private lands of the corridor zones that connect protected areas. Similar restrictions in land use are needed on large areas of degraded agricultural land that should be withdrawn from arable agriculture.

Recommendation 10.5:
The Cabinet of Ministers should ensure financing to make it possible to accelerate the implementation of the State Programme on Forestry for 2002–2015 and the State Programme on Developing Econetwork, in particular with regard to the enlargement of forested areas.

Recommendation 10.6:
The State Committee on Land Resources, in collaboration with the Ministry of Environmental Protection and the Ministry of Agrarian Policy, should develop economic mechanisms/compensation schemes and regulations to make it possible to introduce proper management restrictions on private land, particularly in the ecological network corridors, and to withdraw severely degraded land from arable agriculture.

Land use in urban areas

Land management in urban and rural settlements needs to be improved in order to contain urban sprawl, optimize the infrastructure and rationalize the use of land. Decisions on master plans and related development should be made by municipalities, which should involve their population through public hearings. If needed, appeals to the regional government should be possible. The municipality should be responsible for issuing building permits on the basis of the approved master plans. It should not be possible to issue building permits that contradict existing master plans. It should become obligatory by law for urban municipalities to pre-empt or privatize real property through open tenders, regardless of whether it is being sold, leased or rented; a possible procedure for such open tenders could be: (a) Municipalities in urban areas report all real property for sale, lease or rent to the regional authority. (b) The regional authority publishes every quarter, in at least two broadly available media publications, a list of real property to be put out for tender in each urban municipality. The list should very briefly describe each property, the form of transaction planned (sale, lease, rental), the deadlines for tendering, and information on where in the municipality further information can be obtained and tenders submitted. The state authorities should develop guidelines on flexible, efficient and transparent procedures for land-use planning and zoning in urban areas. Such guidelines should include recommendations

on procedures for making changes to already approved plans. Public participation in the decision-making process should be a routine practice and should be provided for in urban planning legislation.

Recommendation 10.7:
In order to better control urban sprawl:
• Municipalities and relevant governmental bodies, within their competence, should prepare or update documentation related to urban planning including land use planning;
• Municipalities should grant building permits in accordance with this documentation;
• Clear procedures for making changes to already approved plans should be specified; and
• Public participation in the decision-making process should be a routine practice and ensured by compliance with the relevant legislation.

Implementation of 1st EPR recommendations

PART I THE CONDITIONS OF ENVIRONMENTAL POLICY AND MANAGEMENT

Chapter 1: Legal instruments and institutional arrangements for environmental protection

Recommendation 1.1:
A deadline should be set for the former Soviet regulations to be replaced or abolished. The laws that were drafted before the new Constitution was adopted should be re-examined critically. The harmonization between laws and their effective enforcement should be regarded as a priority.

The Constitution of Ukraine has been adopted on June 28, 1996. Since then, most legislative acts adopted before 1996 have been revised. However, some former Soviet regulations, e.g. some environmental standards, are still in force.

Recommendation 1.2:
The National Environmental Action Plan should be revised and refined in close cooperation with other ministries and social groups concerned, to set clear priorities, targets and time frames in the different sectors of environmental protection. See also Recommendations 3.1 and 7.4.

Key policy document "Main Directions of the National Policy of Ukraine for Environmental Protection, Natural Resource Use and Environmental Safety" (Resolution of Verkhovna Rada of Ukraine № 188/98-VR, 5 March 1998) has not been revised. The draft Strategy of Sustainable Development of Ukraine is now in the process of consideration and approval. The draft Strategy formulates priority goals and objectives including those related to the environmental sector. It is expected that national environmental policy will be revised after the adoption of the Strategy of Sustainable Development.

Recommendation 1.3:
There should be a continuous exchange of views between the different administrations and interest groups involved throughout the law-making process; substantive contacts and cooperation between ministries and with other institutions should be possible without the authorization of the Cabinet of Ministers.

Ad hoc working groups and task forces for drafting legal and regulatory acts as well as for solving the intersectoral problems are typical forms of cooperation between different governmental bodies.

Recommendation 1.4:
Environmental auditing of industrial enterprises should be considered a suitable basis for gradually developing an integrated permitting system, covering air, water and waste at the same time. The organization of the various inspecting services should be reconsidered with a view to improving their combined economic efficiency. See also Recommendation 13.6.

Introduction of integrated permit system requires substantial revision of current legislation. The Ministry of Environmental Protection of Ukraine is in the process of drafting the set of relevant legal acts.

Recommendation 1.5:
The Ministry of Environmental Protection and Nuclear Safety should strengthen its coordinating activities regarding environmental monitoring. A coherent and comprehensible national monitoring system should be developed, for which the harmonization of data systems and methodologies is a prerequisite. The data should also be systematized, integrated and processed for management decisions. The European Environmental Agency should be provided with comparable data. The work on the development of an adequate environmental information system should be accelerated in order to assist in the strengthening of public and governmental awareness of environmental problems. See also Recommendations 4.7, 7.6, 8.2, 9.5, 10.5, 11.6.

The Cabinet of Ministers established the Interdepartmental Commission on Environmental Monitoring in 2001 (Resolution No. 1551 of 17 November 2001). In 2002 the Ministry of Environmental Protection approved the Procedure for Information Exchange between the Ministry's Bodies and Other Environmental Monitoring Entities when Conducting Prescribed Observations of the Environment. The European Environment Agency was provided with comparable datasets for the 2003 Pan-European State of Environment Report (Kiev Assessment).

Recommendation 1.6:
The Ministry of Environmental Protection and Nuclear Safety should improve public access to environmental information in accordance with the Aarhus Convention and should seek more contact with the entire NGO community, particularly when preparing legislation and developing policies or action programmes. Suitable methods for improving public participation should be adopted after consultation with the NGO community. Environmental impact assessment should be seen as one tool for strengthening public participation in environmental decision-making. The Ministry should intensify its contacts with the press. The public should be encouraged to pursue its environmental rights, and procedures for public participation in environmental decision-making should be put in place speedily.

In 2003, the Ministry of Environmental Protection approved the procedure for providing public with environmental information and the regulations on public participation in decision-making in environmental matters. The Public Council was established in 1999 at the Ministry of Environmental Protection. The Council consists of representatives of different environmental NGOs and agenda of its meetings includes consideration of draft legal and regulatory documents and different issues of development and implementation of environmental policy. In 2003, the Aarhus Information and Training Center was opened at the Ministry of Environmental Protection. The Ministry signed an agreement with the All-Ukrainian weekly "Ukraine and World Today" in order to share environmental information through regular publications. The State Construction Norms DBN A.2.2-1-2003 "Structure and content of the documentation for environmental impact assessment (EIA) in designing and building industrial enterprises, buildings and structures. Main regulations for design." established a procedure for public participation in EIA.

Chapter 2: Economic and regulatory instruments

Recommendation 2.1:
The necessary and sufficient economic instruments needed for the introduction of the polluter-pays principle should be identified. Investigations are necessary in preparing decided moves towards an unequivocally market-oriented fiscal and economic policy. They should clarify what levels of environmental charges etc. are both sufficient and feasible, and determine the time frame for their introduction. See also Recommendations 7.3, 8.7 and 10.3.

The system of pollution charges has remained basically unchanged, although rates have been raised to reflect past inflation. In spite of some attempts to reconsider the system of pollution charges, going beyond their revenue-raising role and focusing on alleviating environmental pressures, results are still insufficient.

Recommendation 2.2:
The system of ambient standards for pollutants that are most significant for environmental health and ecosystem protection should concentrate on the pollutants that can be monitored and for which the standards can actually be enforced, including those for which Ukraine has assumed international obligations. The standards should be simple, clear and controllable. See also Recommendation 8.5.

The system of ambient standards for pollutants remains unchanged since the first review of Ukraine and is still based on maximum allowable concentrations (MACs) for a large number of pollutants. One important exception is standards for air pollutants based on the Law on Air Protection that came into force in 2001. A new approach is now used for air pollution in existing and new installations. Conditions in permits for air emissions are no longer based on MACs in ambient air since 2003 when the MEP abolished this practice.

Recommendation 2.3:
A special mechanism should be designed to help create a market for secondary products. The waste disposal charges could be increased, and clauses for refunding could be introduced for recycling and reuse.

The rates of waste disposal charges have been increased in line with inflation. A state company, Ukrecocomresources, has been created to operate a system of collection, sorting, transportation, recycling and utilisation of waste. The licensing procedure for the enterprises dealing with the collection of waste for recycling has been established. The centralisation of licensing is an obstacle for the development of private business in this area.

Recommendation 2.4:
The statistics on environmental expenditures should be improved, indicating the source of funding.

