BELARUS*

* In co-operation with UN/ECE.

CONCLUSIONS AND RECOMMENDATIONS*

In the 1990s, Belarus has had to adapt to new circumstances and has faced serious economic difficulties: a 37 per cent decline in GDP, a major fall in trade with countries formerly in the USSR, low foreign investment and inflation that reached four digits before declining. These new circumstances forced major changes in its economic structure, formerly characterised by highly developed industrial and agricultural sectors and extensive trade with other republics of the USSR.

Environmental policies were initiated in the 1960s and focused on nature and drinking water protection. With the 1986 accident at the Chernobyl nuclear power plant, near Belarus's southern border in neighbouring Ukraine, measures were taken to protect the population and the environment from the severe effects of this event. In the first half of the 1990s, important steps were taken to establish comprehensive environmental policies. The present environmental priorities of the Belarussian Government are: i) promotion of less polluting production processes; ii) protection of human health through adequate water supply and control of water and air pollution; iii) preservation of biodiversity; and iv) development of legislation and standards.

This report sets out the baseline for assessing future environmental progress, and examines Belarus's environmental performance in three key areas:

- integrating environmental and other policies;
- implementing environmental policies;
- strengthening international co-operation.

In each of these areas, the extent to which government policy objectives are being met has been assessed. This assessment includes both domestic objectives and international commitments, and is based on environmental effectiveness and economic efficiency criteria. A number of recommendations are put forward that could contribute to further environmental progress in Belarus.

1. Integrating Environmental and Other Policies

Economic transition and environmental performance

Since 1990, environmental pressures and major emissions have decreased considerably. This decrease reflects not only reduced economic output, but also energy supply changes and environmental action. The pollution and resource intensities of the economy, however, remain relatively high. For sustainable economic development to be achieved, the country will have to continue strengthening and financing pollution prevention and control, and improving management of natural resources such as water, forests and wildlife. It will also have to integrate environmental concerns in policies for industry (e.g. the chemical industry), agriculture and energy. Fostering sustainable development could also be supported by a deepening of economic reform, which would increase the incentives for industrial enterprises and other economic actors to raise the efficiency of their natural resource and energy use. In the medium to long term, economic reform would contribute both to renewed growth and to a shift towards a less resource- and pollution-intensive economy. The new national strategy on sustainable development should support such orientations.

Environmental programmes formulated thus far constitute an important asset for environmental policy making in Belarus. The country has achieved a number of important goals from its 1990 Ecologia programme for 1991-95: the transformation in 1993 of the State Committee on Ecology into the Ministry of Natural Resources and Environmental Protection (MINNAT); the adoption of key environmental legislation; the introduction of pollution and natural resource charges; the establishment of state ecological examinations (a form of environmental impact assessment); the strengthening of environmental education and monitoring; and the maintenance of total allocated environmental expenditure at over 2 per cent of GDP in recent years. Within this total, pollution abatement and control expenditure is probably in the range of 0.8 to 1 per cent of GDP, a large part of it being financed by the

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country's system of Environmental Funds and by enterprises. In addition, about 3 per cent of GDP represents expenditure related to the Chernobyl accident.

Belarus has made little progress towards meeting environmental policy goals that involve major investment, partly because environmental expenditures, although stable as a share of GDP, have declined significantly. Some ambitious objectives, such as establishing hazardous waste disposal sites in each region, ensuring that all towns over 8 000 inhabitants have water supply, sewerage and waste water treatment systems, and considerably increasing the number of cars equipped with catalytic converters, have yet to be tackled. MINNAT's new environmental programme for 1996-2000 addresses some of the problems raised in the implementation of the Ecologia programme by setting priorities more clearly. Similarly, greater attention should be given to reviewing environmental performance and the effectiveness of programme implementation through adequate reporting to policy makers and the public on results achieved with respect to quantitative and qualitative policy objectives.

In reducing industrial pollution, Belarus has relied on "end of pipe" solutions and new pollution abatement investment. To better integrate environmental concerns in industrial policies and practices, however, low-cost environmental management and cleaner production techniques should be seen as important supplementary solutions that are likely to be more cost-effective. Improving environmental management in industry would also help focus managers' attention on low-waste production technology once resources for large new investments become available. The system of charges on pollution and resource use could be used to provide incentives for change as well.

Belarus has introduced a form of environmental impact assessment, the state ecological examinations, both for new projects and for modifications to existing facilities. These examinations are a good tool for integrating environmental concerns into project-level economic decisions. The number of projects treated is very large, however; this affects the quality of the individual examinations, especially at local levels, and creates a heavy administrative burden. Public participation is too often missing or given little weight during the examinations. The methodology of the examinations is based on the 1991 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo), which Belarus has not yet ratified. MINNAT's current review of the regulations for the state ecological examinations should take the above aspects into account.

