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DEVELOPMENTS IN IMPROVING ENVIRONMENTAL OBSERVATIONS, DATA COLLECTION AND REPORTING

IMPLEMENTATION OF RECOMMENDATIONS ON MONITORING AND INFORMATION MANAGEMENT FROM COUNTRY ENVIRONMENTAL PERFORMANCE REVIEWS

Kazakhstan

Note by the secretariat[1]

Summary

The paper is submitted pursuant to a decision taken by the Committee on Environmental Policy at its fifteenth session (ECE/CEP/148, para.22). It presents the recommendations on environmental monitoring and information management that the Committee approved on 21 April 2008 at its fifteenth session, and describes the situation in Kazakhstan with environmental monitoring and information management at that time.

The Working Group on Environmental Monitoring and Assessment is expected to consider plans made by Kazakhstan for the implementation of these recommendations and to provide the country delegation with possible guidance on how to improve performance to this end.

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[1] Prepared on the basis of materials of the second Environmental Performance Review of Kazakhstan.

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CONTENTS

**RECOMMENDATIONS OF THE SECOND ENVIRONMENTAL
PERFORMANCE REVIEW OF KAZAKHSTAN**

Recommendation 1:
The Ministry of Environmental Protection should review the environmental monitoring programme run by Kazhydromet to identify gaps, weaknesses and inconsistencies and to develop a strategy with an action plan for further modernization and upgrading the monitoring networks in line with international guidelines and best practices. Such an action plan should establish time frames and specify budgets:
(a)   To link monitoring objectives with priority environmental problems at the national and territorial levels and make monitoring an instrument to assess progress in achieving environmental policy targets set in State programmes and plans;
(b)   To enlarge the number of parameters to measure, in particular, ground-level ozone, particulate matter (PM_{10}), heavy metals and persistent organic pollutants in ambient air and biological parameters in water;
(c)   To establish additional background and transboundary monitoring stations in line with internationally agreed guidelines;
(d)   To complete the transition to automatic measurements and improve data quality control and storage procedures;
(e)   To link environmental quality data with emission data by enterprises to establish cause-effect relationships to be reported to compliance control and policymaking authorities for possible action;
(f)   To develop a monitoring network for the Aral Sea.

Recommendation 2:
The Ministry of Environmental Protection and the Agency for Statistics should jointly review their environmental reporting requirements for enterprises and prepare the necessary modifications to harmonize and streamline these requirements so that enterprise reporting data could facilitate the preparation of emission inventories in line with international guidelines and the development, step by step, of territorial and, thereafter, national pollutant release and transfer registers.

Recommendation 3:
The Ministry of Environmental Protection should review the current information dissemination procedures of Kazhydromet to make data and information on the ambient environment freely available to all information users, including all governmental bodies at all levels, business and industry, and the general public. Restrictions, if any, should not go beyond those referred to in the Aarhus Convention[2], to which Kazakhstan is a Party. Kazhydromet should also upgrade its website by uploading all its bulletins and information on ambient air, water and soil quality as measured by its networks.

Recommendation 4:
The Ministry of Environmental Protection, with the support of the Unified State System for Environmental and Natural Resources Monitoring (USSENRM) Inter-agency Working Group, should critically review its plans to establish, in addition to the database on natural resource cadastres, a stand-alone database on the environment, with a view to either making these two databases mutually supplementary or of considerably expanding the former database by including data sets on emissions, discharges and ambient environmental quality. The database(s) should be made accessible to contributing agencies and the general public following the obligations of the Aarhus Convention.

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[2] The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

I. ENVIRONMENTAL MONITORING

1.   The national State-run enterprise "Kazhydromet", the main environmental monitoring institution in the country, has an Environmental Monitoring Centre (EMC) in its structure. The Centre operates a network of measurement stations and analytical laboratories, develops methodological guidance for oblasts and cities, conducts research and manages environmental information.

2.   Kazhydromet/EMC operates a network of 23 analytical laboratories in 20 cities. Thirteen laboratories conduct analysis of both air and water samples, nine – air samples and one – air, surface water and soil samples and radioactivity measurements. All but two of these laboratories have received the official accreditation. The remaining two are expected to be accredited in 2008. Laboratories report the results of their analyses to the Centre by post or e-mail. Some 40 per cent of samples come from companies that do not have their own laboratories and contract the State laboratories to check compliance with environmental regulations.

