

**Russia Environmental Management System:
Directions for Modernization**

May 2009



THE WORLD BANK
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Europe and Central Asia Region

ABBREVIATIONS AND ACRONYMS

<i>acquis</i>	refers to the <i>acquis communautaire</i> , the body of European Union law
BAT	Best Available Technique
BREFs	BAT-reference documents
BRIC	Brazil, Russia, India and China
CIS	Commonwealth of Independent States
CLTD	Concept of Long-Term Social and Economic Development
CNR	Committee for Natural Resources
CTSD	Concept Paper on the Transition to Sustainable Development
DDT	dichloro-diphenyl-trichloroethane
EA	Environmental Assessment
EAP Task Force	Environmental Action Program for Central and Eastern Europe
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental Impact Assessment
ELV	Emission Limit Value
EMS	environmental management system
EPA	Environmental Protection Agency
EPR	Environmental Performance Review
EU	European Union
FLEP	Federal Law on Environmental Protection
FSC	Forest Stewardship Council
GDP	gross domestic product
GHG	greenhouse gas
GIS	Green Investment Scheme
GoR	Government of Russia
GRP	gross regional product
ICD	Institute of Contemporary Development
IPPC	Integrated Pollution Prevention and Control
ISO	International Organization for Standardization
MACs	maximum allowable concentrations
MENR	Ministry of Environment and Natural Resources
MEP	Ministry of Environmental Protection
MNRE	Ministry of Natural Resources and Ecology
MNREP	Ministry of Natural Resources and Environmental Protection
MNR	Ministry of Natural Resources
NAFTA	North American Free Trade Agreement
NAO	Nenets Autonomous Okrug
NGOs	non-governmental organizations
NO _x	nitrogen oxides
OECD	Organization for Economic Cooperation and Development
OVOS	Environmental Impact Assessment (acronym for the Russian term)
PAH	polyaromatic hydrocarbons
PEL	Past Environmental Liability
PM _{2.5} , PM ₁₀	Particulate Matter with aerodynamic diameter of 2.5 and 10 micrometers
RAS	Russian Academy of Sciences
RCPP	Russia Cleaner Production Program
R&D	research and development
RF	Russian Federation
RIA	Regulatory Impact Assessment
RSFSR	Russian Soviet Federal Socialist Republic
SCEP	State Committee for Environmental Protection

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SEA	Strategic Environmental Assessment
SER	State Environmental Review
SISECA	Specialized Inspection for State Environmental Control and Analysis
SMEs	small- and medium-size enterprises
SO _x	sulfur oxides
TACIS/EU	European Union Programme of Technical Aid to the Commonwealth of Independent States
TSP	total suspended particulates
UN	United Nations
UNDP	United Nations Development Programme
UN ECE	United Nations Economic Commission for Europe
USSR	Union of Soviet Socialist Republics
VFC	Voluntary Forest Certification
VOC	volatile organic compound
WTO	World Trade Organization
WWF-Russia	World Wildlife Fund-Russia

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EXECUTIVE SUMMARY

Russia's environmental conditions are threatening public health. Across the vast Russian Federation, environmental quality varies widely. National experts believe that about 65 percent of the total Russian territory of 17 million km² can be characterized as pristine and almost unaffected by economic activities and with ecosystems that are fully preserved.² These areas, which represent about 22 percent of the world's undisturbed ecosystems, have global value and significance for biodiversity protection, carbon sequestration, and other critically important environmental functions.

However, environmental quality is poor for the 60 percent of Russians who live in about 15 percent of Russian territory. Breathing polluted air cuts Russians' average life expectancy by about one year, and in the most polluted cities, up to four years; air pollution is directly responsible for up to eight percent of overall annual mortality. Furthermore, about 10 million Russians drink water that fails to meet federal safety standards for permissible concentrations of one or more harmful substances, such as hazardous chemicals.

The cost of environmental degradation damages the Russian economy. Every year, Russia's GDP is reduced by four to six percent due to illnesses linked to air and water pollution. In Russia, the unfolding economic crisis and increasing levels of poverty accentuate rising social and economic risks associated with an unhealthy environment, including the accelerating erosion of citizens' productivity and quality of life. Past environmental liabilities (PELs) are mounting and future economic losses will be steep unless PELs are addressed. So far, no estimates exist on the order of magnitude of environmental liabilities in Russia, but cleanup cost estimates in comparable PEL-affected countries run to hundreds of billions of US dollars, according to World Bank studies.

Since international experience demonstrates that investments to improve environmental policy and institutions and to provide incentives for modernization of industry can halt environmental degradation and begin to reverse it, the primary objective of this study was to assess the Russian Environmental Management System (EMS) and its development trends, and to offer a way forward with recommendations for improving EMS efficiency and effectiveness as an instrument of achieving overall environmental improvements.

While this study was underway, two major events occurred to cast a new light on the results. First, the global economic crisis, which has affected Russia severely, raised the specter that economic concerns might trump environmental issues, at least in the short run. But Government has recognized that EMS reforms are not only inevitable but also urgent, given the cost and consequences of environmental pollution on public health. Second, well into the economic crisis, Russia's political leadership made a strategic decision to improve the country's environmental situation and strengthen the Environmental Management System, signaling serious political commitment. Therefore, this study incorporates a review of the December 2008 objectives set forth by the Ministry of Natural Resources and Ecology (MNRE) in the Duma, and outlines conditions required for successful implementation of EMS modernization and reform.

This study was based on research undertaken in 2008 by Russian and foreign experts. It draws upon a comparative analysis of international practices among environmental

² Danilov-Danilian, 2003; Roshydromet, 2007.

management systems ; it reviews the environmental status of eight selected regions of Russia; it considers the results from reports published by the OECD, World Bank, and other international institutions; and it includes findings of discussions held at the World Bank Moscow office and at the Institute of Contemporary Development (ICD) in Moscow, in June, October, and December of 2008, which included representatives of Government environmental agencies, non-government organizations, the private sector, and academia. The study's main conclusions and recommendations are set out below.

The Russian economy depends heavily on raw-material extraction and processing—primarily oil, gas, coal, and metals, sectors with significant environmental impacts. This dependence has increased considerably over the past fifteen years. By 2005, the GDP shares of the power sector and ferrous and non-ferrous metallurgy had increased two- or three-fold compared to 1990; jointly, these sectors accounted for more than fifty percent of Russian industry. Until the global recession in 2008, Russia's annual GDP growth has generally exceeded six percent per year.

However, a less-optimistic growth picture emerges if different economic indicators are used, such as adjusted net savings that take into account depletion of natural capital and the consequences of environmental pollution. In 2006, despite real GDP growth of 6.7 percent, adjusted net savings were negative (-13.8 percent), largely because of natural resource depletion. Especially alarming is the declining trend over recent years in adjusted net savings: -4.4 percent in 2004, -10.4 percent in 2005, -13.8 percent in 2006. Among the 153 countries where adjusted net savings are calculated, this indicator is declining in only 30, including Russia. Global experience shows that countries facing significant depletion of natural capital could compensate by investing in other forms of capital such as physical or human resources. For instance, Norway, Canada, the United States, and the United Kingdom rely extensively on natural capital, yet generate positive adjusted net savings.

Environmental policy and legal frameworks and institutions are weak. By the mid-1990s, Russia had established EMS legal and institutional elements, and the basic technical and management capacity to support it. However, during the most recent decade, EMS has been characterized by frequent and inadequately formulated changes to its institutional structure and legal and regulatory framework at the federal, regional, and municipal levels. Principal among these were changes initiated in 1996, when Ministry of Environment and Natural Resources (MENR) was reorganized and became the State Committee for Environmental Protection, which was then abolished in 2000 and its functions transferred to the Ministry of Natural Resources (MNR). In 2004, another broad administrative reform redistributed environmental protection functions among MNR, Rosprirodnadzor reporting to MNR, and Rostekhnadzor reporting directly to Government. However, the division of responsibilities was unclear, resulting in many gaps and overlaps in functions, and deficient coordination among federal supervisory bodies. Widespread staff reductions depleted the capacity of structural units responsible for environmental control and enforcement, and precipitated a decline in staff qualifications. During the most recent reorganization in May 2008, Rostekhnadzor and RosHydromet now report to MNR, and MNR became the Ministry of Natural Resources and Ecology (MNRE).

Although shifting responsibilities among federal, regional, and municipal authorities were marred by inconsistent and contradictory processes, one benefit was EMS decentralization, and delegation of much broader rights in environmental management to the administrative units or *subjects* of RF, as they are referred to in the Russian constitution. Fundamental importance is attached to the process initiated, although not yet accomplished, to distribute powers to perform state environmental control among executive bodies and

Subjects of the Russian Federation (RF). As a result, some Subjects of RF successfully established operational EMSs, putting in place efficient coordination mechanisms and using new environmental protection powers in environmental protection.

Weak environmental policy is an ongoing impediment to sustainable economic development. During the late 1990s, efforts to attract foreign direct investment encouraged the relaxation of environmental barriers to economic growth, which led to weakening Russia's EMS and environmental institutions. Specifically, legislation on environmental protection and use of natural resources was revised, for example, basic Law on Environmental Protection (2002); Land Code (2001); Water Code (2006); Forest Code (2006); Urban Planning Code (2004); and Law on Environmental Expertise (2006).

The 2002 Environmental Doctrine of the Russian Federation is generally a progressive strategic document, but falls short of providing a sound basis for effective state environmental policy or improving the national EMS. Before 2008, environmental issues figured little in state policy, and environmental protection was not incorporated into priority national projects.