The OECD project "Setting of information systems of expenditures for environmental protection in compliance with standards of OECD/Eurostat" is being implemented in Ukraine. The implementation of the project will allow policymakers to plan public environmental expenditures in a more effective way. The Government has to approve the new system of environmental expenditures reporting and enforce it.

Recommendation 2.5:
A national environmental fund and regional environmental funds should be created with clear and transparent management systems. The purpose of the funds would be to improve the difficult funding situation of environmental activities during the transition period.

As of today, environmental funds are in fact earmarked budget accounts and are consolidated into the State budget and budgets of the respective territorial levels. They are not separate legal entities. To improve the system of environmental funds, a Law on National Environmental Fund was drafted. The law would (a) transform three-level environmental funds system into two-level one (1 national and 27 regional funds, including the Autonomous Republic of Crimea, 24 oblasts and the cities of Kyiv and Sevastopol); (b) give the funds an independent legal status; (c) use the funds to help enterprises by reducing the costs of commercial loans for environmental investments. In 2006, the draft law was rejected by Verkhovna Rada (Parliament).

Chapter 3: International cooperation

Recommendation 3.1:
The National Committee for Sustainable Development should intensify its work and meet at regular intervals to make it an effective tool for intersectoral cooperation regarding environmental issues. See also Recommendation 1.2.

The National Committee for Sustainable Development under the Cabinet of Ministers of Ukraine was dissolved in 2003 (Resolution No. 1414 of 4 September 2003). The same year the National Council on Sustainable Development under the President of Ukraine was established (Resolution No. 388 of 3 May 2003). The mission of the Council is to improve and coordinate activities in the field of sustainable development. However, the Council remained in fact non-operational, with no meetings of the Council taken place since its inception.

Recommendation 3.2:
Implementation, compliance and enforcement of environmental norms and action plans following existing international commitments should be a priority for all actors in Ukraine's environmental policy. Plans for the ratification of new international legal instrument for environmental protection should include an assessment of the cost of its implementation, and Ukraine should continue to work towards the ratification of all major international environmental conventions, in accordance with its national priorities. See also Recommendation 7.9.

Ukraine is a party to 20 major environmental conventions and a signatory to two more. It has acceded to nine and signed six protocols to environmental conventions. Compliance with and enforcement of international agreements are weak, mainly due to a lack of financial means clearly dedicated to implementing their provisions.

Recommendation 3.3:
The coordination and cooperation between all institutions involved in the development of policies and the management of internationally funded projects should be improved. A special project management unit for environmental projects receiving foreign financial assistance should be established. A voluntary international task force could also be created, composed of partner countries willing to assist Ukraine in its environmental protection activities. A clear orientation towards market-oriented measures and approaches is needed also for international cooperation.

The Ministry of Economy of Ukraine is a key coordinator of international technical assistance for Ukraine. The Ministry arranges regular meetings involving representatives of governmental institutions as well as representatives of the projects of technical assistance, international financial institutions, foreign companies, etc. In order to coordinate cooperation with international organizations on implementation of environmental programmes and projects, the Unit for Coordination of International Technical Assistance has been established within the Department of International Cooperation of the Ministry of Environmental Protection. But the Unit has no right to financially manage an international project. Several projects have experienced problems during the implementation phase that have caused their temporary suspension or even complete closure, with the work left unfinished.

Recommendation 3.4:
The preparations for the "Environment for Europe" Conference in 2002 should start early, and involve all governmental and non-governmental institutions concerned.

The Fifth Pan-European Conference of Environment Ministers "Environment for Europe" took place on May 21-23, 2003 in Kyiv. Delegations of 51 member states of the UNECE region and 29 international organizations as well as representatives of numerous environmental NGOs and mass media participated in the Conference.

Recommendation 3.5:
Awareness about international environmental conventions and policies and their importance for social and economic issues at the national and regional levels should be raised with special programmes targeting decision makers as well as the public.

In order to raise awareness about international environmental conventions, the administrative and scientific centers for some conventions have been established. Texts of most conventions were translated into Ukrainian, published and disseminated among political, educational, scientific, and NGO communities. Special training programmes, mainly related to the implementation of Aarhus Convention, are arranged by the Aarhus Center.

Recommendation 3.6:
The development of bilateral and multilateral agreements, projects and action plans to conserve threatened species and migratory species should be encouraged; in particular, measures should be taken to prevent the import of alien species and the illegal traffic in wildlife specimens, in particular those covered by CITES in order to prepare for its implementation.

A number of legal acts have been adopted in Ukraine to conserve endangered species and migratory species. *Inter alia*, Ukraine signed the Memorandum of understanding on the conservation of *Otis tarda* in 2002, the Memorandum of understanding on the conservation of *Acrocephalus paludicola* within the Bonn Convention in 2003. Ukraine has signed and ratified the Agreement of the Protection of Bats in Europe. According to the requirements of the CITES, the Rules of issuing permits and certificates for import/export of endangered species of wild flora and fauna have been approved (Order of the Ministry No. 147/110 of 16.04.2002). The cooperation with Danish and Dutch governments resulted in publication of information materials related to CITES (text of the Convention, species catalogue etc.) The published materials were distributed to all relevant officials (customs officers, ecological inspectors, etc.).

PART II MANAGEMENT OF POLLUTION AND OF NATURAL RESOURCES

Chapter 4: Management of nuclear safety

Recommendation 4.1:
Following ChNPP Units 1 and 2, Unit 3 should also be shut down permanently according to the Memorandum of Understanding. If K2/R4 should start operation, the possible shutdown of other older reactors should be considered. The international community should consider assisting financially in all technical and socio-economic consequences of such decisions, which in some cases may substantially affect entire communities, like the city of Slavutych.

According to the Resolution of the Cabinet of Ministers No. 598 of 29 March 2000 the Unit 3 of Chernobyl NPP was shut down permanently in December 2000. The Energy Strategy of Ukraine for the period until 2030 foresees the extension of the prescribed period of exploitation of Ukrainian nuclear reactors for 15 years.

Recommendation 4.2:
Legal instruments (including the final adoption of licensing procedures for nuclear facilities) and institutional arrangements for nuclear safety should be aligned with the strategic objective of making operators of nuclear facilities responsible for safety. Environmental policy requirements regarding uranium mining, radioactive waste management and plans for the exclusion zone around Chernobyl should also be formulated swiftly.

The Law on Licensing Activity in the Area of Nuclear Energy Use was adopted in 2000 (No. 1370-XIV). Resolution of the Cabinet of Ministers No. 2015 of 25 December 2002 approved the Comprehensive Programme on Radioactive Waste Treatment, which specifies actions and timeframe for their implementation. Interagency Commission on Issues of Implementation of Comprehensive Programme is responsible for coordination of activities under the programme. The State Enterprise "East Mining Complex" in the city of Zhovti Vody is dealing with extraction and processing of uranium ores. The Programme of Social and Radiation Protection of Population of the City of Zhovti Vody for 2003–2012 was adopted by the Resolution of the Cabinet of Ministers No. 656 of 5 May 2003.

Recommendation 4.3:
A realistic scenario for the role of nuclear energy should be developed urgently. The scenario should include (a) a revised projection of the future demand for electricity, (b) an assessment of the long-term capabilities of renewable energy in Ukraine, (c) a programme of energy saving measures and (d) an operational plan to make VVER reactors safer. See also Recommendation 13.5.

The Energy Strategy of Ukraine for the period until 2030 was approved in March 2006 by (Resolution of the Cabinet of Ministers No. 145-r). The Strategy proposes to meet the increasing demand in heat and electricity by constructing 22 new nuclear reactors (total capacity 18.5 GW). Besides nuclear energy the Strategy focuses on conventional fossil fuels, i.e. coal, gas and oil. It briefly mentions renewable energy sources and does not cover new energy technologies. The Strategy includes a set of energy saving measures.

Recommendation 4.4:
The nuclear energy programme should put emphasis on the construction of dry storage facilities, preferably in the vicinity of nuclear power plants, and on the construction of waste-processing, conditioning and final disposal facilities focusing on long-term safety according to international standards.

According to the National Energy Programme (approved by the Resolution of Verkhovna Rada of Ukraine No. 19 of 15 May 1996), the best technical solution to deal with the spent fuel is a construction of the system of dry storage installations available for 50 and more years of exploitation. In September 2001, the dry depository on the territory of Zaporizhzhia NPP was set in operation. National nuclear energy-producing company "Energoatom" is dealing now with the construction of new dry depository for nuclear waste from Rivne, Khmelnytskyi and South-Ukrainian NPPs.

Recommendation 4.5:
In view of the constantly decreasing stability of the shelter and the fact that nuclear excursions cannot be excluded, the SIP should be implemented without delay.