3.   Environment monitoring networks are recovering from a decline in 1990s. The number of monitoring stations and points has been increasing since 2000 (see table) thanks to improved financing. The annual State budget financing for monitoring (amounting to 70% of the Kazhydromet/EMC budget) has been increasing by some 2 per cent a year on average. Others sources of financing, especially private companies, have been gaining in importance.

4.   In Kazakhstan, no assessment has been made of what would be an optimal and efficient monitoring network density to meet the requirements of existing monitoring regulations. As a result, no priorities have been established for financing. Demands for financing from the State budget are merely a compilation of requests submitted to Kazhydromet/EMC by its territorial bodies. The main purpose is to replace obsolete equipment and to automate measurements on the existing stations. In 2007, some 30 per cent of monitoring equipment in use still required renewal or replacement.

5.   In spite of efforts made in recent years, there are important gaps in monitoring coverage and the quality of measurements is often dubious owing to insufficient frequency of sampling. Background monitoring is conducted at one station only, Borovoye, in the north of the country. Discussions are under way in Kazhydromet regarding the upgrading of one air-monitoring station in the south of the country by 2010 to conduct additional background measurements.

6.   Measurement results continue to be compared with the maximum allowable concentrations (MACs) of polluting substances in ambient air, water bodies or soil most of which were established date from the Soviet era. The lists of ambient quality parameters have not been revised or harmonized with international standards since Kazakhstan became an independent State. The system of standards is overambitious, covering hundreds of pollutants and mandating very low concentrations of them.

7.   The excessively large number of regulated pollutants imposes unrealistic monitoring and enforcement requirements on public authorities. First, some of the Kazakhstan's ambient standards are below the threshold of detection by available measurement devices. Second, some standards ignore situations when substances occur naturally in specific geographical areas or environmental media (e.g. water bodies). Third, routine monitoring covers the present and may

reasonably cover in the future only a limited set of pollution parameters. Fourth, standards in Kazakhstan frequently do not take into account the technological (or sometimes economic) capacities of industries to meet them. As a result, monitoring results continuously demonstrate exceedance in MACs to various extents. Overall, the current system of ambient environmental standards does not serve effective environmental policymaking and needs to be reviewed and harmonized with best international practices.

Development of the Kazhydromet environmental monitoring network, 2000 to 2007

Network	2000	2001	2002	2003	2004	2005	2006	2007	2010 planned
Air-quality monitoring									
Cities covered by monitoring	19	20	20	20	20	20	20	21	35
Fixed monitoring stations,	44	43	46	47	47	47	47	50	73
of which automatic									23
Mobile monitoring laboratories							6	9	13
Transboundary monitoring	1	1	1	1	1	1	1	1	1
Monitoring of atmospheric precipitation	28	32	40	40	41	41	41	42	53
Monitoring of snow cover			32	20	29	32	32	33	47
Monitoring of surface water quality									
Water bodies monitored	44	48	52	67	72	75	74	80	94
Hydrochemical gauges	80	133	157	168	174	188	180	190	n/a
Background (air and water) monitoring	1	1	1	1	1	1	1	1	2
Soil quality monitoring									
Cities where heavy metals in soil are monitored				7	10	11	15	18	32
Cities where persistent organic pollutants are monitored									30
Radiation monitoring									
Stations measuring daily gamma-radiation exposure	49	48	77	69	66	66	67	78	n/a
Stations taking precipitation samples to calculate aggregate beta-activity	27	34	40	39	39	40	40	40	n/a

Source: Kazhydromet. Communication to the UNECE team and country report to the Working Group on Environmental Monitoring and Assessment, 2007.
Note: n/a – no data on plans available.

8.   Except for the programme on air pollution effects on human health, Kazakhstan does not participate in International Cooperative Programmes on Assessment and Monitoring of Air Pollution Effects under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP), to which it is a Party. Kazakhstan has not responded so far to repeated invitations by the Convention's Executive Body to nominate national focal centres for those effects-oriented activities/programmes in which it does not yet actively participate. This weakens, to a great extent, Kazakhstan's own knowledge base about the adverse effects of air pollution on forests, waters, vegetation and materials in the country.