It is therefore recommended that consideration be given to the following proposals:

- pursue changes in economic structures and develop economic reforms both to renew economic growth and to foster a less resource- and pollution-intensive economy;
- reinforce the integration of environmental concerns within economic sectors, with particular emphasis on industry, agriculture and energy;
- promote low-cost cleaner production techniques in industry and improve industrial environmental management;
- focus state ecological examinations (environmental impact assessments) on projects with potential for major impact on the environment, and increase related public involvement;
- orient environmental planning and programming more towards priority setting and measurable results; review the achievement of environmental objectives and commitments more systematically.

Dealing with effects of the Chernobyl accident

The effects of the Chernobyl accident necessitated an integrated response in Belarus, and such a response was initiated immediately after the accident and developed further later. Since 1991, a State Committee has had primary responsibility in this area; in 1994, the Ministry on Emergency Measures and Protection of the Population from the Consequences of the Accident at Chernobyl was created. Additional efforts from several other ministries were mobilised, along with a broad range of high-quality scientific capabilities within the country. In the days after the accident, countermeasures (e.g. evacuations and provision of uncontaminated food and stable iodine) were taken on a massive scale and overall were timely and effective. Later measures such as resettlement, health care programmes and efforts to reduce exposure have also been effective. Decontamination efforts such as removal of topsoil and contaminated biomass have generated waste, which is in well-monitored sites. Expenditure related to Chernobyl, more than ten years after the accident, is still at over 7 per cent of total government expenditure and around 3 per cent of GDP.

Radioactive contamination affected 23 per cent of the territory of Belarus. Today most remaining radionuclides are within the first 20 cm of the soil, whereas their concentrations in air and surface waters are significantly lower than the allowed values. The accumulation of americium-241 in flora and fauna close to

Chernobyl has been observed; its influence on the health of the exposed local population has not yet been fully studied. The fact that at present 100 000 people receive doses of only 1 to 5 mSv per year, and that very few people exceed doses of 5 mSv per year, confirms the effectiveness of the efforts made by Belarus. The total exposure of the population is being assessed to further target health monitoring programmes and efforts continue to monitor the health of affected populations. Certain adverse health effects have been observed, such as increases of thyroid cancers in children. Besides health effects on the population, psychological and social effects are of significance.

The intervention levels that determine countermeasures in this chronic exposure situation in Belarus are much stricter than levels recommended internationally. Since Belarus is one of the few countries to have been subject to such widespread contamination, it would be useful for Belarus and the international community to re-examine in an international context the appropriate intervention levels for chronic exposure situations.

Most countermeasures are based on 1991 laws establishing contamination zone classification and ensuing compensation; since 1991, more and better radiological data have been collected. Some of the 3 per cent of Belarussian agricultural land taken out of production could now be returned to agricultural use. Social compensation has been important as a response to the situation in Belarus; a fresh review of the compensation regime (goals of compensation, results) would be useful, and the planned revision of the 1991 social protection law could take such a review into account. Research programmes on public health received only a small fraction of the Chernobyl funds in 1995; continued and possibly expanded research into population doses and health effects, and epidemiological study of affected populations, are important to assure that those at risk can be effectively identified, medically followed and treated.

Keeping in mind health, environmental, social and economic concerns, it is recommended that consideration be given to the following proposals:

- continue and strengthen monitoring and research programmes to help guide public health and safety policy actions;
- continue and expand public information and education programmes;
- give increased attention to cost-effectiveness in designing, implementing and monitoring countermeasures;
- consider re-examination of intervention levels in an international context;
- continue and finalise the review of the 1991 laws that classify contamination zones and define countermeasures.

Biodiversity and agriculture

The priority that the authorities give to preserving biodiversity is being translated into policies: a legal framework has been established and plans are under way for a considerable increase in protected areas (which now cover 7.4 per cent of the territory). Despite severe financing problems, expenditure for the management of protected areas, although relatively low, appears to be stable. The decision to increase the area of national parks, rather than areas under more strictly protected regimes, will have positive effects with regard to public environmental awareness. The promotion of nature tourism is positive as well, though it should be developed in a controlled way. Preservation of biodiversity in Belarus can be strengthened by streamlining the management and control of protected areas, which are now shared by several authorities. Belarus has ratified CITES and the biodiversity convention; good scientific work is being conducted on species inventories. Authorities are preparing a national strategy for the protection of biodiversity.