The project for transformation of the Shelter over the Reactor No. 4 of the Chernobyl NPP into an environmentally safe system was expected to be implemented over the period 1997–2002. However the rate of the implementation of the project is far slower than anticipated. See also implementation of Recommendation 4.6.

Recommendation 4.6:
To ensure a decent future for the exclusion zone, it is paramount that the Chernobyl waste should either be confined safely on site or disposed of in repositories in accordance with the minimum risk principle. The temptation to convert the zone into a large dumping area should be resisted. The status of settlements in the zones should be reconsidered frequently on the basis of realistic scientific analyses, and the change of status towards more normality should be promoted by the authorities wherever justified.

The main flow of nuclear waste is generated in the exclusion zone. State enterprise "Chernobyl NPP" has developed Integrated Programme of Nuclear Waste Management after Decommissioning of Chernobyl NPP and began its implementation in 2003. The Programme includes an optimized scheme of nuclear wastes management, taking into account the complex of measures related to decommissioning of reactors, stabilization of the Shelter, enhancement of reliability and durability of buildings and systems, preparation for construction of new safe confinement including objects for treatment of nuclear waste both on the territory of NPP and in the exclusion zone.

Recommendation 4.7:
A programme to improve the technical layout and equipment of monitoring facilities should be developed and implemented. Sampling, measuring, evaluation and documentation procedures should be standardized so as to facilitate the establishment of a national databank. See also Recommendation 1.5.

The Concept of a State Programme of Natural Environment Monitoring was approved by the Resolution of the Cabinet of Ministers No. 992 of 31 December 2004. The Concept envisages technical modernization of the state system of environmental monitoring, optimization of monitoring network, establishment of databases for multiple users, and increase in the amount of information submitted by the monitored subjects to the state system of environmental monitoring.

Recommendation 4.8:
The planned Information and Emergency Centre should be completed urgently, and the remaining three NPP sites should be equipped with all the automatic monitoring instruments. All attempts by the Ukrainian authorities to obtain the final share of financing as foreseen in the IEC concept should be supported.

The Information Emergency Centre of the state system of environmental monitoring was established in 2005. In 2004 the Ministry of Environmental Protection restored functioning of the GAMMA-1 system after establishing the Interagency Information and Analytical Centre. Further development of the GAMMA-1 system is anticipated with inclusion of the areas around all NPPs into the control subsystems. Consultations with EU countries on continuation of these activities are ongoing.

Chapter 5: Promotion of industrial safety and cleaner production

Recommendation 5.1:
There is an urgent need to develop a coherent legal system on the issue of environmental safety by drawing up all required regulations and ordinances, and so provide clear-cut task sharing and coordination among the responsible bodies. See also Recommendation 10.2.

The EIA procedure in Ukraine (the State Construction Norms DBN A.2.2-1-2003) includes the requirements of risk assessment of the planned activities. The state ecological expertise is compulsory for 22 different types of activities that have been identified as prone to causing higher environmental risks. Eight standards of the ISO

14000 that were introduced at the national level and the Law "On environmental audit" gives enterprises opportunities to implement environmental management systems. In 2002, the Cabinet of Ministers Resolution "On approval of Rules and Measures for Environmental Insurance and Civil Liability for High-risk Installations" (No. 1788 of 16 November 2002) introduced a methodology for calculating damage from accidents and related financial insurance, which is a requirement for granting permits to such industrial enterprises.

Recommendation 5.2:
Ukraine should speed up the adoption of the draft law on high-risk installations based on the EU Seveso II directive and the ECE Convention on Industrial Accidents, and prepare the relevant regulations, ordinances and norms necessary for the implementation of this law.

The Law "On High-risk Objects" was adopted in 2001 (No. 2245-III) and the related by-laws have also been approved.

Recommendation 5.3:
The Ministry of Environmental Protection and Nuclear Safety should effectively coordinate the use, transport and storage of hazardous substances, taking into account the relevant EU practices. The setting-up of a centre for chemical safety should be considered in this connection. This measure should be seen as a first step towards the urgent establishment of a comprehensive national emergency prevention and response system. See also Recommendation 6.6.

The Law "On the Protection of Population and Territories against Emergencies of Natural and Technological Character" was adopted in 2000 (No. 1809-III). The Law includes the provisions on the protection of population and territories against emergencies, on the main objectives of the state prevention and response system on natural and technological emergencies. Transportation of hazardous substances is regulated by the Law "On Transportation of Dangerous Goods" (No. 1644-III, 6 April 2000) and other legal acts and is based on issued licenses and permits. The state prevention and response system on natural and technological emergencies was established according to the Resolution of the Cabinet of Ministers No. 1198 of 3 August 1998.

Recommendation 5.4:
A national cleaner production strategy, including a statement of programmatic policy objectives, management measures, information means, education and training programmes, other provisions for capacity building, institutional arrangements and funding mechanisms for the application of cleaner production, should be developed and adopted. The strategy should include a time schedule for implementation of the measures and should favour integrated approaches to cleaner production. Full cooperation with other ministries as well as industrial representatives should be ensured in the development of the strategy. The administration of cleaner production policies – including that of technological transfers – should be freed of all unnecessary bureaucratic complications.

The Ministry of Environmental Protection has developed the draft Law on the national concept of introduction of cleaner production. The draft law is undergoing a process of consultations with the relevant ministries.

Recommendation 5.5:
Industry should be encouraged to recycle and reuse materials and resources, including water resources, which are currently used in an unsustainable way. See also Recommendation 8.6.

Verkhovna Rada (Parliament) adopted the Resolution "On the state of compliance of the legislation in the area of waste management in Ukraine and ways to improve it" (No. 2967-IV of 6 October 2005). To implement the provisions of the Resolution the Ministry of Environmental Protection developed the draft law "On introducing changes to the Law of Ukraine "On Waste". The draft law intends to encourage recycling and reuse of materials and resources.

Recommendation 5.6:
The Ministry of Environmental Production and Nuclear Safety should consider, at least for a limited period of time, supporting the provision of information on the potential for economic improvements through the

introduction of cleaner production in Ukrainian enterprises. Likewise, education and training in this area should be promoted by requesting universities, business schools and other relevant educational establishments to integrate cleaner production and pollution prevention principles into their curricula. If there is not enough national funding for these activities, they would merit priority consideration in any international assistance programme.

Ukraine has introduced state educational standards and mandatory curricula for environmental experts. A number of new environmental curricula have been initiated, that includes cleaner production and pollution prevention principles. The State Ecological Institute of the Ministry of Environmental Protection is a leading institution providing retraining for environmental experts from industrial enterprises. The National Toxic Waste Management Programme (Law No. 1947-III of September 14, 2000) includes Chapter VIII "Staff training and education".

Recommendation 5.7:
Centres for cleaner production should be established in each of the industrialized regions of the country. The centres should participate in the promotion of cleaner production concepts and principles in all possible ways.

At the present time, Cleaner Production Centers are functioning in Dnipropetrovsk and Kyiv. However, these centers have only developed few small-scaled projects.

Recommendation 5.8:
The funding of cleaner production investments should initially be given special consideration. If necessary, and for a limited time, fiscal measures should be taken to complement other sources of funding so as to promote such investments.

The funding of cleaner production in the country has advanced slowly. One of the few investments in the field of cleaner production was the pilot project in the framework of the Tacis/Phare Cross-border Cooperation Programme in Ukraine and Romania. The project was implemented in three Ukrainian wood-processing enterprises in Chernivtsi oblast.

Recommendation 5.9:
Instruments for evaluating the environmental damage caused before privatization should be identified and introduced into the legislation; responsibility and liability sharing between the former and future owners should be clearly stated.

In 2004 the Law on Changes to Different Ukrainian Laws to Meet Ecological Requirements in the Privatization Process was adopted.

Chapter 6: Waste management

Recommendation 6.1:
The current establishment of a modern legal basis for waste management should aim at internal consistency and completeness with regard to management tasks and instruments, but avoid redundancies.

Since adoption of the Law on Waste in 1998, a number of legal acts, including five laws and 23 Resolutions of the Cabinet of Ministers have been adopted to make this law operational. The analysis of the current legislation has been made with the aim of improving the legislation and introducing necessary changes.

Recommendation 6.2:
Industrial generators of waste and NGOs should be associated, on a consultative basis or through pilot projects, with the ongoing development of the legal framework for waste management, as well as with all future activities. Campaigns should be organized to raise public awareness about waste minimization and waste recycling.

The representatives of the Council of Entrepreneurs at the Cabinet of Ministers of Ukraine are involved in the revision and improvement of current legal framework for waste management.