Poor environmental management reduces competitiveness. Russian companies have been slow to introduce international corporate management or comply with environmental efficiency standards such as International Organization for Standardization (ISO) standards in the 14000 series. Complying with ISO standards helps gain competitive preference in international markets, but Russia was ranked 50th in ISO compliance in 2008, having issued only 267 certificates of ISO 14000-compliant industrial management. Russia lagged behind all BRIC countries (Brazil, Russia, India and China); China had issued 30,489 certificates; India, 2,640; and Brazil, 1,872. Moreover, Russian companies are rapidly falling behind in introducing other voluntary, market-based environmental mechanisms, such as certification and publication of nonfinancial reports verified by an independent third party. In particular, no Russian bank or investment company has yet undertaken the Equator Principles or the UN Principles of Responsible Investment, the most widespread mechanisms for environmental and social responsibility of financial institutions.

The Government can support the development of voluntary market-based mechanisms of business environmental responsibility by legislating requirements for labeling goods with energy efficiency ratings, and by enacting statutory technical regulations that address energy efficiency and safety of production processes and technologies. Further, Russia could require federal, regional and municipal government procurement of energy and environmentally efficient goods and services, which could trigger modernization and greening of domestic industries and business processes.

Russia is falling behind its neighbors in modernizing environmental management systems. Russian environmental policy and EMS practices are not only deficient but also lag those in major developing countries. The Russian EMS retains many systemic deficiencies inherited from the Soviet system, including outdated approaches and standards that fail to protect ecosystems and are burdensome and unaffordable for businesses and regulators. Although problems recurrent in the EMSs of other CIS countries are also inherent in the Russian EMS, some neighboring countries have achieved noteworthy successes in modernizing environmental policy and EMSs. Major deviations from good practice that affect Russian EMS, compared to those in other countries reviewed, include the following:

- Policy and institutions are deteriorating;
- Monitoring and knowledge of environmental issues and priorities are weak;
- Policy instruments are ineffective and lack a system or process for priority setting;

- Specific objectives and indicators are lacking, as are linkages between them;
- Federal, regional, and municipal entities' responsibilities are unclear;
- Standards are excessive and unenforceable;
- Permitting process that is based on strict ambient maximum allowable concentrations and “uniform” enforcement applied to all facilities;
- Safeguard tools (State Environmental Review and EIA) are inadequate;
- Application of economic instruments is limited and ineffective;
- Instruments and targeted programs for implementing national environmental priorities are lacking; and
- Information disclosure and public participation are weak.

However, this review concludes that there are no universal solutions or a single ‘best practice’ to establish a national EMS, as evidenced by the range of successful international approaches to implementing efficient environmental policies.

Emerging Government plans for environmental improvements. Government recently proposed short-term EMS modernization and long-term reforms that align with contemporary international trends. If successfully prepared and implemented, these changes would increase the effectiveness and performance of Russia’s environmental management system. Following the decisions of the RF President and Security Council, the Ministry of Natural Resources (MNR) in December 2008 proposed a large-scale agenda for improvements, including modernizing environmental legislation in the following three areas:

- *Modify environmental protection regulations:* (i) introduce a system of integrated environmental permits, including a simplified procedure for small- and medium-size enterprises; reduce the number of regulated chemical substances and compounds; and (ii) increase penalties for environmental damages; replace fees with court-imposed fines to compensate for damages due to excessive pollution.
- *Introduce modern management methods,* such as environmental insurance (voluntary and mandatory) and environmental certification and audit.
- *Provide economic incentives to adopt new technologies* by introducing mechanisms such as a system of tax and non-tax incentives for enterprises.

A second stage of proposed changes would include reforms to existing environmental impact regulations, including adopting the use of best available techniques (BAT), a transition that the MNR estimates would take four to five years, and happen in two stages: first, developing normative and regulatory bases (2008-10), and second, producing a BATs register and launching the new system (2010-12).

The Way Forward. Modernizing and reforming Russia’s EMS would require many preconditions, among the most critical are the following:

a) *A strategy and action plan.* Russia needs to develop an **Action Plan for EMS Reform**; this document should specify mechanisms to implement environmental policy, benchmarks and targets to be achieved, and measurable indicators to assess results. Prior to drafting the strategy and action plan, a broad discussion should take place among all stakeholders on the principal alternatives for EMS modernization and an assessment should be carried out of the economic and social consequences of reforms; required implementation resources should be sourced and quantified; and a risk analysis should be conducted.

b) *Public support and analytical underpinning.* Stakeholder support is essential to the success of any reforms to modernize the EMS, and should include participants from the environmental community, and private sector and all levels of government. Dialogue with

civil society could be conducted by the Public Chamber, Public Council under the MNR of Russia, environmental committees of the Chamber of Commerce, the Russian Union of Industrialists and Entrepreneurs, and newly consulting mechanisms. The Commission on Environmental Policy and Protection of the Environment of the Public Chamber on has proposed convening a social-environmental forum. The Action Plan for EMS Modernization and Reform will need knowledge, efficient interagency cooperation, and substantial stakeholder inputs.

Existing levels of scientific, methodological, and analytical support in environmental issues to the Government and President of Russia are insufficient. Several research and development (R&D) institutions should be consolidated, not only those involved in nature protection and management, but also those involved in strategic social and economic development issues. Also, the creation of networking communities could be considered to consolidate expertise from across universities, research and development (R&D) institutes of the Russian Academy of Sciences (RAS), agency institutions and centers, public organizations, and the private sector.

c) *Resources and institutional support.* Government should consider strengthening its environmental institutions. Over the last decade, Russian EMS has deteriorated, qualified but underpaid EMS staff have migrated to the private sector, resulting in major staff shortages among environmental control authorities, especially at regional levels. Responsibilities exceed available resources, leaving environmental institutions unable to cope with existing duties. Implementing reforms will require sufficient budget, staffing, and infrastructure to carry out responsibilities, particularly among poorer regional administrations.

Recent EU member countries have introduced integrated BAT-based permits through pilot projects to build capacity among industry-based and regulatory authorities and other permit-issuing agencies. Russia could establish a National BAT Center that would offer expertise and data support in BAT routines and technology, which might facilitate international networking to share experiences, particularly among EU countries.

d) *Decentralized process of EMS modernization and reforms.* Because regions vary considerably in their readiness or capacity to implement reforms, Government may wish to consider undertaking reform in pilot regions, and empowering regional authorities to determine the content and pace of reforms based on regional circumstances, while federal agencies provide methodological and financial support. Decentralizing EMS modernization and reform to pilot regions will speed and deepen results, and provide lessons learned for the benefit of regions that follow. A strategy for full-scale, centrally-directed reforms undertaken simultaneously across the whole country is unlikely to succeed.

e) *Developing international cooperation in environmental protection to support EMS reforms.* Several new EU member states have embarked on environmental reforms similar to those contemplated by the Government of Russia; those that have completed the process can contribute lessons learned to the array of available international experience. Government should express its readiness to promote international cooperation and define its priorities to draw efficiently the expertise within international organizations in environmental protection. Establishing Russia's higher profile in environment-focused international cooperation would contribute to Russian leadership in global public goods and could attract substantial environment-oriented investments, which would be an added incentive and catalyst for EMS modernization.

Under the Kyoto Protocol, Russia has a large reserve in its national quota for greenhouse gas emissions (GHG), which would enable the country to become a global leader

in international emissions trading, and use the, potentially, billions of euros in revenues to support energy-efficient and resource-saving initiatives. This would require a national legal and institutional framework for emissions trading and channeling resulting revenues to finance rehabilitation of obsolete power industry infrastructure or to implement efficient pollution abatement strategies—or so-called Green Investment Schemes (GIS).

Conclusion:

Until recently, Russia had not yet adopted environmental protection as a national priority. Instead there had been a mixed response to serious environmental issues despite growing international emphasis on improved environmental performance, not only among industrialized countries and major regional economic blocks, where environmental values are increasingly and successfully mainstreamed into economic development policies, but also among developing countries and economies in transition. In effect, there is global convergence around the principle that long-term sustainable economic development cannot be achieved without environmental protection, and that a modern EMS is fundamental for full participation in the global economy.

Russian political leadership now recognizes that improving the country's ecological situation requires an up-to-date EMS, beginning with an *Action Plan for EMS Reform*. If this is pursued systematically there will be positive externalities in health, environmental and economic conditions both in Russia and globally.

INTRODUCTION

Russia's global significance in environmental and economic terms warrants a comprehensive look at its environmental performance, in particular, data on status and trends to support institutional stakeholders in their work to strengthen public policy, mainstream environmental concerns into economic development, and implement effective programs in environmental protection priorities. This undertaking supports Russia's interest in membership in the World Trade Organization (WTO) and Organization for Economic Cooperation and Development (OECD), which requires aligning environmental performance and EMS with those of existing member countries.

The Bank has been supporting this agenda through economic and sector work and lending. In 2002, the Bank completed a comprehensive review of Russia's Environmental Assessment (EA) system, which concluded that the EA system cannot operate effectively in isolation and should be embedded in a well-functioning EMS that includes operating procedures, incentives to improve and manage air and water pollution, solid and hazardous wastes, and industrial chemicals, and other aspects of environmental management.

A 2004 Bank study, "*Environmental Management in Russia: Status, Directions, and Policy Needs*," (i) analyzed trends in environmental and related indicators; (ii) reviewed local-level conditions in four selected regions; (iii) presented results from a World Bank-sponsored workshop that included Russian and international experts on technical and policy issues; and (iv) presented results from an internal roundtable discussion among Russian experts on legislative implications of proposed policy directions and key legislative requirements. The report analysis plus discussions at the Federation, regional, and local levels, raised important policy issues for improving Russia's EMS.