Biodiversity policies focus on protected areas; outside these areas, environmental concerns need to be integrated in agricultural policies and practices. Concrete measures taken, along with declines in agrochemical use (by about 75 per cent for commercial fertilisers and pesticides) and generation of manure, are among the reasons that pollution pressures from agriculture have decreased markedly; but pollution remains high in some areas and will probably increase when agricultural production starts increasing again. Farm extension services with training in good agricultural practices do not now exist but could be an important step forward. Such services could promote both agricultural productivity and environmental protection. More systematic conversion of marginal lands to non-agricultural uses might be considered. The country's remaining wetlands, which are of great significance for Belarus's biodiversity, should be protected.

It is therefore recommended that consideration be given to the following proposals:

- continue the efforts to extend protected areas;
- establish sufficient legal protection for remaining wetlands;
- strengthen management and control of protected areas by establishing clearer responsibilities;
- encourage the development of nature tourism while examining such questions as the activities to be allowed in protected areas and formulating a code of good practice;
- finalise work on the national strategy on biodiversity;
- integrate environmental concerns in agricultural policies and practices; establish farm extension services providing training in good agricultural practices;
- consider a more systematic approach to converting marginal agricultural lands to non-agricultural use.

2. Implementing Environmental Policies

The institutional and legal framework for environmental protection that has been developed over the last few years provides Belarus with solid foundations and added impetus for environmental progress. However, present circumstances require both further strengthening of the environmental policy framework and improved cost-effectiveness and priority setting.

Strengthening the environmental policy framework

A new environmental programme (for 1996-2000) has recently been approved; it follows the 1990 Ecologia programme (for 1991-95). Together with draft laws concerning water and air, it should help in strengthening the planning and legal framework for environmental protection and in clarifying priorities. Under the current financial constraints, which are very tight and growing more so, priority setting is of utmost importance and necessitates reinforced economic analysis.

The basic environmental policy approach now relies almost exclusively on standard setting at central level and subsequent control and enforcement. To improve the environmental and economic effectiveness of policy implementation, partnerships on environmental matters between government and other sectors in society should be introduced, for instance through quantified environmental target setting by theme or sector within the framework of environmental programmes.

Information is well developed as regards the consequences of the Chernobyl accident. Environmental information and access to it could build on this example. MINNAT should also consider information to be a policy tool that strengthens the basis for environmental management, and should seek ways and means to improve and strengthen non-governmental associations' involvement in decision making processes.

Monitoring of pollution emissions has been strengthened in recent years. New monitoring and laboratory equipment has been installed and co-ordination among institutions has been improved. Nevertheless, important work remains to be done, as recommended in the OECD's 1994 environmental information systems assessment: e.g. improving integration of the information collected and orienting the output to support policy making. A 1993 decision to link the different monitoring systems together into a unified system has not yet been fully carried out.

The authorities rightly consider environmental training and education as important, and have developed programmes at the various levels of education. The number of students graduating in environmental or environment-related studies is large. However, limited financial means affect the quality of environmental education.

It is therefore recommended that consideration be given to the following proposals:

- reinforce priority setting, on the basis of economic analyses;
- continue improving environmental legislation; in particular, proceed with the adoption of prepared revisions to laws, such as those on water and air;
- further develop environmental information and its availability for the public and various sectors in society, and encourage the participation of environmental NGOs in environmental policy making;
- complete the introduction of a unified environmental monitoring system and ensure that it supports policy making;
- continue to support environmental education and training programmes.

Improving the cost-effectiveness of environmental policies

Belarus has developed an important range of policy instruments for managing pollution and natural resource use. It has an extensive set of ambient environmental standards. However, these standards are too numerous, and much stricter than comparable standards in other European countries; in practice, measurements can be taken only for a limited number of them. With the present permitting system, MINNAT and its inspectorates closely oversee the activities of industrial enterprises and other polluters. This command and control system forms the core of environmental management and provides authorities with a classical regulatory instrument. The system is, however, relatively complicated and burdensome from an administrative point of view. Maximum emission levels for industrial facilities are set by complicated calculations, and permits have to be renewed too often. Therefore, the cost-effectiveness of this system should be examined, with integrated pollution prevention and control in mind.

The introduction of environmental charges and fines has been positive as a way of promoting environmental awareness in enterprises and as a source of financing for environmental expenditure in accordance with the polluter pays and user pays principles. The levels of these charges and fines have been revised regularly to reflect inflation. However, they are too low to serve as significant incentives for improvements in production processes and technologies. They should continue to be indexed to keep pace with inflation and their progressive increase should be considered.