9.   The situation with key monitoring networks is described below.

A.   Air-quality monitoring

10.   Kazhydromet monitors air quality in cities using both fixed monitoring stations and mobile laboratories. The network density is far from the requirements of national monitoring regulations (one station per 50,000–100,000 city dwellers), but it is steadily expanding (see table) and is undergoing modernization. Increasing State budget allocations will allow monitoring air

quality in 14 more cities, augmenting the total number of fixed monitoring stations by 46 per cent by 2010. One third of these stations will be automated ones.

11.   In most cities, the monitoring programme covers four pollutants: total suspended particles, nitrogen dioxide, sulphur dioxide and carbon monoxide. Some stations monitor the occurrence of additional pollutants (up to 16 pollutants in Ust-Kamenogorsk), depending on regional and/or local emissions patterns and existing technical capacity.

12.   Measurements at most fixed stations are done manually. In four cities (Aktobe, Almaty, Astana and Karaganda) these are done four times a day, thus meeting the monitoring regulation requirements. In other cities, an incomplete measurement programme is implemented (samples are taken three times a day).

13.   Air concentrations of a number of pollutants identified by the international community as most harmful to human health and the environment – ground-level ozone, particulate matter (PM_{10} and $PM_{2.5}$), heavy metals, volatile organic compounds and persistent organic pollutants (POPs) – are not measured in Kazakhstan.

14.   The sanitary and epidemiological service of the Ministry of Health sporadically monitors air quality in residential and recreational areas, in particular near main roads, sanitary protection zones and apartment blocks; on the territory of schools, preschools and medical institutions in urban areas; and in workplaces. In addition, it measures air quality in residential areas in response to residents' complaints.

15.   Overall, air monitoring stations in Kazakhstan give a good indication of the population's exposure to air pollution without always capturing the full impact of pollution episodes. There is no interpretation of dose-effect relationships between different data sets, however. The current air quality network is generally unable to link air pollution levels with emission patterns and so identify activities that violate emissions norms or air quality standards under normal operating conditions. The Ministry on Environmental Protection (MEP) and the Ministry of Health do not harmonize or coordinate their monitoring programmes.

16.   Until recently, the single transboundary air monitoring station located in Borovoye has been monitoring only meteorological parameters. In 2007, it was completely refurbished and automated thanks to the UNECE project, Capacity-building for air quality management and the application of clean coal combustion technologies in Central Asia (CAPACT). This allowed the station to start measurements required by the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP) under CLRTAP. In particular, it will be the only station in the country that will measure PM_{10} and ground-level ozone. There seem to be no plans in Kazakhstan to install additional transboundary air monitoring stations at its (very extensive) borders.

B.   Inland water monitoring

17.   Kazhydromet monitors hydrochemical water quality at 183 gauges on 54 rivers, 8 lakes, 11 reservoirs, 3 canals and the Caspian Sea. Hydrobiological observations ceased to be conducted in 1990s and have not restarted as of yet. The current network provides data on a total of 40 parameters and helps assess chemical composition and the presence of suspended and

organic matters, main pollutants, heavy metals and pesticides. Samples are taken manually 4 to 12 times a year, depending on the pollution category of the water body.

18.   The number of observation points is far below the requirements of the applicable water monitoring regulations. The observation points are located only on big water bodies close to large urban areas. Diffuse pollution of surface waters is not monitored.

19.   There are other institutions involved in inland surface water monitoring. For instance, the Committee on Water Resources monitors water supply sources, transboundary watercourses and water abstraction. The Ministry of Health monitors drinking water and recreational water sites along rivers, lakes and reservoirs. There is no harmonized approach applied by all institutions involved in surface water monitoring. Each governmental body uses its own software and databases. As a result, the monitoring data are distributed among various sources, are not integrated and are not mutually complementary.

20.   Kazakhstan has expanded cooperation with its neighbors on monitoring of water quality in transboundary waters. Under bilateral agreements with China and the Russian Federation, Kazakhstan designated or installed new monitoring points on the shared rivers concerned. Collected hydrological and hydrochemical data are exchanged and intercalibrated in between the Parties. Kazakhstan exchanges hydrological data resulting from water monitoring on the Syr-Darya River with Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan within the International Fund for Saving the Aral Sea (IFAS).