Recommendation 6.3:
The clear definition of administrative responsibilities and efficient coordination between different institutions involved in waste management should be seen as a high priority. In the interest of law enforcement, duplication of mandates has to be avoided. Each institution involved should obtain satisfactory budgetary authority for carrying out its mandate. Internal control mechanisms and external audits are needed to ensure an efficient, transparent and credible system of enforcement.

The Law "On Waste" (No.187/98-VR of 5 March 1998) defines the sphere of competence and responsibilities of central and local government bodies in waste management. The National Toxic Waste Management Programme (Law No. 1947-III of September 14, 2000) and the Programme for Recycling and Reuse of Production and Consumption Waste (CoM Resolution No. 668 of 28 June 1997) as well other legal acts in the area of waste management include division of responsibilities between different institutions involved in waste management.

Recommendation 6.4:
A comprehensive analysis should be undertaken of all realistic funding possibilities for the purposes of creating the waste management facilities required in the country. A distinction between short- and long-term possibilities seems appropriate. The results of the analysis should be applied.

The analysis was conducted of the funding possibilities for the national, regional and local programmes of waste treatment. In the process of implementation of the national, regional and local waste treatment programmes, financing was identified from the following sources: National Environmental Fund, State budget, local budgets, businesses and, in some cases, foreign investors.

Recommendation 6.5:
The establishment of a plan of priority actions to improve waste recovery and treatment operations from an environmental point of view should be considered urgent.

The list of priority actions was prepared and approved by the Cabinet of Ministers within the framework of the National Toxic Waste Management Programme (2000). Other related programmes with corresponding action plans include Programme for Recycling and Reuse of Production and Consumption Waste until 2005 (1997) and the Solid Household Waste Management Programme (2004).

Recommendation 6.6:
The obsolete pesticides should be analysed for their chemical characteristics and the associated human health and environmental risks, stored in an acceptable manner to reduce these risks and finally destroyed as soon as possible. See also Recommendation 5.3.

The National Toxic Waste Management Programme envisages measures for the development of technologies and facilities for the utilization and neutralization of obsolete pesticides. In 2003, integrated inventory of obsolete and forbidden pesticides was completed.

Chapter 7: Air management

Recommendation 7.1:
The adoption of the revised Law on the Protection of Atmospheric Air should give rise to the urgent development of implementing regulations. The creation of an interministerial task force should be considered, to coordinate the rights and responsibilities of all levels of administration in the new air management scheme.

The Law of Ukraine "On introducing changes to the Law of Ukraine "On Air Protection" adopted the new version of the law (No. 2556-III of 21 June 2001). The Cabinet of Ministers has adopted a number of Resolutions to make this law operational. The respective instructions and methodological materials are been developed.

Recommendation 7.2:
A training programme for environmental inspectors should be established to prepare them for their new tasks following the adoption of the new Law on the Protection of the Atmospheric Air. It should benefit from relevant experiences obtained in oblasts with modern air management. The programme should include the necessary funding provisions and should start to be implemented urgently.

Regular trainings are provided for environmental inspectors in the field of air protection. The training curricula include methodology of defining the volume of emissions and procedural issues of issuing permits for air pollutants emissions.

Recommendation 7.3:
The efficiency of existing economic instruments has to be analysed for the purpose of reassessing subsidies, consolidating environmental funds and increasing emission charges when necessary. The polluter-pays principle should be applied in a rigorous way to all emission sources, whether stationary or mobile, and systematically to both physical and legal persons. See also Recommendation 2.1.

The emission charges rates have been raised to reflect inflation. Charges on emissions from road transport apply only to enterprise fleets, and not to private cars, which are a major source of air pollution.

Recommendation 7.4:
The priorities in the NEAP and its present implementation phase should be critically reviewed and focus on designing a realistic medium-term action plan or plans, separately for each city, in order to lower air pollution. See also Recommendation 1.2.

While no review or update of NEAP has been done, local authorities in some cities with increased levels of air pollution have been developing action plans to improve air quality. For example, such plans intended to limit pollution from stationary sources have been adopted in Donetsk and Mariupol by local authorities.

Recommendation 7.5:
The main polluters (i.e. power stations, chemical industries, metal industries etc.) responsible for air pollution in big cities should be subject to environmental auditing to identify their potential for cutting emissions via low-cost measures. See also Recommendations 1.4 and 13.6.

Assessment of air pollution is envisaged by regulation currently in force and is part of materials to be submitted for getting permits for air pollutants emissions.

Recommendation 7.6:
All possible ways should be explored to install modern computing and laboratory equipment as well as data transmission and analysis software at HYDROMET. See also Recommendation 1.5.

35 laboratories for air monitoring (network of State Hydrometeorological service) were equipped with computer technology in 2000 using technical assistance provided by the Ministry of Environment and Territory of Italy. During 2000-2002, the Hydromet monitoring stations were supplied with some new equipment and devices to measure pollutants in the ambient air. Equipment acquisition was mainly funded from the National Environmental Fund.

Recommendation 7.7:
The air pollution monitoring system should be redesigned and integrate existing sectoral air-quality measurement programmes. It should follow modern methodology and use automated equipment.

To improve efficiency of the background network of monitoring for environmental pollution, the Programme of improvement of the quality of background monitoring of natural environment was approved by the Ministry of Environmental Protection. The Programme has been introduced in the Hydromet system. The programme has determined procedure of selection of the sampling points, number and frequency of measurements as well as the list of pollutants in air and surface and sea water.

Recommendation 7.8:
The existing inventory and related reporting system should be redesigned and expanded to cover the most important polluters and concentrate on classic as well as the most hazardous pollutants. The inventory methodology should be in line with the EMEP inventory guidebook. The public should be informed of the results.

New forms of statistical reporting were developed and introduced in 2003. Methods of determination of integral emissions of pollutants in ambient air were developed and harmonized with the CORINAIR/EMEP Guidelines of inventory of pollutants emissions.

Recommendation 7.9:
Ukraine should accelerate its ratification of the environmentally relevant ECE conventions and protocols that it has already signed and develop appropriate strategies for their implementation. It should also envisage acceding to those that it has not signed and sign new instruments that could be instrumental in redesigning policies and strategies for air pollution abatement and implementation of urgent control measures within the NEAP. See also Recommendation 3.2.

Ukraine has ratified UNECE environmental conventions and some of their protocols and is undertaking efforts to sign and ratify other protocols to some conventions and strengthen mechanisms of the implementation of their provisions.

Chapter 8: Water management

Recommendation 8.1:
The institutional responsibilities for water management and standard-setting should be streamlined. Clear responsibility for coordination should be assigned and a coordination mechanism should be created.

Ukraine is in the process of administrative reform of the state bodies responsible for environmental protection and natural resource use, which anticipates, in particular, clear division of functions and responsibilities in the area of water resource management.

Recommendation 8.2:
The establishment of a national agency responsible for unifying the standard system and methods, i.e. a standardization agency, should be considered. See also Recommendation 1.5.

Technical Committee (TC) 82 "Environmental Protection and Rational Use of Natural Resource" was reorganized in TC 82 "Environmental Protection" at the State Ecological Institute. This step was aimed at the improvement of environmental protection activity in accordance with the Law of Ukraine "On Standardization" (No. 2408 of 17 May 2001).

Recommendation 8.3:
Basin (or catchment) structures and committees should be created for each significant river basin, and integrated water management principles introduced at basin level. All affected national, regional and local authorities should participate, possibly together with international partners (i.e. the Republic of Moldova in the case of the Dniester). The institutional responsibilities of the basin structure should be matched by sufficient funding provisions, so that the (local) water management objectives can be achieved, in particular with regard to waste water. Financial resources from water charges collected at the basin level should be reallocated to improving the water management situation on the same territory. See also Recommendation 9.6.

The Water Code (Article 13) establishes the basin principle of state management of water resources. State management in the area of use, protection and restoration of water resources is to be implemented in accordance with the basin principle on the basis of state, international and regional programmes. The principle is taken into account in the process of the implementation of the National Programme for the Protection and Rehabilitation of the Environment of the Black Sea and Sea of Azov, the State Programme of Water Management Development, UNDP-GEF Project "Environmental Rehabilitation of the Dnipro River Basin". The Cabinet of Ministers has approved the Concept of Environmental Rehabilitation of the Siverskyi Donets River (Resolution

No. 224-p of 23 April 2003), which is also based on the basin management principle. However, state bodies for basin water management have not been established, as no financing from the State budget has been allocated for this purpose.

Recommendation 8.4:
The Ministry of Environmental Protection and Nuclear Safety should coordinate monitoring activities as foreseen in Resolution No. 391 of 1998. See also Recommendations 1.5 and 9.5.