This follow-up study consolidates results from many sources to provide an overall assessment of Russia's environment and the EMS. Although the country's recent economic growth has been strong, public policy priorities have not included environmental issues. It is widely accepted by environmental professionals, NGOs and government officials (Adam, 2009; Danilov-Danilian, 2003; Larin, Mnatsakanyan et.al, 2003) that the performance of EMS has significantly deteriorated since 2000, to the detriment of public health and ecosystems.

Study Objectives and Approach

The study objectives included the following: (i) to review trends in key environmental areas, focusing on pollution abatement ('brown') issues; (ii) to present a snapshot of national and regional-level environmental entities, and (iii) to recommend improvements for the EMS. The focus was on public sector capacity, not the roles of private sector or NGOs. The main EMS elements discussed in the report are the following:

- Environmental policy objectives
- Legal and regulatory framework
- Environmental institutions
- Instruments for environmental policy
- Public participation and information

While work was underway on this study, Russia's top political leadership decided that improving the environmental situation and strengthening the whole EMS in Russia is now a priority. Therefore, the study adopted the additional objectives of evaluating the December 2008 EMS modernization and reform outlined by the Ministry of Natural Resources and Ecology, and elaborating conditions required for successful implementation.

This study was based on background research results performed in 2008, which included the following: (i) evaluation of the status of Russian environmental conditions and natural resources; (ii) review of the evolution of the environmental management system (EMS) and associated institutions; (iii) assessment of principal national environmental issues; (iv) analysis of the present state of the environment and the ongoing development of EMSs in eight selected regions of Russia. This research was carried out by a team of Russian and international experts; World Wildlife Fund (WWF) Russia provided important inputs to the analysis of environmental policy, institutions, and performance of the private sector. The study covers an earlier period of strong economic growth in Russia, prior to the now ongoing economic and financial crisis.

The study draws upon data from a comparative analysis of international EMS practices, reports published by the OECD, UN, World Bank, and other international institutions; "Environment for Europe" studies; and the results of workshop discussions among representatives from government environmental agencies, private sector, academia, and nongovernmental organizations such as the Public Chamber of the Russian Federation, that were held in June, October, and December 2008, in Moscow at the World Bank and the Institute of Contemporary Development.

Organization of the Report

Chapter I is an overview of how the environment affects the sustainability of socio-economic development, and analyzes the use of national wealth, and evaluates environmental management systems in Russian companies.

Chapter II describes the evolution of Russian environmental policy, EMS, institutional development from mid-1990s to the present, and federal and regional structural organization, including a case study of a fairly comprehensive environmental and natural resource system that is operating in the Tomsk Oblast.

Chapter III compares aspects of the Russian EMS with international practices, including Eastern Europe and Central Asian countries. The chapter is based on the data presented in Annex 1, summarizing major elements of the regulatory/legal framework, the EMS institutional framework, priorities and instruments of environmental policy, and public participation.

Chapter IV reviews Government-proposed EMS modifications and discusses conditions and prerequisites for launching EMS modernization and reforms.

Additional background studies and materials can be found in Annex 2.

1. OVERVIEW OF THE IMPACT OF THE STATE OF THE ENVIRONMENT ON SUSTAINABILITY OF SOCIO-ECONOMIC DEVELOPMENT

1.1 State of the Environment: Poor, But Getting Better?

1. **Russia's environmental conditions range from pristine to poor.** Across the vast Russian Federation, environmental quality varies widely. National experts believe that about 65 percent of the total Russian territory of 17 million km² can be characterized as pristine—almost unaffected by economic activities and with ecosystems that are fully preserved.³ These areas, which represent about 22 percent of the world's undisturbed ecosystems, have global value and significance for biodiversity protection, carbon sequestration, and other critically important environmental functions.

2. However, environmental quality is poor for the 60 percent of Russians who live in about 15 percent of Russian territory. Breathing polluted air cuts the average life expectancy of each Russian by about one year, and in the most polluted cities, up to four years; air pollution is directly responsible for up to eight percent of overall annual mortality. Furthermore, about 10 million Russians drink water that fails to meet federal safety standards for permissible concentrations of one or more harmful substances, such as hazardous chemicals.

3. **Average annual levels of air pollution in hundreds of cities and villages exceed sanitary norms.** During 2005-07, about 55 percent of Russians lived in cities where air contaminant levels exceeded maximum allowable concentrations (MACs) according to official data (MNR of the RF, 2000-07; Rosstat, 2006; Roshydromet, 2007; Izrael, 2007); about 38 percent of people live where air quality is never measured. Time series of ambient air pollutants indicate that these high contaminant levels represent a modest improvement over the mid-1990s, at least in cities where data were available due to routine RosHydromet monitoring. Table 1.1.1 suggests that most pollutant concentrations were lower in 2006 than in 1996, although available data may not be representative (OECD, 1999; OECD, 2002; OECD, 2003a, 2003b; Zhulidov, Khlobystov, et al., 2000).

Table 1.1.1. City Air Pollutant Concentrations: 1996-06 (Izrael, 2007)

Substance	Number of cities	Trend of average concentrations, %
Total particulate matter	225	- 12.6
Sulfur dioxide	228	- 20.0
Nitrogen dioxide	234	- 13.3
Carbon oxide	199	- 9.3
Benz(a)pyrene	168	+ 8.6
Formaldehyde	141	- 12.5
Ammonia	65	- 8.6

4. Comparisons of 1996 to 2006 may mask recent trends; the modest improvement in air quality over this period reported by RosHydromet may be temporary. Since 2000, emissions have been increasing as pollution-intensive sectors have grown (Fig 1.1.1). For example, during 2000-07, total air emissions from stationary sources over the whole country grew by 11 percent. In several regions, emissions growth has been dramatic: Leningrad Oblast, 29 percent; Kemerovo Oblast, 21 percent; and Tomsk Oblast, 13 percent (Kulibaba, 2008; Perfilieva, 2008; Gorina, 2008). This trend has reversed the decline in pollutants observed

³ Danilov-Danilian, 2003; Roshydromet, 2007.

during 1991-99, when industrial emissions from stationary sources fell by 54 percent—from 28.5 million tons to 18.5 million tons (MNR of the RF, 2000-07).

5. Since 1996, motor vehicle ownership has surged and continues unabated, creating an almost 40 percent increase in emissions from mobile sources (MNR of the RF, 2000-07), which now account for an estimated 42 percent of total atmospheric emissions. Trends of increasing emissions from mobile point sources and stationary sources suggest that the nominal improvement in ambient air quality, reported by RosHydromet (see Table 1.1.1), may be temporary unless significant improvements occur in pollution abatement technology, particularly in the power, resource extraction, and heavy industry sectors, where growth is concentrated and regulatory instruments would be likely result in significant reductions. A planned return to using coal for heat and power production could sharply increase point source emissions as the natural gas supply to the internal market becomes constrained.⁴

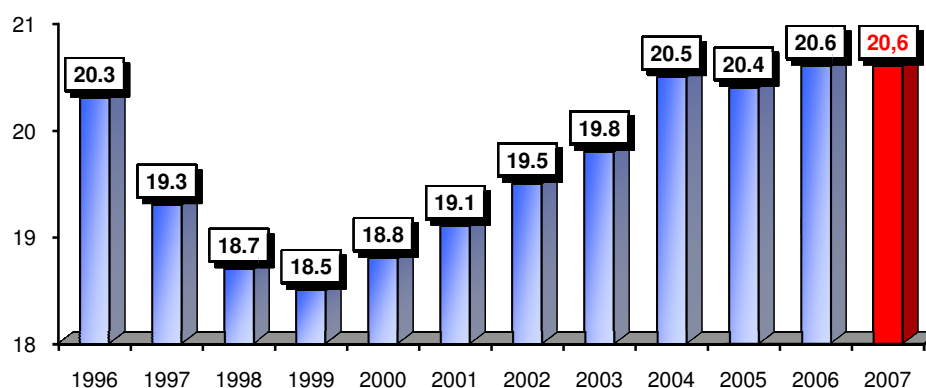


Fig. 1.1.1. Dynamics of emissions into the atmosphere from stationary sources in the Russian Federation, 1996-06 (million ton) (MNR of the RF, 2000-07)

6. **Water quality and aquatic ecosystem status are unsatisfactory in the most populated and industrialized regions** Russia's largest rivers, the Volga, Don, Kuban, Northern Dvina, Pechora, Ural, Ob, Yenisei and Amur, are considered "polluted," some of their largest tributaries, the Oka, Kama, Severski Donets, Tom, Irtysh, Tobol, Miass, Iset, and Tura Rivers, are classified as "very polluted," and several as "extremely polluted."⁵ Lake Baikal, a unique ecosystem and the world's largest fresh water body, is deteriorating due to ongoing pollution and modification of its hydrological regime. Pollution "hot spots" exist in the seas adjacent to Russia, including the Golden Horn Bay and Peter the Great Bay (Japan Sea), the Terek River estuary, coastal areas near Derbent and Izberbash (Caspian Sea), the Kuban River delta (Azov Sea), and several vulnerable areas of the Arctic (Barents Sea, White Sea).

7. Over the last decade, Russia has reduced overall levels of wastewater discharges and some pollutants. Table 1.1.2 shows that recorded loads to water bodies for major pollutants decreased by 30-50 percent from 1996-07, thought to be due to a 25 percent reduction in the number of water users as a result of industrial decline and restructuring, reduced irrigation (less irrigated land, irrigation systems), and more efficient water use.

8. Despite this overall reduction, some high-profile regions with strong economic growth increased water discharges by 10 percent during 2000-06 (Kulibaba, 2008). For example, in Leningrad Oblast, RosHydromet's routine hydrochemical monitoring of surface water bodies

⁴ "General Scheme of Power Industry Location until 2020," approved by the Instruction of the Government of the RF № 215 dated February 22, 2008.