21.   In 2007, Kazakhstan began the creation of a laboratory for water-quality analysis ("on-the-spot" or "express" analysis) on the Irtysh River on the border with China. This laboratory will allow quick-checking of the water quality on selected parameters on the spot. In 2008, a similar laboratory is planned on the Ili River, also on the border with China. Thereafter, it is intended to proceed with the installation of such laboratories for water-quality monitoring on the watercourses that Kazakhstan shares with Kyrgyzstan, the Russian Federation and Uzbekistan.

22.   Groundwater monitoring is recovering since a contraction of the network in 1990s and early 2000s. Since 2003, the number of observation sites has increased by 770 to amount to 5,005 in 2007. The network is operated by 14 field contractors and 5 State (regional) enterprises subordinated to the Committee on Geology and Mineral Resources of the Ministry of Energy and Mineral Resources. Groundwater observation sites are primarily intended to assess groundwater levels (water availability) and natural geochemistry. The sanitary and epidemiological service of the Ministry of Health performs radiological, bacteriological and extended chemical analyses of groundwater used for drinking water. Currently, the share of groundwater in drinking water supply in the country amounts to 56 per cent. The fact that some 100 aquifer segments in Kazakhstan are unsuitable for drinking water supply because of contamination is a matter of concern. The current monitoring programmes do not allow for the establishing of causal links between groundwater quality and pollution sources to develop pollution abatement measures.

C.   Coastal water monitoring

23.   In response to a growing concern in the country regarding the state of the environment in the Kazakhstan area of the Caspian Sea, in 2005Kazhydromet established, on the basis of its territorial body in Atyrau, the Centre for Monitoring of the Caspian Sea. The Centre's monitoring

programme covers observations of air quality near oil industry facilities, precipitation, the quality of surface inland and marine waters and of bottom sediments near oil industry facilities in the sea, soil quality in urban areas and near oil-industry facilities, and radioactivity in the area. No biological parameters are monitored. The Centre plans to complement the data obtained from this network by remote sensing data. Nonetheless, the current monitoring network is barely sufficient to cover rapidly expanding oil and gas exploration in the Caspian Sea.

24.   There is no monitoring in the Aral Sea area.

D.   Soil monitoring

25.   Kazhydromet monitors soil pollution by heavy metals (cadmium, copper, lead and zinc) in 16 cities. Samples are taken twice a year at several spots in industrial cities. Kazhydromet plans to start by 2010 monitoring of the agricultural lands pollution by pesticides and other POPs. The Committee for Environmental Control of the MEP takes soil samples sporadically at industrial sites in the country. The Ministry of Health takes sporadic soil samples in residential and recreational areas in cities. It is not clear how the samplings by Kazhydromet and the Ministry of Health are mutually complementary and not duplicative.

E.   Radioactivity monitoring

26.   Kazhydromet monitors radioactive contamination of the atmosphere through daily measurements of gamma radiation exposure and radioactive fallout from the atmosphere in cities (see table).

27.   The institution "Volkovgeologia" is zoning areas throughout the country that were contaminated by radioactive substances as a result of former uranium mining and identifies sites for regular radioactivity monitoring. It cooperates with the sanitary and epidemiological service of the Ministry of Health in the development of so-called radiation and hygienic profiles ("passports") of contaminated areas. This is done under the implementation of the 2004 State Programme 011 on Radiation Safety of the Republic of Kazakhstan.

28.   The National Nuclear Centre is carrying out radiological and environmental assessments on the territory of the former Semipalatinsk nuclear testing site. Areas of radioactive contamination have been identified on lands that were previously considered safe. The environmental impact of nuclear tests has not been well assessed due to insufficient scientific knowledge of cause-reaction relationships.

F.   Monitoring of biodiversity, including in forests

29.   The Committee on Forestry and Hunting of the Ministry of Agriculture conducts annual forest surveys in Kazakhstan and comprehensive assessments every five years. The results are not published, but are accessible to the public upon request.