The Ministry of Environmental Protection has been developing the State programme of environmental monitoring. The draft programme envisages technical modernization of units of the state environmental monitoring system, optimization of monitoring network, establishment of the databases for multiple users. The draft programme is based on the proposals of the subjects of state monitoring system at regional and national levels.

Recommendation 8.5:
The number of water-quality standards should be reduced and they should be set at realistic levels, making enforcement possible. See also Recommendation 2.2.

There are two standards of drinking water currently in force in Ukraine: GOST 2874-82 "Drinking water. Hygienic requirements and quality control" and GOST 2761-82 "Sources of centralized water supply for household and drinking purposes". "Generalized list of maximum allowable concentrations and approximately safe impact levels of harmful substances for fishery water bodies" is used for quality control of surface water bodies.

Recommendation 8.6:
The best available technologies not entailing excessive costs and/or technology-based emission standards should be at the heart of abatement strategies. See also Recommendations 5.5 and 10.1.

The list of best available technologies in the area of water resources management is not established so far.

Recommendation 8.7:
The cost of water should be transparent and realistic. Metering should be introduced for all users and payments made proportional to the water quantity really consumed. Water prices should cover the full cost of investing, operating and maintaining the water and waste-water infrastructure. Provisions should be made for those people who cannot afford it. See also Recommendation 2.1.

The Cabinet of Ministers Resolution "On approval of the Charges for Special Water Use" (No. 836 of 18 May 1999) has been amended twice in 2005 (No. 44 of 15 January 2005 and No. 541 of 4 July 2005) in order to make the charge rates more realistic. But water prices are still below the cost recovery levels. Water metering has been widely introduced in Ukraine for all users. Support to the poorest households takes the form of reduced bills.

Recommendation 8.8:
To improve the efficiency of waste-water treatment, the staff should be trained further in plant operation, process control and instrument operation.

The State Ecological Institute is the main institution providing post-graduate education, training and upgrading of skills for specialists in the field of environmental protection. However it is not responsible for training of specialists in the field of wastewater treatment. This is a responsibility of the Ministry of Construction, Architecture and Housing and Communal Services. There is a need for continuous training of specialists in wastewater treatment and improvement of their skills, including in new methods and processes, which is not fully met by existing institutions.

Recommendation 8.9:
There must be clear responsibility for the urban waste-water management and sewage sludge disposal. The preferred use of the sludge should be as fertilizer. The European Directives on urban waste water and on use of sludge in agriculture should serve as guidance.

The problem of disposal and/or utilization of sewage sludge is still unresolved in Ukraine because high level of heavy metals in sludge precludes its utilization in agriculture. Another problem is large volumes of sludge. Mechanical dehydration of sludge widely used in Western European countries is a process with high energy consumption and has not been introduced in Ukraine. In addition, Ukraine does not manufacture domestically most of the chemicals necessary for this process, and their import requires additional financing.

Recommendation 8.10:
Supplying the population with sufficient quantities of drinking water that meets hygiene standards should be seen as a priority. The public should have access to information on the quality of drinking water. The use of suitable groundwater sources should be increased and drinking-water resources should be protected accordingly. See also Recommendation 14.1.

Legislative and policy framework for water supply is provided by the Law on Drinking Water and the Drinking water Supply and the State Programme "Drinking Water of Ukraine" (2005). However, problems with water supply remain. Only two-thirds of the population have access to centralized water supply and one-half – to centralized wastewater disposal. Over 30 per cent of those do not have water supply round the clock. Up to 10-30% of supplied water does not comply with sanitary norms. Situation in the rural areas is particularly difficult. Several factors contribute to these problems, among them low rates for water supply and wastewater disposal for households, which are not at the cost recovery levels; old and obsolete equipment and facilities; lack of financing for renovation of infrastructure; unclear division of responsibilities between national, oblast and local authorities involved in the water management; and managerial problems at the water utilities.

Chapter 9: Management of the environment of the Black Sea and the Sea of Azov

Recommendation 9.1:
To improve marine environment management based on the principles set out in the 'Principal Directions', clear environmental policy objectives should be set and included in the national programme for the protection and rehabilitation of the Black Sea and the Sea of Azov.

The National Programme for the Protection and Rehabilitation of the Environment of the Black Sea and the Sea of Azov adopted in 2001 provides the framework for protection and sustainable use of marine environment. The Programme determines legal, organizational, scientific, and financial basis for the implementation of national policy in the area of marine protection. The Ministry of Environmental Protection is responsible for coordination of all activities under the Programme.

Recommendation 9.2:
To better coordinate the efforts of the numerous institutions and to make marine environmental protection more effective, the Ministry of Environmental Protection and Nuclear Safety should set up a special unit for the protection of the Sea of Azov and the Black Sea.

The Intersectoral Commission on Environmental Issues of the Black Sea and the Sea of Azov has been established by the Ministry of Environmental Protection (Order of the Ministry No. 47 of 10 February 2004) to coordinate efforts and facilitate actions related to protection and rehabilitation of the marine environment. The Commission comprises representatives of the relevant governmental bodies, academic institutions and other organizations.

Recommendation 9.3:
The specific needs of the marine environment should be reflected in special legislation on marine environmental protection. It should go hand in hand with all relevant national regulations and internationally accepted norms and include new mechanisms for raising and allocating funds.

A number of legal acts have been adopted to provide legislative framework for the protection of marine environment. Among them are the Law "On approval of the National Programme for the Protection and Rehabilitation of the Black Sea and the Sea of Azov" (No. 2333-III of 22 March 2001) and the Law "On ratification of the Agreement on the Conservation of Small Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area" (No. 1067-IV of 9 July 2003).

Recommendation 9.4:
The Ministry of Environmental Protection and Nuclear Safety, together with all other relevant authorities and with the participation of all stakeholders, should explicitly make integrated coastal zone management a full part of its new policy. This should also entail the creation of adequate instruments for institutional cooperation and involvement of the scientific community, local business and the general public, especially through NGOs, in the implementation of integrated coastal zone management.

A draft of the Law on Sea Coastal Zones has been developed. The draft law envisions integrated coastal zones management.

Recommendation 9.5:
The Ministry of Environmental Protection and Nuclear Safety should strengthen its role as the coordinating governmental agency for marine environmental monitoring. It should, for instance, develop a mandatory common national programme for sea monitoring and should participate in the budgeting of all monitoring entities. It should also look for other sources of funding and organization mechanisms. See also Recommendations 1.5 and 8.4.

The National Programme for the Protection and Rehabilitation of the Environment of the Black Sea and the Sea of Azov envisages a set of measures on the monitoring of marine environment, and the Ministry of Environmental Protection is responsible for financial arrangements for the implementation of these measures. The Ministry is responsible as well for the implementation of the GEF Project "Biodiversity conservation in the Azov-Black Seas ecological corridor".

Recommendation 9.6:
A new funding mechanism for the construction and maintenance of the sewerage networks and waste-water treatment plants should be developed, which should clearly specify the responsibilities of polluters in this regard. See also Recommendation 8.3.

Funding of the construction and operation of sewerage networks and water treatment facilities in the Azov - Black Sea region is provided in accordance with the National Programme for the Protection and Rehabilitation of the Environment of the Black Sea and the Sea of Azov. The funds are allocated from the budget programme "Wastewater Treatment" of the National Environmental Protection Fund, as well as local budgets.

Recommendation 9.7:
Ukraine should participate in the further development and enforcement of a harmonized Port State Control system in the Black Sea region and in the development of a regional emergency response action plan, in order to establish new effective instruments for marine environmental management.

Ukraine initiated the process of drafting and signing the Black Sea Contingency Action Plan. Development of such plan was envisaged by the Convention on the Protection of the Black Sea against Pollution (1992) and its Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations. The Action Plan has not been signed yet.

Recommendation 9.8:
Ukraine should consider initiating a basin-wide programme and/or seeking close cooperation between the Black Sea Environmental Programme and all existing or planned programmes for the rivers flowing into these two Seas, in order to promote basin-wide coordination of environmental management affecting the Black Sea and the Sea of Azov. Adequate coordination mechanisms should also be developed for the drainage area of the Baltic Sea in the country.

The basin management principle is taken into account in the process of the implementation of the National Programme for the Protection and Rehabilitation of the Environment of the Black Sea and the Sea of Azov, the State Programme on Water Management Development, UNDP-GEF Project "Environmental Rehabilitation of the Dnipro River Basin". The Cabinet of Ministers approved the Concept of Environmental Rehabilitation of the Siverskyi Donets River (Resolution No. 224-p of 23 April 2003), which is also based on the basin management principle. See also response to Recommendation 8.3.