Belarus's Environmental Funds provide over 20 per cent of the financing for environmental investment expenditure, and play an important role in supplementing budgetary allocations for monitoring equipment and other environmental expenditure. The management of these funds should emphasise priority setting and cost-effectiveness in project selection. Grants should aim at mobilising a maximum of other resources. It is also important for each individual fund to have sufficient resources to finance necessary investments.

It is therefore recommended that consideration be given to the following proposals:

- analyse the number and level of ambient environmental standards on the basis of the specific context of Belarus and the experience of other countries, and introduce a more realistic set;
- consider streamlining the permitting system and extending the validity of permits;
- continue to index environmental charges and fines to keep pace with inflation and consider progressively strengthening them to introduce incentives for technological change;
- strengthen the system of Environmental Funds by developing a training programme for funds' staff members and streamlining operating procedures.

Air

Overall atmospheric emissions of conventional pollutants such as SO_x and NO_x, as well as of CO_2, have decreased considerably since 1991, respectively by about 50, 30 and 50 per cent. This is due largely to economic decline, but also to the increased share of natural gas in energy supply (now reaching 45 per cent) and to environmental action. High priority has been given to reducing air pollution, with a range of instruments, including permitting, charges and fines, enforcement and monitoring. Charges and fines generate revenue for the Environmental Funds and promote environmental awareness in enterprises. Air quality monitoring is of good quality and technical expertise is in general well developed. Energy policy in Belarus has helped reduce emissions of air pollutants: efforts are being made to improve energy efficiency; a major shift from oil and coal to natural gas in electricity and heat production has taken place; progress has been made in producing unleaded gasoline.

Air quality remains low in many cities, however, largely because of uncontrolled emissions of air toxics. Energy and air emission intensities per unit of GDP are still very high. When economic growth resumes, this will be of great concern. The air quality standards are ambitious, but too numerous and too strict. A revision of these standards should be considered, together with other regulatory standards and other economic instruments, aiming, inter alia, at cost-effectiveness. For the short term, the main industrial sources of air pollution affecting human health should be identified and cost-effective short-term measures taken to reduce this pollution. The increased share of road transport in total transport and the ageing vehicle fleet deserve special attention; the exhaust emission standards need to be updated and enforcement strengthened; the availability of unleaded gasoline at filling stations is very limited and needs to be increased; fuel quality should be improved. To increase energy efficiency, low-cost process changes in industry and improved environmental management should be promoted, and attention should be paid to energy prices. For the residential sector a number of obstacles to progress with energy efficiency need to be overcome, particularly the lack of control by residents over the heating of their own apartments.

It is therefore recommended that consideration be given to the following proposals:

- introduce domestic standards conforming more closely to international standards for ambient air quality, emission limits and deposition levels;
- improve the cost-effectiveness of permitting for stationary sources;
- update vehicle exhaust emission limits; reinforce controls on in-use vehicles; adhere to relevant UN/ECE agreements; and ensure increased availability of unleaded gasoline in major cities and along main national roads;
- strengthen the emphasis on energy efficiency, with greater stress on: i) energy price setting for households and other users, and ii) energy savings programmes for the residential sector; the decree of September 1996 to increase heating tariffs for households should be implemented;
- improve fuel quality, notably the sulphur context of oil products such as diesel.

Water

In spite of severe economic problems, Belarus has made progress with water management: a permitting system associated with charges on water pollution and withdrawal has been established, and substantial financial resources are being allocated to water management. Water supply systems and waste water treatment plants have been improved in many places; such infrastructure is being built or renovated in 45 towns. The overall quality of surface waters and groundwater has also improved.

Locally, however, serious water quality problems persist. Industrial waste water is mostly treated together with municipal waste water, without sufficient pre-treatment by enterprises. Many municipal waste water treatment plants are overloaded and do not have the technical means to treat toxic pollutants. Diffuse pollution, especially nitrates from agriculture, is seriously affecting shallow wells in rural areas, an important part of drinking water supply. The emphasis in water management is not sufficiently focused on prevention at source. To improve the cost-effectiveness of water management, incentives for industry and agriculture to change their production processes should be considered. The present charges on pollution and withdrawal should continue to be indexed for inflation and possibly be increased gradually to induce enterprises to adopt cleaner technologies. The fee paid by households for drinking water should be raised to a level closer to meeting the production costs. The introduction of a river-basin approach could enhance the effectiveness of policies and expenditures. Large investments remain to be made to reach the water supply and waste water treatment objectives of the Ecologia programme for 2000.