⁵ MNR of the RF, 2000-07; Rospotrebnadzor, 2007; Roshydromet, 2007.

demonstrates widespread incidence of exceeding maximum allowable concentrations (MNR of the RF, 2000-07; Roshydromet, 2007). Limited data are available for groundwater quality, but significant instances of contamination remain unaddressed and contamination may be increasing, typically from contaminated sites and landfills.

Table 1.1.2. Discharge of Pollutants with Wastewater, '000 tons (RF MNR, 2000-07)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Organic compounds (BOD tot)	433	401	374	379	385	362	342	347	318	304	289	251
Petroleum products	9	8	6	6	6	5,5	5,1	5,6	6,6	3,7	4,6	3,1
Suspended substances	619	542	617	591	555	509	446	431	392	359	328	312
Total phosphorus	32,4	31,2	30,2	26,5	26,4	24,9	25,1	23,6	23,3	23,4	23,3	22,6
Phenol	0,08	0,07	0,06	0,06	67	0,05	0,05	0,05	0,05	0,04	0,04	0,03

9. **Industrial waste generation and waste disposal problems are acute and widespread.** Since the mid-1990s, overall waste generation has significantly increased (Table 1.1.3), except for Hazard Class I and II wastes (most dangerous), which have declined somewhat.⁶ Hazard Class IV waste, which is usually bulk waste from the power, mining, ferrous metals, non-ferrous metals and heavy-industry subsectors, has increased significantly. The share of total generated waste of all classes of hazardous materials that is recycled and treated fell from 56 percent in 1996 to 40 percent in 2006. Recently, Hazard Class V waste has been included in data on treated waste, creating an overall rising trend of treated waste as a share of the whole, which is slightly misleading because Hazard Class V wastes pose no significant danger.

Table 1.1.3. Dynamics of Waste Generation in the Russian Federation, mln t (MNR of the RF, 2000-2007)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Waste of all classes of hazard	82,6	89,4	107,1	108,0	127,5	139,1	2 035	2 614	2 635	3 036	3 519	3899
1 class of hazard	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,5	0,3	0,1	0,1	0,2
2 class of hazard	1,9	2,2	2,3	2,8	1,9	1,9	1,4	2,4	1,6	1,5	1,0	1,3
3 class of hazard	5,1	4,9	11,4	5,1	9,1	7,3	18,1	6,4	7,8	12,9	11,1	11,1
4 class of hazard	75,3	82,0	93,1	99,8	116,1	129,5	187,9	278,0	133,5	128,0	127,8	275,1
5 class of hazard	–	–	–	–	–	–	1 827	2 326	2 492	2 893	3 379	3612
Number of registered enterprises, '000	5,6	5,9	8,2	10,1	12,1	13,4	18,1	29,9	26,5	no data	33,6	40,3

10. During the last decade, Russian industrial recovery has been characterized by increased production without significant technological modernization, a pattern particularly apparent in waste-intensive industries. Heavy industry and resource-extraction sectors have not yet adopted modern industrial practices that minimize or reduce waste and use cleaner

⁶ Hazard Class is waste classification under Russian regulations (Order # 511 of June 15, 2001, issued by the RF Ministry of Natural Resources) designating the level of environmental/health sensitivity as follows: Class I, most hazardous; Class II, highly hazardous; Class III, moderately hazardous; Class IV, somewhat hazardous; and Class V is inert (virtually not hazardous). Generally, Hazard Classes I-III match international standards for "hazardous waste."

production methods, nor have these sectors invested in waste-processing infrastructure for treatment and resource recovery. These persistent gaps in good practice perpetuate major sources of significant environmental liabilities from poor waste disposal and broader environmental contamination.

11. In the 1990s, industrial production and military activities declined; and thousands of facilities and sites were abandoned, many of which had high levels of soil and ground water contamination. A 2007 World Bank study on Russia's past environmental liabilities (PEL) noted that: (i) PEL magnitude is so large that it may lack international comparators; (ii) the legal and regulatory framework for addressing PEL is weak and contradictory; and (iii) the institutional structure requires strengthening and capacity building to address PEL. Since no systematic efforts have been made so far to address PEL, environmental risks are likely increasing, along with their financial impacts. Government recognizes the seriousness of PEL issues and is developing a national program to address them.

12. **Municipal solid waste is a major and growing problem.** Increasing urbanization, intensively expanding commercial sectors, and the doubling of waste generation per person are in conflict with dated norms for estimating waste generation rates, which distorts planning and tariff setting for waste management. In Moscow and St. Petersburg, urban waste generation rates are now typical of middle- to high-income western European countries.⁷

13. Most Russian urban waste disposal still relies on older landfills, many of which have exceeded technical capacity limits and now represent significant risks to surface and groundwater, and to air quality, if waste is burned. Illegal waste disposal sites and random dumping are common in urban and rural areas. Recycling initiatives to reduce consumer waste have been sporadic, despite strong public and municipal-level interest. By contrast, international waste management initiatives have focused on recycling consumer waste for the past fifteen years. Other countries typically have recycling targets of 40 to 60 percent of municipal waste, which are rapidly being achieved and exceeded.

1.2 Quality of Life: Does Environment Affect Public Health?

14. Over the past 15 years, Russia's population declined by about 12 million; during 1999-03, men's life expectancy decreased by 2.75 years and women's, by 1.29 years (since 2004 there are indications of reversal in these trends from 65.5 in 2005 to 68 in 2008). High mortality rates have been linked to endemic public health issues such as high blood pressure, high cholesterol, and tobacco use (World Bank, 2005; Revich, 2007;), and environmental pollution, particularly air pollution, is another major factor (Rospotrebnadzor, 2007; Ministry of Health of the RF, 2004; Revich, 2007).

15. The linkage between environmental contamination and public health is well established. Every year, 40,000-88,000 Russians die from circulatory and respiratory system diseases, three to six percent of total deaths among urban populations (US EPA, 2007; Revich, 2007); many of these deaths are associated with the high concentrations of fine airborne particulates and conventional air pollutants in Russian cities. Children are particularly affected and exhibit higher incidences of pollution-related diseases such as pharyngitis, conjunctivitis, bronchitis, bronchial asthma, and diminished respiratory function. In Novokuznetsk district, a study revealed that the mean annual total suspended particulates (TSP) concentration is 450 $\mu\text{g}/\text{m}^3$ and referrals to health institutions due to respiratory diseases were 2.1 times higher over the study period than in a cleaner district, and referrals due to respiratory allergies 4.2-5.6 times higher. Breathing polluted air cuts average life

⁷ Municipal solid waste is generally Hazard Class V but also includes some Hazard Class IV waste

expectancy by about one year, and in the most polluted cities, up to four years; air pollution is directly responsible for up to eight percent of overall annual mortality (Revich, 2007).

16. The proposal to convert thermal power plants from natural gas to coal could increase annual emissions by 2.3 million tons of TSP, 1.3 million tons of SO_x, and 0.4 million tons of NO_x, which would lower average life expectancy by another two years (Revich, Sidorenko, 2007; Bobylev, Avaliani, 2001), unless the best-available combustion and pollution control technology is employed.

17. Poor water quality also erodes public health. The 2007 data of Rospotrebnadzor (Rospotrebnadzor, 2007) shows that about 40 percent of surface water and 17 percent of groundwater sources for drinking water did not meet sanitary norms in that year. From 17 to 34 percent of potable-water samples did not meet national chemical and biological sanitary standards. About 10 million Russians regularly drink potable water that exceeds regulatory limits for one or more harmful substances, including some Hazard Class I chemicals (trichloromethane, tetrachloromethane, and arsenic); instances have been recorded in Vladivostok, Vologda, Chelyabinsk, and Ukhta in the Komi Republic.

18. **Localized soil contamination contributes to high and increasing morbidity.** Soils are contaminated with lead, mercury, cadmium, arsenic, nickel and various organic pollutants. High lead contamination and heavy metals concentrations are observed in cities with metallurgy production, especially those located in the Urals, Kuzbass, the Far East and the Caucasus, where lead poisoning among children has elevated incidence of lower mental capacity, poor memory, and hearing loss. Russia lacks a targeted program of lead detection in blood. Metallurgy production poses a high risk of lung cancer in many cities in the Urals (Revich, 2007). Higher levels of environmental pollution found in all media in existing or former industrialized areas are associated with elevated morbidity and mortality.

19. High mercury concentration was detected among populations of the Usolie district of the Irkutsk oblast, where a principal chlor-alkali facility is located. Children in Upper Pyshma and Revda have health problems linked to cadmium (Katsnel'son, Privalova, Kuz'min et.al, 2006). A recent study estimated the carcinogenic risk for the population in Magnetogorsk associated with a cumulative arsenic, lead and cadmium contamination as 10^{-3} ; a risk so high that it should trigger immediate clean-up (Rospotrebnadzor, 2007). People living in cities such as Chapaevsk and Ufa that have chlororganic synthesis or chlorine production facilities are at risk of exposure to dioxins, which are linked to elevated numbers of pregnancy complications and miscarriages (Revich, 2007). In 2006, the Blacksmith Institute listed 35 of the world's most polluted sites (<http://www.blacksmithinstitute.org>); nine were in Russia. Three Russian cities—Dzerzhinsk, Norilsk, and Dalnegorsk—were listed among the world's ten most-polluted cities.

20. In most urban centers, environmental pollution poses a serious threat to public health, quality of life, and ecosystem integrity, but it remains difficult to draw valid conclusions about overall national trends. Regional data present a mixed picture of environmental improvements and deterioration. Most improvements are associated with phasing out Soviet-era energy and resource utilization inefficiencies during transition to a market economy, when industries were being rationalized and modernized, and only few positive impacts are due to implementing state environmental policy or introducing elements of an effective EMS.