Chapter 10: Management of mineral resources

Recommendation 10.1:
A programme to improve the environmental performance in mining and mineral processing should be developed and implemented. It should focus on the introduction of best available techniques for waste-water treatment and tailing management, as well as on the training of staff at all levels of mineral resources management. See also Recommendation 8.6.

A draft of the Strategy of Development and Reforming of the Mineral Resources Management System in Ukraine has been prepared. The draft Strategy envisages improvement of the extraction of mineral resources, prevention of negative environmental impact, inspections of tailing dumps and burrows aimed at recycling of mining wastes, as well as elaboration and introduction of the wastewater treatment systems at the mining enterprises.

Recommendation 10.2:
Environmental management should be adopted as a requisite for the issuing of licences to mining companies. This plan should include a system of environmental funds for mine rehabilitation according to world mining standards. Special payments for this purpose should be established after the cost-benefit of such rehabilitation is analysed as part of the environmental impact assessment of mining companies. See also Recommendation 5.1.

Agreements on the exploitation of mineral resources deposits are part of special permits (licenses). Such agreements envisage number of measures aimed at environmental protection:

- The projects of exploitation of mineral resources deposits should include environmental impact assessment documentation as well the measures to minimise the impact. Oil and gas extraction, coal mining, mineral resources industries, extraction of peat and organic soil belong to the types of activities that have been identified as having a potential for higher environmental risks, for which state ecological expertise is compulsory;
- According to the item 22 of the Procedure of granting permits (licenses) for exploitation of deposits (Resolution of the Cabinet of Ministers No. 1540 of 2 October 2003), validity of the permits (licenses) should be suspended or cancelled in the case of violation of environmental legislation.

The Programme "Ukrainian Coal" (2001) makes provisions for solving the environmental problems in the field.

Recommendation 10.3:
The current regulatory system for the management of mineral resources should continue to be developed. Particular attention needs to be paid to the development and implementation of differentiated charges in accordance with (a) geological particularities, (b) scarcity of the resource, and (c) exploitation conditions. Furthermore, charges for environmental pollution should be increased and regularly adjusted to inflation. See also Recommendation 2.1.

Draft new version of the Code of Ukraine on Mineral Resources has been prepared and is aimed at the improvement of the regulation and control system for exploitation of mineral resources. The draft Code was adopted by the Cabinet of Ministers and submitted to Verkhovna Rada (Parliament) for consideration and approval (registration № 5471 of 30 April 2004). Differentiated charges for the extraction of mineral waters, gold-containing minerals, amber, titan and zircon minerals, and uranium were developed. Development of differentiated charges for the extraction of salt and stones for construction is to be completed soon. Additionally, differentiated charges for the extraction of decorative stones, coal, manganese ores and other minerals are in the process of development. The pollution charges rates have been raised to reflect inflation.

Recommendation 10.4:
The restructuring of the State Committee of Geology and Mineral Deposits and the creation of a national geological survey should be seen as a top priority. The existing restructuring plan should be implemented as soon as possible.

The activities of the State Geological Service have been defined by Resolution of the Cabinet of Ministers No. 980 of 24 September 2005.

Recommendation 10.5:
The current monitoring system run by the State Committee of Geology and Mineral Deposits needs to be (a) reduced overall, and (b) more concentrated in the most relevant areas (e.g. Donbass). The introduction of a plan aiming to reduce and redistribute the monitoring network, modernize laboratories and develop environmental monitoring standards should be envisaged.

The state monitoring system of groundwater of national importance has been developed and set up. The monitoring system provides reliable information regarding the state of groundwater on the territory of Ukraine. The monitoring system control the changes in the conditions of groundwater in regions of mining and other intensive economic activities, which may cause impact on waters. Some efforts were undertaken to optimize the monitoring of exogenous geological processes as well as monitoring of geochemical conditions of landscapes of national importance. 17 laboratories passed accreditation procedure. These laboratories are dealing with measurements of composition and properties of rocks, soils, wastes of mining enterprises, underground water, and wastewater and reused water of geological enterprises. Some modernization of the laboratories, including supply with new equipment has been done although financing for this purpose remains insufficient.

Recommendation 10.6:
To reduce the environmental impact of the coal industry and the large subsidies from the national budget to the coal sector, and to give profitable mines a chance to succeed, the Government should implement the coal sector restructuring project after the necessary environmental investigations for each individual mine have been undertaken, and the corresponding environmental mitigation measures are determined, included in the closure plans, and financed.

The Cabinet of Ministers of Ukraine approved the Programme "Ukrainian Coal" (Resolution No. 1205 of 19 September 2001). The Programme's measures are annually updated by the Cabinet of Ministers. The Programme envisages liquidation of the unprofitable coal enterprises and construction of new ones. All these measures are being implemented according to the project documentation that is based on the engineering and ecological investigations and is subject to compulsory state ecological expertise. Ministry of Fuel and Energy of Ukraine introduced the Sectoral Standard of Ukraine "The procedure of setting up of the regime monitoring network in the areas of location of mining enterprises to be phased out. Requirements for the process of monitoring of groundwater regime and exploitation" (2003). The Decree of the President of Ukraine "On increasing effectiveness of management of coal industry and its development" (No. 752 of 6 July 2004) envisages additional measures aimed at restructuring and development of coal industry including establishment of National Joint Stock Company "Coal of Ukraine".

Chapter 11: Management of bioresources and nature conservation

Recommendation 11.1:
It is necessary to set up national, regional and sectoral programmes for the restoration of rare plants and animal species as well as for the management of introduced alien species especially where they adversely affect local biodiversity

Facilitation of increase in population of rare and endangered species of plants and animals, as well as decrease in quantity and impact of introduced alien species are among the main tasks of environmental management in the specially protected natural territories. However funding for these activities is insufficient. In 2003, Institute of Zoology made analysis and developed recommendations regarding alien fish species in Ukrainian water bodies and possible actions to minimize their negative impact. Monitoring of marine mammals' population is conducted on a permanent basis, in particular along the Crimean coast. The Programme of research, protection

and reproduction of marine mammals of the Black Sea and the Sea of Azov "Delfin" ("Dolphin") has been under implementation since 1999.

Recommendation 11.2:
The draft national action programme for biological diversity protection and sustainable use should be adopted urgently.

The Concept (Outline) of the State Programme on Biodiversity Conservation has been approved by the Cabinet of Ministers (Resolution No. 675-r of 22 September 2004). The draft Programme has been developed and is awaiting approval by Verkhovna Rada (Parliament).

Recommendation 11.3:
Training and capacity building should be introduced as a regular component of any EECONET project to make Ukrainian specialists acquire the skills necessary for managing biodiversity and nature protection projects. To this end, the creation of an international centre in Ukraine to give training in nature conservation and EECONET development would be an excellent opportunity for meeting the needs of Ukraine and of its neighbours in eastern Europe and the newly independent States. The centre could benefit from western partner experience.

An international centre for training in nature conservation and EECONET development has not been established.

Recommendation 11.4:
The creation of new protected areas preferably as regional landscape parks under the responsibility of regions (oblasts or groups of rayons) should be considered. A limited but controlled use of these zones and their assets could be authorized subject to the payment of a fee. Local people and communities should be better involved in this process of nature conservation, and their specific interests and needs better taken into account.

In 2002-2003 the area of the specially protected natural territories (territories of the Nature Reserve Fund, NRF) was extended by more than 180 thousand hectares, number of objects (protected areas) was increased by 110 units. Regional Landscape Parks (RLP) and National Nature Parks (NNP) are key form of newly established protected areas: 75 per cent of new protected areas belong to RLPs and 18 per cent to NNPs. In 2004, Ichnianskyi NNP in Chernihiv Region was established. The territory of Luhansk Nature Reserve was extended. In total, the NRF includes 7120 territories and objects and covers the territory of 2738.1 thousand hectares or 4.5 per cent of the territory of Ukraine. The percentage of the total territory of protected areas still remains low.

Recommendation 11.5:
Biodiversity conservation and nature protection components should be included into all decision-making processes of regional and sectoral development programmes (e.g. the Dnieper programme).

Biodiversity conservation and nature protection are key objectives of a number of policy documents, such as Programme for the long-term Development of Nature Reserves in Ukraine (1994), State Programme for the Creation of a National Ecological Network for 2000-2015 (2000), and National Programme for the Environmental Rehabilitation of the Dnipro River Basin and Improvement of Drinking Water Quality (1997). The Ministry of Environmental Protection coordinates development of the draft state programmes of environmental rehabilitation of basins of Siverskyi Donets, Dniester and Southern Bug rivers. Biodiversity conservation and nature protection at national and regional levels are important parts of these documents.