It is recommended that consideration be given to the following proposals:

- review water management priorities with the aim of increasing efforts to prevent pollution at source;
- continue putting priority on drinking water quality, but give more attention to rural areas; in this respect, increase the emphasis on reducing diffuse pollution by agriculture;
- apply minimum pre-treatment standards for main industrial polluters and consider gradually increasing charges to induce technological change;
- continue efforts to build or renovate waste water treatment plants, taking into account low-cost treatment methods;
- progressively bring the price of drinking water for households towards the total production costs of water supply;
- consider introducing a river-basin approach in water management policies to improve cost-effectiveness of measures and expenditures.

Waste

Over the last few years, the Government has established the basis for comprehensive waste management. The 1993 Industrial and Consumer Waste Act was enacted, a permitting system with associated waste charges is being applied and data collection and monitoring have improved. Investments, albeit limited, have been made as well, for controlled landfills and plants to treat and process waste. An important government objective is to minimise generation of industrial waste. Under present economic circumstances, controlled landfilling is considered the main method for disposal. Efforts are being made to improve control over existing landfills and to build new ones.

Despite the decline in industrial output per unit of production, industrial waste generation continues to be high (19 million tonnes in 1995). Much industrial waste has accumulated at industrial sites awaiting further handling (619 million tonnes by the end of 1995), or is disposed of at insufficiently controlled landfills. Municipal waste generation has been stable for the last few years at 2.5 million tonnes per year. Most municipal and all medical waste is disposed of at landfills; the capacity of many landfills is nearing saturation. Although a start has been made with waste management, more efforts are needed to prevent waste generation by introducing low-waste technologies and reuse of waste. Increased efforts are needed to reduce the considerable quantities of accumulated waste at industrial sites. Special attention should be paid to hazardous waste (1.3 million tonnes generated in 1995): more efforts are needed to improve the reuse rate and storage conditions for such waste. The present rather low level of investment for waste management needs to be raised as part of the implementation of Belarus's comprehensive waste management policy.

It is recommended that consideration be given to the following proposals:

- introduce incentives for enterprises to gear production towards low-waste technologies and develop waste reuse and recycling;
- strengthen monitoring, treatment and disposal of hazardous waste;
- devote special attention to the treatment and proper disposal of accumulated waste on enterprise premises;
- improve landfilling conditions and strengthen related controls; improve treatment of medical waste;
- consider devoting more financial resources to waste management, through various means, including an increase of waste charge levels.

3. Strengthening International Co-operation

After independence in 1991, Belarus had to create and develop new policies for international environmental co-operation. It concluded bilateral agreements with all its neighbouring countries and some other countries, laying the framework for co-operation on environmental issues. Belarus promotes regional environmental co-operation within the Inter-State Ecological Council of the New Independent States and takes part in the Environment for Europe process and in environmental co-operative activities of the UN Economic Commission for Europe. Its commitments under the UN/ECE agreements on transboundary air pollution have been fulfilled, though the declines in SO_x and NO_x emissions have mainly been due to reduced economic activity. Belarus is making some efforts to meet its global international commitments, such as those concerning protection of the ozone layer and biodiversity. A special programme to reduce use of CFCs led to significant progress. As a follow-up to the 1992 UN Conference on Environment and Development, a national sustainable development strategy is being prepared. In April 1997, Belarus hosted a conference on sustainable development in transition countries. An inventory of greenhouse gas emissions is being made.

At this stage in its international environmental co-operation, Belarus should gear its bilateral co-operation towards specific issues and concrete results, for instance regarding transboundary water and air pollution and nature protection. Concerning regional co-operation, policies should be developed or reinforced to guarantee that Belarus's international obligations will continue to be met in the future, after economic growth resumes. MINNAT's international capacity needs to be strengthened, co-ordination on international environmental co-operation with other ministries reinforced, and a strategy for international co-operation on environmental matters developed, consistent with domestic environmental priorities and the planned national sustainable development strategy. International conventions to which Belarus is not a party, but that could be of benefit to its environment, should be examined for signature and/or ratification: e.g. the UN/ECE conventions on international watercourses (Helsinki), prevention of industrial accidents (Helsinki) and environmental impact assessment (Espoo), and the Basel Convention on hazardous waste. Ratification of the Framework Convention on Climate Change is on the agenda.

It is therefore recommended that consideration be given to the following proposals:

- translate bilateral and regional agreements into concrete programmes and projects;
- become a party to international conventions, such as the UN/ECE conventions on international watercourses, prevention of industrial accidents, environmental impact assessment, and the Geneva and Oslo Protocols under the Long-range Transboundary Air Pollution Convention, as well as the Basel, Ramsar and Bonn Conventions;
- ratify the Framework Convention on Climate Change;
- strengthen international environmental co-operation by increasing MINNAT's international capacity, by establishing priorities for action and by reviewing systematically the implementation of environmental obligations.