21. Any environmental gains that have occurred in Russia could well be reversed if renewed industrial growth is accompanied by increased pollution levels, unlike most central European countries, where, since the mid-1990s, economic growth has been accompanied by clear reductions in total pollution loads and improvements in most environmental indicators

(OECD, 2003a, 2003b; OECD, 2005a). There are two main reasons for this. First, Russia's economy has been largely based on extraction of non-renewable natural resources and metallurgy—a pollution-intensive sector. Second, most of Russia's environmental regulations are still outdated and constrained, while most of Central Europe has adopted proactive and comprehensive regulations that align with EU requirements. The following sections illustrate these points.

1.3. Effective Use of National Wealth: Is Current Economic Growth Sustainable?

22. **Russian economic development, based on resource extraction and pollution-intensive industries, is unsustainable over the longer term.** Since 1999, Russia's average annual GDP growth has been 6.5 percent (Rosstat, 2000-08), most part of which has been generated by pollution-intensive sectors associated with extraction of non-renewable natural resources (oil, gas, coal, and metals). A less optimistic GDP growth picture emerges if environmentally adjusted economic indicators are used, such as integrated environmental and economic accounting (World Bank, 1997; UN, 2000; UN, 2001), adjusted net savings, or genuine savings (World Bank, 2000), or environmental indicators systems (OECD, 2002; Markandya, Pavan, 1999). Such indicators have been developed by the UN and the World Bank, and have been used by international organizations and individual countries for several years. For instance, calculations based upon adjusted net savings, a measure that takes into account depletion of natural capital and environmental pollution impacts (World Bank, 2009) demonstrate a decline of adjusted net savings *in all recent years* despite the growth of GDP. For example, in 2006, despite real GDP growth of 6.7 percent and a relatively high share of gross savings in GNI, adjusted net savings were negative (-13.8 percent), largely because of natural resource depletion (Table 1.3.1). It is alarming to observe a decreasing trend in adjusted net savings: -4.4 percent in 2004; -10.4 percent in 2005; -13.8 percent in 2006 because the trends in all advanced countries and many emerging economies are the opposite.

Table 1.3.1 Adjusted Net Saving Components (2006) (World Bank, 2009)

National aggregate statistical indicators	Value (percent of the GNI)	
	All countries	Russia
Gross savings	21.8	30.7
Consumption of fixed capital	12.4	7.0
Education expenditures	4.4	3.5
Energy depletion	4.1	37.5
Mineral depletion	0.5	1.9
Net forest depletion	0.0	0.0
Carbon dioxide damage	0.4	1.4
Particulate emission damage	0.4	0.3
Adjusted net savings	8.3	-13.8

23. Except for Russia, all countries presented in Table 1.3.2, regardless of size or level of development, have positive adjusted net savings. Countries facing significant natural capital depletion may compensate by investing in physical or human capital; experience shows that Norway, Canada, the United States, and the United Kingdom extensively utilize natural capital, yet generate positive adjusted net savings. Among 153 countries that calculate adjusted net savings, this indicator declining in only 30 countries, including Russia.

Table 1.3.2 Adjusted Net Savings in Selected Countries (2006) (World Bank, 2009)

Country	Adjusted Net Savings	Country	Adjusted Net Savings
Japan	15.8	EU	12.0
Germany	12.1	Russia	- 13.8
France	11.4	Czech Republic	14.7
UK	6.9	Poland	7.8
Canada	5.4	Ukraine	4.1

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USA	4.1	China	36.1
Norway	9.2	India	20.6

24. Russia is the twelfth most energy-intensive country among 121 nations surveyed. It is far more energy-intensive than other developed cold-climate northern economies such as Canada, Denmark, Norway, or Sweden, and one of the most energy-intensive among all former Soviet Union (FSU) countries. Energy intensity per final product unit in Russia has been two to three times greater than in most developed countries, according to a recent study (World Bank, 2008 and Table 1.3.3). During 2000-05, Russia reduced its energy intensity by about nine percent, but more reductions are needed to remove increasingly serious constraints to competitiveness.

25. President D. Medvedev declared that increasing the energy efficiency of the Russian economy is a priority and set a target of 2020 for a 40 percent reduction in the energy intensity of GDP. In January 2009, Government approved the Executive Directive, which sets specific targets for expanding the share of renewable energy in electricity generation from the current level of less than 1.0 percent to 1.5 percent in 2010, 2.5 percent in 2015, and 4.5 percent by 2020, indicating Russia's commitments to climate change mitigation.

Table 1.3.3 Energy Intensity of Top 10 Energy Consuming Countries in 2005

(World Bank, 2008)

		Energy	Ranking
Country	Total energy consumption (million tons of oil equivalent, TOE)	kgOE per GDP	in terms of kgOE per GDP (PPP)*
USA	2,340.29	0.19	58
China	1,717.15	0.20	55
Russia	646.68	0.42	12
India	537.31	0.14	87
Japan	530.46	0.14	92
Germany	344.75	0.14	90
France	275.97	0.14	88
Canada	271.95	0.25	33
UK	233.93	0.12	101
Korea	213.77	0.20	53

*Of 121 countries

Source: Energy consumption data from the International Energy Agency (IEA), Energy Balances data set. GDP and PPP conversion factor data from the World Bank Development Indicators Data base

26. **Heavy industry has dominated Russia's industry since the 1930s.** Economic restructuring during the 1990s favored expanding resource extraction sectors, while less resource-intensive and high-tech industries contracted, thus maintaining the link between economic growth and pollution intensity. This was contrary to the direction of most countries in Central Europe, where economic growth since the mid-1990s has been accompanied by clear reductions in total pollution loads and improvements in most environmental indicators. By 2005, (see Table 1.3.4) the share of the power sector (electricity production and fuel) in Russia's industrial production had increased almost three-fold compared to 1990, reaching about 32 percent, while the shares of ferrous and non-ferrous metallurgy had increased by a factor of 1.7. Shares of sectors with relatively low environmental impacts declined during the same period—the share of machine manufacturing diminished from 32 to 19 percent (a factor of 1.7), and the share of consumer-goods production (light industry and food processing) by a factor of 2.1. Russia's economic

structure increased the country's environmental burden, largely fostered by high prices for energy carriers and rising oil prices in the 2000s.

Table 1.3.4 Russian Industrial Production by Sector, 1990–2005 (%)

(Rosstat, 2000–2008, calculated by S. Bobylev)

Sector	1990	1995	2000	2005
Power sector (electric power industry & fuel industry)	11.6	27.4	25.0	32.4
Metallurgy (ferrous & non-ferrous)	11.5	16.7	18.9	19.1
Chemicals sector	7.8	6.3	7.5	5.9
Machine manufacturing	31.5	19.2	20.5	18.9
Forestry	5.8	5.1	4.8	3.9
Consumer goods (light industry and food industry)	28.0	17.6	16.7	13.6
Other sectors		5.8	4.5	6.2
Industry, total	100	100	100	100

27. Now energy production and metallurgy account for more than half of Russian industrial output, two sectors that inflict severe environmental impacts. By contrast, during 1990-05, most OECD countries and economies in transition for various reasons reduced their dependency on resource extraction and sectors with high environmental impact as a share of total output.

28. Depreciated industrial assets and obsolete technologies contribute to pollution intensity. During the 1990s, Russia was slow to replace obsolete equipment and introduce new technologies; by 2007, some 45 to 56 percent of assets were fully depreciated in key sectors such as mining and processing, power, water supply, and construction.

29. **Costs of environmental degradation damage the Russian economy.** Economic losses attached to public health impacts caused by air and water pollution alone are estimated to be at least four to six percent of GDP (Bobylev, Aviliani et al, 2002). Studies undertaken in several regions of the country have estimated the impact of air pollution on public health as a reduction in GDP by three to eight percent (Table 1.3.5). Past environmental liabilities (PELs) are mounting and future economic losses will be steep unless the PELs are addressed. So far, no estimates exist on the order of magnitude of environmental liabilities in Russia, but cleanup cost estimates in comparable PEL-affected countries run to hundreds of billions of US dollars. (World Bank, 2007).

Table 1.3.5 Estimated morbidity and mortality due to air pollution in selected Russian regions, 2002 (Bobylev, Aviliani et al, 2002)

Region	Total losses (millions Euro)	Per capita Loss (Euro)	Losses as percentage of GRP
Republic of Bashkortostan	1477	360.9	7
Republic of Tatarstan	1076	285.5	4
Nizhegorodskaya oblast	1133	315.0	6
Perm oblast	731	249.9	4
Samara oblast	955	293.2	4
Sverdlovsk oblast	1743	383.6	8
Chelyabinsk oblast	1405	387.2	8
Novosibirsk oblast	648	238.2	5
Tomsk oblast	241	227.3	3

30. The President and Government of the Russian Federation have acknowledged the need to modify the path of economic development, to reduce reliance on the raw material production, and replace it with economic diversification and transition to an innovative and

science-intensive economy. Overcoming the economic crisis may require Russia to overhaul and modernize its economy to adopt a more comprehensive and cautious use of natural resources that would reduce the anthropogenic load on the environment.

31. Industrial decline reduces emissions but may increase environmental emergencies. Recent economic indicators show a significant decline of industrial production at the end of 2008 (-6.0 percent in the fourth quarter in comparison to similar period of 2007) and beginning of 2009 (-14 percent in the first quarter). It is likely that environmental indicators for 2008, which will become available in the second half of 2009, will show an overall decline of pollutant emissions and discharges. However, the environmental authorities and NGOs have noted that the economic crisis has caused a spike in bankruptcy closures of old industrial facilities, including those with hazardous substances, and the sites are simply abandoned, creating substantial risks of environmental emergencies. Similar trend in 1990s left hundreds of industrial facilities with hazardous substances abandoned, many of which have significant negative impact on public health (Revich, 2007; World Bank, 2007).