30.   The same Committee supervises all national protected areas except one, the Burabay State National Park, which reports to the Department of Management of the Presidential Administration. The management of each protected area compiles an inventory of the flora and fauna on its territory. On the basis of this data, supplemented by results of the ongoing counting

of ungulates included in the National Red List, the Committee keeps records of rare and threatened species in the country. In addition, its network of some 1,500 game wardens collects data on the numbers of specimens subject to authorized hunting. These data are reported to the Institute of Zoology of the Ministry of Education and Science, which prepares justification for hunting quotas. Although mandated by law to also keep records of species used for economic purposes other than hunting, the Committee does not do this due to the lack of resources.

31.   The Committee on Fisheries of the Ministry of Agriculture surveys fish species and maintains a fish cadastre (inventory) in Kazakhstan. In addition, it periodically conducts surveys of rare and threatened species of fish and Caspian seals. The last one was done in 2006. The results of this work have not been published, but can be accessed upon request.

32.   Overall, knowledge of the diversity and stock of animal species in the country is limited to vertebrates only. No comprehensive inventory of other animal groups has been prepared in Kazakhstan. Knowledge of wild plants is also limited. Outside protected areas, no periodic surveys of wild plants except forest species are conducted in Kazakhstan. In 2001, the Institute of Botany of the Ministry of Education and Science prepared an ad hoc survey of medicinal herbs.

II.   INFORMATION MANAGEMENT AND REPORTING

A.   Information systems

33.   Since 2005, the Information and Analytical Centre of the MEP has been developing an electronic database on cadastres of natural resources. This is being done in implementation of Government Resolution No. 1449 of 25 September 2000 on the Creation of a Unified System of State Cadastres of Natural Objects of the Republic of Kazakhstan on the Basis of Digital Geo-information Systems. The 2007 Environmental Code reconfirms the establishment of such cadastres and a database.

34.   At present, this centralized database contains data at the local, oblast and national levels on forestry management, protected areas, wild animals and fisheries, and is supported by maps for data presentation. Input data are being taken primarily from relevant statistical forms, and are uploaded manually. This is why the process is slow and very labor-intensive.

35.   So far, the database is biased towards economic and management issues in forestry, fisheries, protected areas and game preserves. Its usefulness for environmental policymaking is questionable, however. It might have value for public authorities responsible for sustainable management of the natural resources, provided that they have easy access to the database. This is not the case for the moment, and there are only plans to make the database fully accessible to registered users (public authorities only) via a password. Nevertheless, it is planned to make the database more comprehensive by adding, in the near future, data on water use and waste.

36.   The Committee on Geology and Mineral Resources of the Ministry of Energy and Mineral Resources has established a groundwater database as a subsystem of the cadastre of subsoil resources. The database contains data sets on groundwater reserves and use, the location of boreholes and the results of analyses of groundwater samples. This data is neither published by the Committee itself nor submitted to the MEP for the publication in national state-of-the-environment reports.

37.   The Committee on Forestry and Hunting of the Ministry of Agriculture plans to start developing an electronic database (cadastre) on the status of wild animals in Kazakhstan in 2009.

B.   Environmental statistics

38.   The Agency on Statistics introduced in 2006 two new modern statistical forms for data collection on household waste. Since 2004, it has converted its annual publication of environmental statistics into a statistical compendium on environmental protection and sustainable development in Kazakhstan, producing data on 60 indicators. This compendium does not include data on a number of important environmental issues such as emissions by transport, emissions of greenhouse gases, consumption of ozone-depleting substances and generation of industrial non-hazardous waste. It does not use modern presentation forms (charts, diagrammes, etc.) to make it more understandable for readers. In 2006, the Agency published an ad hoc bulletin on the results of the assessment of water intensity of the production of industrial enterprises in Kazakhstan. It is working on the selection of a set of national indicators for sustainable development to help the Government monitor progress in the implementation of the Concept for the Transition to Sustainable Development for the period 2007–2024.