Recommendation 11.6:
The existing special unit (i.e. Central Board for National Natural Parks and Reserve Management) may be improved to ensure the harmonized implementation of protection regimes and rules for different protected areas, including the balancing of funding in the different protected areas. All institutions of the Nature Reserve Fund of national importance should be subordinated to the Central Board. See also Recommendation 1.5.

The Central Board for National Natural Parks and Reserve Management has been re-organized into the State Natural Reserves Service (Resolution of the Cabinet of Ministers No. 1000 of 9 August 2001). The idea to

subordinate all objects of Nature Protection Fund to the Ministry of Environmental Protection is being discussed.

Recommendation 11.7:
The monitoring of species and ecosystems, the compiling of a species cadastre and the mapping of habitats should be seen as prerequisites for any management policy, and should therefore be pursued in spite of the economic difficulties. National surveys on threatened or rare species and habitats (in particular those which fall under international agreements) should be carried out or updated.

The Ministry of Environmental Protection approved "Methodological guidelines on formation and maintenance of the state cadastre of territories and objects of Nature Protection Fund of Ukraine". There are plans to issue a regulation on the development of species inventories (cadastres). The inventory of the objects of NPF is one of the objectives of the State Programme for the Creation of a National Ecological Network in Ukraine for 2000-2015.

Recommendation 11.8:
The biological monitoring strategy should be pursued and completed. It should be well-funded, result-oriented and cost-effective. The legal framework should be adjusted accordingly, making it clear what information should be collected, by whom and how.

Setting up the biological monitoring system is being carried out within the framework of the budget programme "Development of National Ecological Network". This activity has been financed by the National Environmental Fund.

PART III: ECONOMIC AND SECTORAL INTEGRATION

Chapter 12: Environmental concerns in agriculture

Recommendation 12.1:
Designated land uses should be monitored and periodically re-evaluated, in order to adapt them to changing socio-economic conditions. The existing command-and-control system of land use should in the long run be replaced by partnership arrangements between the public administrations and the farmers.

The 2001 Land Code legalized private ownership of agricultural land. The Laws "On Land Protection (No. 962-IV of 19 June 2003), "On Land Management (No. 858-IV of 22 May 2003) and "On State Control of the Use and Protection of Land (No. 963-IV of 19 June 2003) include provisions to restrict improper use of land.

The State Inspection for control of land use and protection was established within the State Committee for Land Resources (Resolution of the Cabinet of Ministers No. 1958 of 25 December 2002). The Cabinet of Ministers has approved "List of measures for implementation of the main direction of land reform in Ukraine for 2001-2005", which includes development and implementation of the procedure of economic incentives for rational use and protection of land resources.

Recommendation 12.2:
It should be recognized that more environmentally friendly and ultimately sustainable agricultural practices must be promoted and developed urgently. To this end, adequate training programmes for both private and collective farmers should be set up. The training should be undertaken by a suitably equipped extension service. Any revision of the existing national guide for good agricultural practice should include a realistic agricultural production strategy.

So far the efforts to set up training programmes and extension (advisory) services were not sufficient, even though the National Association of Agricultural Advisory Services includes centers in 24 oblasts and the Autonomous Republic of Crimea.

Recommendation 12.3:
An inter-ministerial/inter-agency unit should be created to monitor, analyse and control the environmental impacts of agriculture, and of genetically modified organisms. A system of indicators to analyse these impacts would be useful.

Environmental impact of agricultural sector is an issue for Interdepartmental Commission on Environmental Monitoring (according to the Resolution of the Cabinet of Ministers No. 1551 of 17 November 2001). Ministry of Environmental Protection performs duties of the National Coordination Center for communication with the Secretariat of Cartagena Protocol as well as Administrative Body on Biosafety of Genetically Modified Organisms (GMOs).

Recommendation 12.4:
The improvement of the Land Code and the adoption of the Law on Land Protection should be accelerated, as should the adoption of the National Programme for Land Protection till 2010. International financial assistance for the implementation of the Programme should be sought, possibly in particular in the framework of the GEF.

New version of the Land Code of Ukraine (No. 2768 of 25 October 2001) and the Law "On Land Protection" (No. 962-IV of 19 June 2003) have been adopted. The draft State Programme of the Use and Protection of Land and draft National Programme of the Protection of Soil Fertility have been submitted by the Cabinet of Ministers to Verkhovna Rada (Parliament) for consideration and approval. Verkhovna Rada sent back both draft Programmes to the Cabinet of Ministers (Resolution No. 2133-IV of 2 November 2004) with the instruction to merge them and resubmit the revised Programme to Verkhovna Rada for a new first reading.

Recommendation 12.5:
Environmental rehabilitation programmes of contaminated agricultural land at oblast level should be initiated, based on satisfactory monitoring information as well as innovative methodologies, which could even attract international assistance.

Authorities in a number of oblasts and cities have developed, approved and started implementation of local programmes of land use and protection (including land for agricultural use). Among them are:

- Land reform programmes;
- Programmes of land protection against wind and water erosion and other factors of land degradation;
- Integrated programmes of land amelioration and improvement of environmental conditions of irrigated and drained lands;
- Programmes of environmental protection, rational use of natural resources and environmental safety;
- Programmes of protection of human settlements and agricultural lands against erosion processes; and
- Programmes of protection against floods.

Chapter 13: Environmental concerns in energy

Recommendation 13.1:
A stable legal, regulatory and institutional framework for investments in the energy sector should be created and implemented, in order to strengthen further the efforts undertaken so far for a long-term market-oriented energy policy. It should recognize the particular features of investment projects in this sector together with the obvious need for large-scale investment. Investments favouring the development of renewable forms of energy should be given priority.

A stable legal, regulatory and institutional framework for investments in the energy sector has not been created in Ukraine. The privatization process and attraction of large-scale investments in the energy sector in general and in the development of renewable energy sources in particular, have been going very slowly.

Recommendation 13.2:
The Government's role in the energy sector is to be redefined. The large number of government ministries, agencies, bodies and State enterprises currently involved in controlling energy production, distribution and prices should be streamlined as a result.

The frequent changes in the institutional structure and legislation in the energy sector weaken human capacity and hamper the development and implementation of long-term comprehensive energy and environmental policies and attraction of investments.

Recommendation 13.3:
A sustainable, market-oriented and coherent policy aiming at energy savings so as to reduce import dependency and promote energy conservation should be developed as a matter of urgency. It should specify the need to liberalize markets and take fiscal measures and technical measures like the introduction of modern metering equipment for individual users. Social concerns should increasingly be transferred to well-targeted social security programmes and not remain part of energy policies.

The Energy Strategy of Ukraine for the period until 2030 was approved in March 2006 (Resolution of the Cabinet of Ministers No. 145-r of 15 March 2006). Reducing import dependency and promotion of energy saving are among the Strategy's main objectives. The National Agency for Efficient Use of Energy Resources has been established by the Resolution of the Cabinet of Ministers No. 412 of 3 April 2006. The Agency has developed a draft Law on Energy Efficiency aiming at encouraging energy efficiency in Ukrainian enterprises.

Recommendation 13.4:
The establishment and publication of a time schedule for the introduction of market prices for all forms of energy should be seen as an urgent requirement for the success of the energy sector's restructuring and modernization.

Action Plan to implement long-term tariff policy for wholesale market of electric energy of Ukraine has been approved by the Cabinet of Ministers (Resolution No. 451 of 26 September 2001). The Plan envisages introduction of market prices for electricity. However the Plan has not been implemented to full extent and cross-subsidization of households' and public institutions' energy consumption by industrial customers is still the case.

Recommendation 13.5:
The transition of the electricity supply system should, first, concentrate on reducing air emissions from existing thermal power stations, and on organizing an integrated and interconnected grid system inside the country and with its neighbours. See also Recommendation 4.3.

The EU TACIS project "Ukrainian integration into EU energy network" (budget Euro 3 million) started in 2005. The project is intended to provide the programme of technical and organizational actions needed for the electricity interconnection of Ukraine with the UCTE (Union for the Co-ordination of Transmission of Electricity) synchronous network. The programme includes also the environmental issues related to harmonization of requirements for pollution reduction. A new technology-oriented approach to permitting of pollutant emissions into the air was declared in the new version of the Law "On Air Protection" (2001), followed by a number of implementing Resolutions by the Cabinet of Ministers. The Ministry of Environmental Protection has prepared the draft order on approval of maximum allowable concentrations of pollutants in flue gases for stationary combustion sources. The standards will be gradually strengthened to achieve EU requirements implemented by Large Combustion Plants (LCP) and Sulfur Directives.