1.4 Substandard Environmental Management in Russian Companies: How Does it Affect Competitiveness?

32. Russia's low level of corporate environmental responsibility compares unfavorably with other BRIC countries and creates additional trade barriers, especially for high value-added Russian goods entering international markets that have stringent environmental requirements. For example, Russian export of engine fuel is constrained because it cannot meet the higher technological and environmental requirements of international markets, and for this reason, in 2007, Russia's oil exports were US\$114 billion, but exports of diesel fuel were only US\$3.5 billion, and gasoline only US\$21.5 billion.

33. Environmentally sound production and efficient corporate environmental systems are increasingly important to gain access to foreign investment. Proceeding from the Equator Principles, international financial institutions such as the International Finance Corporation (IFC), and the European Bank for Reconstruction and Development (EBRD), and the largest private banks require that projects financed by their loans comply with international environmental standards and procedures, which is of particular concern during the global financial crisis because Russia may be competing for scarce capital investments.

34. Experience shows that environmental management arrangements with the lowest corruption risk are voluntary market-based mechanisms such as certification and publication of nonfinancial reports verified by an independent third party. Russia has good experience in adopting Voluntary Forest Certification (VFC) promoted by the Forest Stewardship Council (FSC). This practice has improved Russian forest industry companies' competitiveness and ability to attract investments (e.g., OJSC Ilim Group, OJSC Terneyles, and others). Within a decade, Russia became a world leader, second only to Canada, in area of forests certified in compliance with the highest environmental and social standards: about 20 million hectares or 15 percent of all forest area leased to industries. Environmental NGOs championed VFC in Russia until 2006, when it gained support from forest-sector authorities.

35. However, Russian companies generally have been slow to introduce international standards for corporate management and environmental efficiency; in 2008, Russia ranked 50th among all countries for number of certifications of ISO 14000-compliant Environmental Management Systems. Russia issued 267 certificates, compared to first-ranked China with

30,489 certificates, or second-ranked Japan with 27,955 certificates; among BRIC countries, India is 12th with 2,640 certificates; and Brazil 15th with 1,872.

36. Russia is also falling behind its competitors in introducing other voluntary market-based green mechanisms, such as publication of nonfinancial reports, verified by an independent third party. So far, no Russian bank or investment company has joined the Equator Principles or the UN Principles of Responsible Investment (<http://www.equator-principles.com/>), the most widespread mechanisms for financial institutions' environmental and social responsibility. However, this could change now that environmental protection has risen to become a priority in the national public agenda.

37. Typically, large companies oriented toward international markets are initiators and leaders in developing voluntary market-based mechanisms. However, Government support for such mechanisms could include legislation for energy-efficiency requirements for goods labeling and standards; and statutory technical regulations that include environmental responsibility and safety of production processes and technologies. State-owned entities could be required to publish regular nonfinancial sustainable development reports verified by an independent third party, and to authorize government representatives on boards of directors to encourage entities to adopt voluntary green mechanisms.

38. However, Government *must* ensure that legal regulatory frameworks and enforcement penalize companies that deliberately pursue weak environmental performance to gain competitive advantage over companies that adopt voluntary green mechanisms. For example, among Russia's large forest industry enterprises, those that track the legality of wood sources and participate in VFC, are losing market share to enterprises that knowingly pursue illegal wood sources. Also, Lukoil began producing Euro 3 gasoline in 2006, but due to delays in introducing new fuel standards, had no advantage over companies that did not invest in "green" oil processing, until February 12, 2009, when Prime Minister V. Putin rejected further delay and argued in favor of government financial support to companies that invest in modern, environmentally sound technologies.

39. If federal, regional, and municipal governments adopted energy- and environmental-efficiency requirements for procurement of goods and services, this measure alone could provide incentives for the economies of scale required for modernization and greening of domestic industries and business processes. For example, the EU adopted environmental standards for public procurement policies—Directive 2004/17/EC issued by the European Parliament on March 31, 2004; and green procurement policies have been adopted by Austria, Belgium, UK, Germany, Greece, Denmark, The Netherlands, and France. The USA, Canada, Japan, New Zealand, Mexico are among many countries that have similar practices.

2. OVERVIEW OF EVOLUTION OF ENVIRONMENTAL POLICY, ENVIRONMENTAL MANAGEMENT SYSTEM AND INSTITUTIONS IN RUSSIA

2.1. State of Environmental Policy Development and Institutions Prior to 1998

40. Russia's environmental management framework is based on the USSR Code of Laws; which listed some 670 environmental enactments by 1985 (Langrind, 1990). In 1988, the government established the USSR State Committee for Environmental Protection, similar committees in all Soviet republics, and branch organizations at the oblast and rayon levels.

41. After 1991, development accelerated for a formal environmental management system (EMS), and by the mid-1990s, Government had established EMS legal and institutional elements, and technical and management capacity to support them. The Russian State Duma enacted several important laws, including the Law on Specially Protected Territories (1995); the Law on State Environmental Review (1995); the Water Code (1995); and the Forestry Code (1997). Government adopted the National Concept of Transition to Sustainable Development (1996), and implemented an ambitious Research and Development Program *Environmental Safety in Russia*. The Office of the Russian President had an Advisor for Environmental Protection.

42. *Russia's Ministry of Environment and Natural Resources (MENR)*, mandated to develop and implement environmental protection policy and regulations, was the main national institution of the EMS until 1996, and through its branches in all regions, maintained a dual reporting relationship to both federal and regional authorities, which had almost 1,400 rayon-level divisions across the country. The MENR established and implemented major elements of the EMS, including environmental permitting and enforcement (inspectorate) functions. In 1996, federal government restructuring reorganized MENR into Russia's State Committee for Environmental Protection (SCEP); the Federal Subsoil and Water Resources Services were merged into the Ministry of Natural Resources (MNR), authorized to coordinate environmental management activities. The status of SCEP was seriously downgraded and policy development functions were vested in ministries. Under this reorganization, for the first time, the resource managing authority (MNR) enjoyed higher status than SCEP, a policy decision that implicitly prioritized resource use over environmental protection; MNR was the leading agency in Government resource management.

43. In general, SCEP was responsible for the environmental protection system, environmental legislation enforcement, and administration of Russia's international environmental protection commitments. In 1998, there were 5,819 federal-, regional-, and rayon-level state environmental inspectors; 2,500 employees in 238 environmental analytical laboratories (MNR of the RF, 2000-07). A system of mandatory environmental assessment (EA) was established consisting of EIA (OVOS) and the State Environmental Review (SER), expertise with federal and regional capacity to evaluate environmental risks at the design stage of almost all economic activities (World Bank, 2003). The SCEP managed to save and even expand a well-established system of nature reserves, which contributed significantly to global biodiversity, conservation, and ecosystem research. A system of economic instruments was developed, based primarily on money collected for negative environmental impacts. Charges and fines paid by polluters were accumulated in the system of environmental funds established at the federal, regional and municipal levels.

44. However, the system failed to correct many inherited Soviet-era defects such as regulations that were unaffordable, impractical, or too complex to enforce. The 1998 OECD Country Environmental Performance Review acknowledged EMS achievements but emphasized a need for major improvements (see Box 2.1).

Box 2.1. Principal implementation problems: 1999 OECD Country Performance Review

- The environment was a low priority to the federal government, particularly after 1996, meaning that fewer resources were available for environmental management.
- The Federal authorities for natural resources and the environment remained very fragmented.
- The regulatory framework was complex, difficult to implement, and had considerable gaps that encouraged arbitrary local decisions on implementation.

OECD recommendations for policy reforms and policy instruments

- Strengthen enforcement of environmental laws and regulations, strengthen transparency, reduce administrative discretion and expand the network of inspectors and prosecutors.
- Review legislation to eliminate inconsistencies and fill gaps.
- Streamline the environmental regulatory framework (standards, permitting, charges) by concentrating on a few substances and revising environmental standards in line with internationally established standards.
- As economic conditions permit, gradually raise pollution and resource charges to a level that will have a meaningful impact on the economic decisions of regulated parties.
- Strengthen and unify environmental monitoring systems and develop core environmental indicators that are regularly tracked at the federal and regional levels.
- Continue to improve public access to environmental information; increase participation in decision-making; strengthen public environmental awareness.
- Strengthen capacity for nationally coordinated environmental policy development and implementation by increasing status/ responsibilities among federal environmental authorities.
- Continue to develop effective systems of interaction in environmental protection between federal executive bodies and administrations of the subjects of the Federation.

45. Against a backdrop of increasing competition among countries for foreign direct investment, it is widely believed that Russia's environmental protection system, including Soviet-era components and more recent elements, came to be viewed by the private sector and politicians as an impediment to economic development (Danilov-Danilian, 2003; Larin, Mnatsakanyan et.al, 2003). As a result, Russia adopted new legal and institutional changes; although the intention may have been to fill gaps and modernize the EMS, these changes weakened and completely restructured the system, dismantling some environmental requirements, including stringent and complex SER procedures, to pave the way for economic growth.

2.2. Evolution of Environmental Policy, Environmental Management System and Institutions at the Federal Level (2000-08)

46. In May 2000, SCEP was abolished and its functions, including forestry management functions formerly performed by the liquidated Federal Forestry Service, were transferred to the Ministry of Natural Resources (World Bank, 2003, 2004). The decision aroused serious concern and protest among the staff of environmental protection authorities, scientists, experts, and NGOs, who warned that combining natural resources management and environmental protection within the same institutional structure created a conflict of interest. The warnings regrettably proved prescient. At the end of 2000, MNR initiated a three-fold staff reduction in the regional units of former environmental protection committees, and redirected the staff to geological and administrative units. Later, MNR instituted seven departments in the center of each Federal Okrug and then established five services within its structure, including the Service for Environmental Control.