C.   Emission inventories and reporting by enterprises

39.   The 2002 Law on Air Protection introduced a new obligation on all enterprises and organizations to carry out an inventory of polluting emissions in addition to the existing reporting on emissions to statistical authorities. Inventory data should be approved by the enterprise itself and agreed with the territorial bodies of the MEP, i.e. the oblast territorial administrations for environmental protection. The inventory procedure was specified in the Guidelines for Carrying out an Inventory of Polluting Emissions into the Atmosphere, approved by the MEP on 21 December 2000 (Order No. 516-P).

40.   In the course of its emissions inventory, an enterprise must account for all hazardous substances emitted into the atmosphere in the material balance sheet of the applied technological processes, from all stationary polluting sources and from enterprise motor transport. Inventory data should be agreed with the territorial environmental protection offices (TEPOs) of the MEP. After having analysed the inventory materials, the TEPO submits the following documents to the enterprise:

(a)   A list of hazardous substances subject to State registration;

(b)   A list of hazardous substances for which the enterprise must submit annual statistical reports to the statistical authorities.

41.   Thereafter, the enterprise registers its agreed polluting sources in the Registry of Stationary Sources of Pollution and Their Characteristics. The following information is registered in the Register: (a) the number of polluting sources; (b) emission rates for each pollutant, by each polluting source; (c) the times of operation of the source; (d) the amounts of substances abated and their percentage; and (e) the method for defining the mass of emitted substances.

42.   The State registry of pollution emissions in Kazakhstan is carried out by consolidating emissions data from separate sources. The primary registry of emissions is made using the results of the inventory of enterprises having sources of polluting emissions. The inventory data are the consolidated at the oblast, sectoral and national levels. With this system, it is impossible to link emission data reported to the Agency on Statistics with the register of all sources of emissions.

43.   Emissions of heavy metals and POPs are practically not reported in Kazakhstan because of lack of reliable calculation methods. It should be mentioned also that State statistical reporting includes emissions from stationary sources only. Emissions from road transport and other mobile sources (railways, aviation, river and maritime transport) are inadequately recorded. The calculation methods applied in Kazakhstan only allow for the preparation of emission assessments with a significant degree of uncertainty.

44.   As a result, current information on emissions produced in Kazakhstan does not meet the requirements of information users and is not very practical for implementation of national environmental policy and reporting to the international community under the applicable multilateral environmental agreements.

45.   Until recently, enterprises in Kazakhstan reported their environmental data to the TEPOs, which transmitted these thereafter to the Department of Permitting and Incentive-based Mechanisms for Regulation of the MEP. No evaluation of this information has ever been made.

46.   To implement the requirements of the Environmental Code, Kazakhstan will introduce in 2008 modifications to its system of environmental production control at enterprises that has been operating since 2001. To this end, the MEP issued in 2007 a regulation that obliges enterprises to report on the results of the environmental monitoring (control) of their production process to the MEP territorial bodies. Enterprises are obliged to report quarterly monitoring data on the state of atmospheric air and on discharges of polluting substances into sewage, and twice a year they are to report data on water-quality monitoring (if carried out) and on soil quality. The regulation lacks specifics on the parameters to be reported. This leaves inspectorates with high degree of discretion to interpret the actual content of enterprise reports and therefore creates conditions prone to conflict of interest and corruption.

D. State-of-the-environment reporting

47.   National state-of-the-environment reports in Kazakhstan are published every year pursuant to the Law on Environmental Protection succeeded recently by the Environmental Code. These reports follow the Guidelines for the Preparation of Governmental Reports on the State and Protection of the Environment endorsed by the Fifth Ministerial Conference "Environment for Europe" (Kiev, 2003), and they increasingly use the environmental indicators agreed upon by countries of Eastern Europe, Caucasus and Central Asia within UNECE. The application in the reports of graphs, charts, maps and other visual formats is in early stages. The reports remain descriptive to a great extent. Until 2006, they were produced on CD-ROM only. Since that time they have been also printed in a limited number of copies (150 in 2007) and circulated among public authorities at various levels. Both the limited circulation and their absence on the MEP website make the reports hardly accessible to the general public. Reports are submitted to the Ministry's Collegium (Board) for discussion. There is no evidence, however, that their findings have ever been used in environmental policymaking.