Recommendation 13.6:
Environmental audits in thermal power plants should be considered. See also Recommendations 1.4 and 7.5.

The conditions for application of the provisions of the Law "On Environmental Audit" (2004) are being established by the Ministry of Environmental Protection. Methodology of certification of environmental auditors has been developed. Availability of the certified auditors in the country makes it possible to arrange

mandatory environmental audits of the enterprises, installations and types of activities that represent an increased danger for the environment in the cases foreseen by the Law.

Chapter 14: Human health and the environment

Recommendation 14.1:
The public health sector should pay more attention to the effects of water pollution and to preventing water-borne diseases. Ukraine should ratify the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes. A system of monitoring bathing waters should be set up, and collected information should be disseminated to the public. See Recommendation 8.10.

State Sanitary-epidemiology Service (SSES) is dealing with water pollution and prevention of water borne diseases. SSES is responsible for monitoring of water quality of surface water bodies (water quality often remains unsatisfactory). The subject of great concern is water quality of the Dnipro River basin supplying drinking water for 75 per cent (about 35 million) of population. Ukraine has ratified the Protocol on Water and Health (London, 1999) to the Convention on Transboundary Watercourses and International Lakes (Law on Ratification No. 1066-IV of 9 July 2003).

Recommendation 14.2:
The following food protection measures should be considered for urgent implementation:
- *local needs assessments and inter-sectoral collaboration for implementing food safety activities should be included in local food protection programmes*
- *a code of hygienic practices should be distributed to all district food industries and local authorities*
- *the implementation of the Hazard Analysis and Critical Control Point (HACCP) system should be ensured*
- *regular assessment of food technologies that prevent food-borne diseases and reduce post-harvest losses should be ensured by the responsible institutions*
- *education in the principles of food safety and hygienic handling of food should be organized for all those handling food*
- *the districts should promote food safety in tourism by raising the awareness of the travel industry about possible food-borne hazards*
- *information gathering and dissemination among the public should be strengthened, including surveillance of food-borne diseases*
- *information campaigns to combat mushroom poisoning and botulism deaths should be improved*
- *food quality control on street markets should be ensured.*

Intersectoral cooperation in the field of food safety is included in the requirements of the Laws "On quality and safety of food and food stuff", "On fish, other water living resources and food products from them", "On beekeeping", "On milk and milk products" and other legislative acts regulating competencies and responsibilities of various governmental agencies. Compliance with this legislation is mandatory for regional and local units of the State Sanitary-epidemiology Service (SSES) of the Ministry of Health. Sanitary norms and regulations are mandatory for all companies involved in production, transportation and marketing of food and food products. Company managers are personally responsible for compliance with these requirements of this regulation. Local units of SSES conduct regular inspections to check the implementation of sanitary requirements.

Training on hygiene issues for staff at food companies is mandatory; without such training personnel does not get a permission to work at a food facility. The SSES is responsible for collection and dissemination of information relevant to sanitary safety. Statistical reporting and operational information are subject to annual analysis. There are regular meetings at the *oblast* level on implementation of sanitary oversight of objects of higher epidemiological risk. The SSES conducts regular information and awareness raising campaigns to prevent, in particular, mushroom poisoning, botulism and other food-related diseases. For these purposes, automatic system of information collection and analysis is used. Illegal street markets that still exist in many cities are subject to closure by police. The SSES is responsible for control of the quality of food products at the established legal farmer markets.

Recommendation 14.3:
The public health sector should take measures to prevent injuries and violence in cooperation with the other institutions involved. Public information campaigns in this respect should be undertaken in cooperation with other involved institutions.

The Cabinet of Ministers adopted Resolution on approval of comprehensive measures to prevent non-work-related injuries for 2001-2005 (No. 391-r of 21 August 2001) and the Action Plan to decrease the number of non-work-related injuries (Resolution No. 8554 of 4 April 2004). Ministry of Health and Ministry of Social Policy are responsible for implementation of these Resolutions.

Recommendation 14.4:
Data are needed on the most important sources of indoor air pollution, including gas cookers and indoor smoking. Information on the associated health risks, together with recommendations on how to minimize them, should be included in health advice packages given to families as part of health promotion campaigns.

The SSES is dealing with the indoor air quality. The information is made available to the general public. In 2003, the SSES inspected the indoor air quality at 298,634 objects (communal, food industry, educational, and other premises) including 9.2% with laboratory analysis. Maximum allowable concentrations (MAC) of pollutants were exceeded in 981 objects (3.6%). Analysis of 152,400 samples on steam and gases, and 44,200 samples on dust and aerosol revealed that MACs were exceeded in 3.7 % and 3.0 % of cases respectively.

Recommendation 14.5:
To reduce occupational morbidity:
- *individual protective measures should be reintroduced and workers should be adequately informed about their health risks*
- *economic instruments should be applied to encourage enterprises to observe health and safety standards, as well as to report all occupational disease*
- *adequate monitoring of occupational disease in all economic sectors, including uranium mines, should be ensured.*

The State Committee on Occupational Safety has overall responsibility for occupational safety. Each manufacturing company must have a unit for occupational safety or an instructor for occupational safety. Inspectors of the State Committee on Occupational Safety and specialists of the SSES conduct joint inspections to check compliance with requirements of the Law "On Occupational Safety" and sanitary legislation. To improve occupational safety, the Ministry of Health issued Order "On strengthening control and responsibility for registration and analysis of occupational deceases (No. 77 of 18 February 2003). Violations of sanitary legislation resulted in various sanctions: operation of 9,802 manufacturing enterprises was suspended until implementation of required amendments, 305 cases were subject to prosecution, and 18,030 fines were imposed. Monitoring of occupational diseases is being implemented on the basis of the Order of the Ministry of Health "On improvement of automatized system of registration and analysis of occupational diseases in Ukraine" (No. 31 of 10 February 1998). State register of occupational diseases is being established.

Recommendation 14.6:
A strategy and programmes to abate the psychosocial effects of the Chernobyl accident should be developed, and programmes to identify the long-term health consequences of long-term exposure to low-dose radiation should be supported. A programme should be planned and implemented to monitor the children of parents affected by the Chernobyl accident.

Main Sanitary Regulations for Ensuring Radiation Safety of Ukraine (OSPU-2004) have been approved (the Order of the Ministry of Health No. 54 of 2 February 2005). A number of additional rules and regulations have been developed in accordance with this regulatory document. Research on developing and substantiating State hygienic regulations to protect population from potential sources of radiation has been completed. In 2002, State Sanitary-Ecological Rules and Norms of Radiation Safety for Scrap Metal Processing (DSPN 6.61.-079/211.3.9001-02) were approved and entered into force. A joint Order of the Ministry of Health and Ministry of Emergencies "On organization of reporting on and oversight of the health status of persons affected by the Chornobyl catastrophe and functioning of the State Register" has been drafted.

Recommendation 14.7:
Indoor radon should continue to be assessed, in order to investigate areas not yet examined and to monitor trends and results from action to reduce radon in high-risk homes. Information on behavioural measures such as ventilation practices should be made available to households in high-risk areas. Building codes and environmental impact assessments should include sections designed to ensure that radon levels do not exceed 100 Bq/m^3 in new buildings.

In accordance with the "Comprehensive Programme of Conducting State Sanitary Inspections in the Area of Radiation Safety Sphere of Ukraine, Radiation Control of Environmental Objects and Individual Radiation Monitoring by State Sanitary-Epidemiology Service Establishments under the Ministry of Health of Ukraine and Scientific-Research Institutes under the Academy of Medical Sciences of Ukraine for 2000-2005", and the oblast "Programmes of Protecting Population from the Impact of Ionizing Radiation", the presence of radon in the indoor air of production facilities and residential buildings is controlled and analyzed when they are first put into operation.

Recommendation 14.8:
More effective cooperation and coordination mechanisms should be established between the Ministry of Health Protection, the Ministry of Environmental Protection and Nuclear Safety and other relevant ministries and State committees, focusing on health promotion and environmental protection around specific issues, such as traffic, agriculture and foodstuffs, mining and industry, water quality and waste. It should particularly aim at the implementation of the National Environmental Health Action Plan, closely coordinated with the National Environmental Action Plan. It should also relate to coordination between national, regional and local levels of public administration.

"The National Environmental Health Action Plan for 2000-2005" was approved by the Resolution of the Cabinet of Ministers No. 1556 of 13 October 2000. The Plan is aimed at the improvement of public health by means of preventing diseases and worsening of the health conditions, appearance and development of which are related to the impact of environmental factors. The cooperation and coordination mechanisms between the Ministry of Health, Ministry of Environmental Protection and other relevant ministries and State committees on the implementation of the National Environmental Health Action Plan have not been satisfactory.