47. After 2000, Government abolished a system of environmental funds; this improved overall fiscal discipline but reduced incentives and funding for polluters to undertake

environmental improvements, particularly at the municipal and regional levels. After that, all charges and fines accumulating in the earmarked environmental improvements fund were considered general revenues. Total federal expenditure on environmental protection remained low at 0.04 percent of the 2006 federal budget; nevertheless this was double the 2000 spending level. Total environmental expenditure as a share of GDP declined from 2.2 percent in 1997 to 1.3 percent in 2006, and environmental investment expressed as a share of total investment—declined from 1.9 percent in 2000 to 1.5 percent in 2006.⁸

48. In 2002, following through on preparatory work involving the environmental community, the President of Russia approved the *Environmental Doctrine of the Russian Federation*, which is the most recent strategic document on environmental protection. The Doctrine formulated ambitious strategic goals, objectives, and priorities for public environmental policy and outlined a wide range of policy implementation methods. But it remained a declarative document, and many subsequent actions to change the EMS and environmental protection institutions directly contradicted key Doctrine provisions, such as strengthening the State and Nongovernmental Environmental Review, introducing a strategic environmental impact assessment, providing scientific support, improving environmental education and public awareness, and increasing civil society participation, among others.

49. On the few occasions when environmental issues have been discussed at the highest political level, the major deficiencies of Russia's EMS and policy development have been acknowledged (Box 2.2); however, no action has been taken.

⁸ Figures are from Rosstat, 2000-08, and OECD, 1999.

Box 2.2. President Putin's Remarks at the State Council Presidium Meeting, June 4, 2003

“At present the environmental situation, as you know, is far from being benign. About 15 percent of Russia's territory is in critical or near-critical environmental circumstances. The environmental situation in a number of industrial centers in Siberia and the Urals causes especial concern, while industrial growth can bring about further aggravation of environmental problems unless appropriate measures are taken.

“What we need, therefore, is an integrated state environmental policy. This is an essential condition for a vigorously growing economy. The environmental component should become an important factor of improving the quality of life and increasing the competitiveness of national production and the country as a whole. To this end, we need to achieve a number of policy objectives.

“What we have is a paradoxical situation: there are virtually no legal mechanisms that would allow the damage caused by business operations to the environment to be offset. It is largely for this reason that we suffer chronic shortages of funding for environmental programs, while businesses bear virtually no responsibility for damage to the environment nor have they any interest in investing in nature protection.

“We have had many reorganizations over the recent period, but it is the system combining the functions of government environmental control and those of management of commercial natural resource use that has serious shortcomings. Moreover, there is no clear division of environmental protection authority between different levels of government. I think that you in your regions have a better view of what is taking place in this sphere.

“The loss of skilled personnel is a major problem. We must establish a single system for training environmental specialists. Apart from that, it is important to promote the environmental education of the population. The fundamentals of environmental culture should be laid, certainly, from the outset at school. Non-governmental organizations can play a significant role in environmental education and in building up a civic environmental control system.

“The formulation of the government's environmental policy should be guided by international environmental standards. This is important for ensuring qualitative economic growth and encouraging the application of resource-saving and waste-free technologies. Overall, it is necessary to step up our efforts in international environmental cooperation.”

50. Government has undertaken major legal initiatives in environmental protection and use of natural resources by enacting a new basic Law on Environmental Protection (2002); a Land Code (2001); a City Planning Code (2004); a Water Code (2006); and a Forestry Code (2006); and introducing major amendments to the Law on State Environmental Expertise (Review) (SER), and to preparation of project design documentation such as the Urban Construction Code as amended in 2004. However, environmental professionals believe these initiatives were inadequately prepared and weakened environmental requirements and compounded EMS deficiencies (Larin, Mnatsakanyan, et al., 2003). Simplifying the maze of obsolete technical regulations and standards is a slow process.

51. In 2004, during broader administrative reform, environmental protection functions were distributed between MNR, the Federal Service for Natural Resource Use Supervision (Rosprirodnadzor) reporting to MNR, and the Federal Service for Environmental, Technological and Nuclear Supervision (Rostekhnadzor) reporting directly to Government. The reforms left gaps and overlaps not only because division of responsibilities was unclear, but also because almost one-third of the functions stipulated in the Federal Law on Environmental Protection (2002) were not delegated to any of these institutions.

52. Since the mid-1990s, the government environmental protection system carried out its preventive control function through the SER process. After 2000, when SCEP had been abolished and all its functions, including the SER, were transferred to the MNR, the preventive environmental control system changed. The SER staff was reduced by almost half, although the work and number of projects to be reviewed remained unchanged, which undermined SER human resources, and reduced the quality of the SER procedure, review

deadlines, and review duration. Since 2004, the SER falls under Rostekhnadzor and Rosprirodnadzor, but SER-related responsibilities and functions have not yet been clarified between the two federal agencies, creating confusion and conflict between nature users and environmental protection authorities at federal and local levels.

53. The list of projects and economic activities subject to the SER has been dramatically reduced since January 1, 2007, following the enactment of the Federal Law on Changes to the Urban Construction Code of the Russian Federation and Specific Legal Acts of the Russian Federation (#232-FZ, dated December 18, 2006) to exclude hazardous facilities such as nuclear and hydroelectric power plants, oil pipelines, chemical and petrochemical industries. According to expert assessments, over 90 percent of all planned economic projects that could have a significant negative impact on the environment were excluded from SER scrutiny. Therefore, the institute of environmental review has essentially lost its major function, that is “to exercise the constitutional right of Russian citizens to a favorable environment by preventing a negative impact of economic and other activities on the natural environment,” (the Preamble of the Federal Law on Environmental Review).

54. Among the few achievements during 2004-present in terms of the EMS are intensive efforts to establish specialized offices of environmental prosecutors (Box 2.3).

Box 2.3. Operation of Offices of Environmental Prosecutors

The Russian Federation has 36 inter-rayon offices of environmental prosecutors within regional offices of public prosecutors, and an interregional office—the Volga Office of Environmental Prosecutors—with the status of a regional office encompassing 15 inter-rayon offices, that enforce environmental legislation across the Volga Basin.

Statistical data on prosecutors’ activities in environmental management and protection during 2003-07 indicates a rise in the number of environmental law infringements that prosecutors detected and prevented: the number of environmental law infringements over the aforementioned period increased by a factor of three, and growth over the last year was 17.3 percent. As in past years, the largest category of violations detected by prosecutors was that related to land, water, and ambient air protection.

Many environmental issues are now settled only after intervention by prosecutors. Procuracy supervision practice demonstrates that law enforcement is still relevant to selection of landfill or a municipal solid waste sites, which are often allocated in violation of statutory procedure.

Incidence of illegal infringements continues to grow with respect to fauna protection/ conservation of fish stock, and aquatic biological resources that are seriously affected by poaching. Fish poaching control is a priority activity for prosecutors, especially in regions where aquatic biological resources are targeted by commercial fishing. For instance, the number of such law infringements detected over the last five years increased by a factor of 15 in the Kamchatka Krai, a factor of 14 in the Khabarovsk Krai and Sakhalin Oblast, and a factor of 12 in the Krasnodar Krai and Rostov Oblast (MNR of the RF, State Report, 2007).

55. In May 2008, the most recent reorganization placed Rostekhnadzor and RosHydromet (responsible for environmental monitoring) under MNR supervision, and their responsibilities were redistributed between Rostekhnadzor and Rosprirodnadzor, and MNR became the Ministry of Natural Resources and Ecology (MNRE). This consolidation of sectoral responsibilities under one ministry may have positive impact through better decision-making and coordination.

56. *Until 2008, environmental priorities were low on the public policy agenda.* The Presidential Advisor for Environmental Protection position was abolished; the Supreme Environmental Council was inactive; “Ecology” was removed from the compulsory secondary school curriculum; and the State Duma Environmental Committee was eliminated. Environmental protection failed to make the limited list of national development programs that included housing, public health, and agriculture. These changes indicated competing priorities, but also signaled insufficient public pressure for environmental improvements, and strong countervailing forces.

2.3. Overview of Main Changes in the Environmental Management System at the Regional Level

57. The period under consideration, 2000-08, was characterized by frequent and inadequately prepared changes in the EMS institutional structure and legal regulatory framework, including changes at the regional and municipal levels. There have been changes in the federal authorities (SCEP, MNR with sector-specific agencies, and Rostekhnadzor), their regional structures (regional committees of natural resources, regional offices of natural resources, departments of natural resources for the Federal Okrugs, etc.), and in the distribution of responsibilities between the federal and regional authorities.

58. In 2004, the MNR's regional Chief Administrations of Natural Resources and Environmental Protection were abolished, one of the most significant reorganizations among numerous institutional changes. When this happened, the situation evolved so that each region had five federal entities, instead of one, to perform environmental protection administrative and governance functions: in addition to Rostekhnadzor and Rosprirodnadzor, there were regional Administrations of the Federal Agency for Subsoil Use, the Federal Forestry Agency, and the Federal Agency for Water Resources.

59. ***Redistributing responsibilities among federal, regional and municipal authorities was an inconsistent and contradictory process that complicated environmental protection activities.*** Initial changes to distributing responsibilities dates back to 2003. Federal Law # 95-FZ of July 4, 2003, which essentially prohibited duplication of responsibilities among levels of government, necessitated a revision of the entire set of environmental protection laws to delimit the terms of reference of the federal and regional public authorities. The issue of responsibility distribution was to be addressed by the Federal Law on Changes to Federal Legal Acts and Invalidation of Selected Federal Legal Acts (# 122-FZ, dated August 22, 2004). Pursuant to the Law, the Russian regions were virtually deprived of all basic governance and state control responsibilities relating to environmental protection but in less than a year, this decision was reversed and most of the functions eliminated earlier were returned to the Subjects of the Federation, including further delegation of responsibility for waste management to the municipal level.