48.   Kazhydromet publishes a for-sale monthly journal (*Hydrometeorology and Ecology*) for a large audience. It produces periodic (monthly, quarterly, semi-annually and annually) bulletins on environmental pollution in the country; annual reports on surface-water quality, the State Water Cadastre, the pollution of main watercourses by heavy metals and the environmental situation in the Lake Balkhash basin, the Caspian Sea and some other regions; as well as a daily bulletin on air pollution in Almaty. Only the monthly and quarterly bulletins on environmental pollution in the country are circulated among governmental bodies following a distribution list that is annually approved by the MEP. For other institutional and private readers, Kazhydromet provides its information products for sale. Kazhydromet provides members of the general public with specific data and information for free upon written request, pursuant to the legislation on citizen requests for information.

49.   Overall, the results of environmental monitoring and data collection are not sufficiently used to prepare integrated environmental assessments at the national and oblast levels, nor are they used effectively for making decisions, elaborating policy or enhancing public awareness in Kazakhstan.

III.   POLICY AND DECISION-MAKING FRAMEWORK

50.   Since 2000, a number of legal and policy documents have been adopted in Kazakhstan that have influenced the direction of environmental monitoring activities in the country. These include the Law on Air Protection (No. 5, 11 March 2002), the Water Code (No. 481-II, 9 July 2003), the Concept of Environmental Security of the Republic of Kazakhstan for 2004–2015, adopted by the Presidential Decree No. 1241 of 3 December 2003 and the Resolution on the Environmental Protection Programme of the Republic of Kazakhstan for 2005–2007 (No. 1278, 6 December 2004).

51.   Important legal and institutional steps were taken to better coordinate the environmental monitoring and data collection activities conducted by various governmental bodies through the development of a Unified State System for Environmental and Natural Resources Monitoring (USSENRM). The overall goal of USSENRM is to provide timely and reliable information on the state of the environment to decision makers and the public, and also to assess the effectiveness of environmental protection measures.

52.   The Government, by its Resolution No. 885 of 27 June 2001, approved the Rules for Establishing and Carrying Out USSENRM**.** Over the next four years, nothing was done in practice to make these general Rules operational, until in 2005 the MEP established (by its Order No. 314-p of 17 November 2005) an Inter-agency Working Group to organize and conduct the USSENRM. The Working Group includes officials from the MEP and the Ministries of Industry and Trade, Energy and Mineral Resources, Agriculture, Emergencies, Economy and Budgetary Planning, Health, Education and Science, and Defense, as well as the Agencies on Land Resources Management and on Information and Communication and research institutions. The Working Group has started discussions on the type of information, the format, and the schedule for the exchange of information within USSENRM. This has led to an order by the Minister of Environmental Protection (No. 172, 31 May 2007) in agreement with other Ministries concerned. This may facilitate the submission to the MEP, upon written request, of certain data and

information currently not submitted (e.g. data on groundwater quality), but that are important for environmental policymaking and state-of-the-environment reporting.

53.   Other steps to promote USSENRM include the adoption by the MEP (Order No. 112-p of 13 April 2006), jointly with other governmental bodies concerned, of a Concept for USSENRM and the introduction of its elements into the 2007 Environmental Code.

54.   So far, the only achievement of USSENRM has been the regular submission by its member institutions of information inputs to the Kazakhstan Research Institute of Ecology and Climate for the production of national state-of-the-environment reports. In 2004, the MEP initiated development of a model for a comprehensive Internet-based database with four major groups of data, one of which is data on emissions, discharges, waste, biodiversity and natural resources. A private company was engaged through a tender procedure to develop an operational model for the database. Once the model is approved, the winners of subsequent successive tenders (to be organized every two years) will complete and update the database. This approach is unlikely to ensure continuity in data collection as there will be no sustained institutional memory. The segment with environmental and natural resource data risks duplication with the database that the MEP Information and Analytical Centre has been actively developing for several years using its own operational procedures and technical modalities.

55.   The Environmental Code promotes strengthening environmental monitoring and reporting by enterprises in Kazakhstan. It contains a concept of environmental monitoring of production processes. To make this more operational, the Minister of Environmental Protection issued an Order on Rules for Agreeing on Environmental Monitoring Programmes for Production Facilities and Requirements for Reporting on Results of Environmental Monitoring for Production Facilities (No. 123-p, 24 April 2007).