60. About 800,000 facilities are now subject to state environmental control (businesses charged for negative environmental impacts) (*MNR of the RF, State Report, 2007*). Distribution of state environmental-control responsibilities between federal (Rostekhnadzor) and regional executive authorities has not been finalized. Criteria in the Government Resolution on the List of Facilities Subject to Federal State Environmental Control (# 777, dated October 29, 2002), established that such control shall cover over 80,000 businesses or about 10 percent of total facilities to be monitored.

61. In 2006, Russia enacted changes in the distribution of the environmental charges (fees and fines) between the levels of government: 20 percent of all proceeds shall be transferred to the federal budget, 40 percent to the regional budget, and 40 percent to local budgets. However, pursuant to current legislation, proceeds shall be "untied" or "non-targeted" money, which is not used in full for environmental rehabilitation activities. At the regional level, environmental charges are administered by Regional Administrations of Rostekhnadzor. Environmental charges are not earmarked for environmental use but for part of the regular budget. At the regional level, the collected charges are comparable to environmental protection expenditures, while in municipalities (which have budget deficits), proceeds cover expenditures that have nothing to do with environmental protection.

62. In general, direct regional expenditures on environmental protection and safety average roughly 1.5 percent of consolidated budget expenditure including about 0.5% of federal budget (Dumnov, 2008; Dobrolyubova, 2008). Budget spending under regional targeted environmental programs grew continuously during 2000-07, but remained insufficient to accelerate modernization of the environmental engineering infrastructure, especially in housing and communal services.

63. Fundamental changes to federal laws took place in a hasty, ad hoc manner that subsequently required amendments to regulatory documents. The Leningrad Oblast, for instance, amended some 600 environmental regulations in 2004-2007 (Kulibaba, 2008). Some legal innovations included, inter alia: permission to build structures in water protection zones; forest management and inventory projects implemented by companies with forest leases; notification-based water uses; replacement of mandatory supervisory/ environmental review of design documents by technological regulation within the framework of state review.

64. Evaluating the status of EMS in all 85 regions was not within the available timeframe and resources of this study. However, overall during the past ten years, institutional reforms have undermined EMS functioning; regional- and municipal-level reorganization have reduced overall institutional capacity, weakened coordination with federal supervisory authorities; triggered a major staff exodus and significant staffing changes (*inter alia*, in structural units responsible for monitoring); and caused the loss of archives, information materials, and databases (Moiseenko, 2008; Belyaev, 2008). Considering the setbacks that EMS has experienced, and the scant information on EMS status in the 85 regions across the country, a key recommendation is that introducing any new components of EMS should be done on a pilot basis, to test and validate results in selected territories, before full expansion.

65. The state devolved responsibility for environmental control to the subjects of RF for small and medium facilities; subjects then began to establish and expand regional- and municipal-level environmental protection entities (see Box 2.4).

Box 2.4. Development of Environmental Protection Institutions in the Arkhangelsk Oblast

The *Arkhangelsk Oblast Environmental Committee* is a regional statutory executive public authority responsible for environmental protection including water resources and ambient air quality, environmental review, waste management, and radiation safety. Committee staff increased from 11 to 29 people during 2006-07. In 2008, the Committee had three subordinate regional public institutions:

The *Arkhangelsk Oblast State Environmental Inspection* is primarily responsible for state environmental control of regional facilities; established in 2004, it has 40 staff and agents in almost every rayon of the Oblast.

The *Directorate of Specially Protected Nature Areas of Regional Significance* carries out governance and state control functions for Oblast protected nature areas (32 sanctuaries, 70 nature monuments); established in December 2005, with 40 staff.

The *Directorate of Specially-Protected Nature Areas of the Nenets Autonomous Okrug (NAO)* carries out governance and state control functions for NAO protected nature areas (four sanctuaries and two nature monuments); established in December 2007.

In 2008, state environmental control of over 20,000 regional facilities was implemented by the Arkhangelsk Oblast Environmental Committee and the Arkhangelsk Oblast State Environmental Inspection; and about 500 federal facilities by the Rostekhnadzor Administration for the Arkhangelsk Oblast (Yulkin, 2008).

66. Some regions managed to maintain operational environmental management systems by putting in place efficient coordination mechanisms and using new environmental-protection powers delegated to regional authorities, despite overall erosion of EMS development. An example is the Tomsk Oblast in Section 2.4.

2.4. A Comprehensive Environment and Natural Resource Management System in the Tomsk Oblast

67. The Tomsk Oblast system is based on sustainable development principles and aims to address both environmental and socioeconomic issues in the region. The Oblast environmental policy is formalized in strategic documents (Fig. 2.1), including the Development Strategy until 2020, which is based on sustainable development principles such as creating favorable conditions for life, work, recreation, raising children, and a rational use of natural capital.

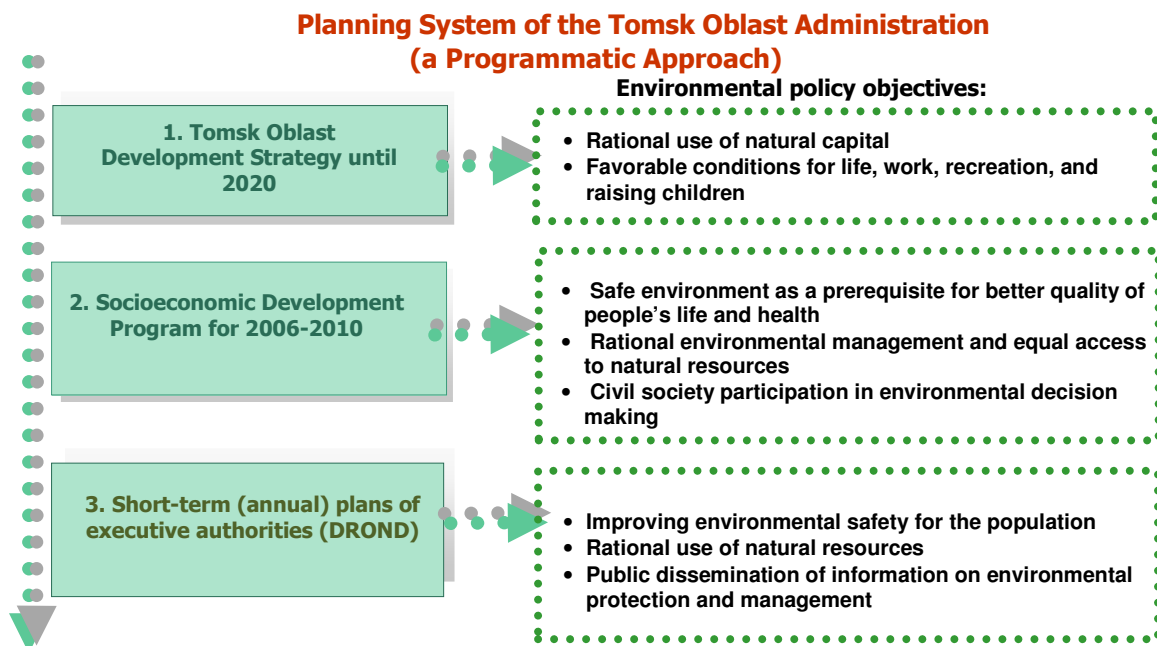


Figure 2.1. Planning system of the Tomsk Oblast Administration

68. The region has developed a mid-term Socioeconomic Development Program for 2006-2010 to achieve strategic objectives, and short-term issues are addressed through annual plans prepared by regional executive authorities.

69. The Tomsk Oblast environmental management and protection system features functional integration of all entities irrespective of affiliation, which is implemented by a Coordinating Environmental Board chaired by Oblast Governor Mr. V. Kress (Fig. 2.2). Coordination facilitates successful least-cost enforcement of federal, regional, and municipal laws on environmental protection and management, and helps executive authorities make well-balanced decisions consistent with sustainable development to provide the population with a good standard of living and quality of life. Key to the successful functioning EMS in Tomsk Oblast are Governor commitment to mainstream environmental protection in regional development, and the professionalism of regional environmental department staff.

70. The Tomsk Oblast now has a unique functional structure of regional environmental authorities: the Department of Natural Resources and Environmental Protection exercises state environmental control, and State Institution of Environmental Protection and Natural Resources of Tomsk Oblast Administration (“Oblcompriroda”) - oblast entity that provides support for efficient operation of the Department (vehicles and laboratory control).

71. The region’s institutional governance structure is shown in Fig. 2.3. Environmental issues are addressed jointly by the Department and “Oblcompriroda”, which represent a unified institutional/functional structure performing over 110 functions. The Department exercises public responsibilities in environmental protection while “Oblcompriroda” supports its operation by monitoring environmental conditions and natural resources; data collection, processing, and storage; and business management. The unified structure has a common accounting unit, secretariat, and administrative office, which has optimized work flows, documentation, and management decision making.

72. Successful operation of the structure is reflected in the numbers of legislative initiatives implemented at regional and federal levels; higher detection rates for environmental offenses; increased regional budgetary savings; and environmental preservation against loss and damage.

73. Performance of the Department and “Oblcompriroda” can be assessed by quantitative indicators on environmental quality and private sector impact on the environment (Table 2.1). Performance-indicator monitoring is based on departmental statistics.

74. The Department assembled socioeconomic development indicators, including private sector impacts on environmental quality, that are now available in, *Socioeconomic Situation in the Tomsk Oblast: A Summary Overview*, a quarterly newsletter for decision makers, including the Governor and other regional senior officials, that is published by the regional office of the Federal State Statistics Service.

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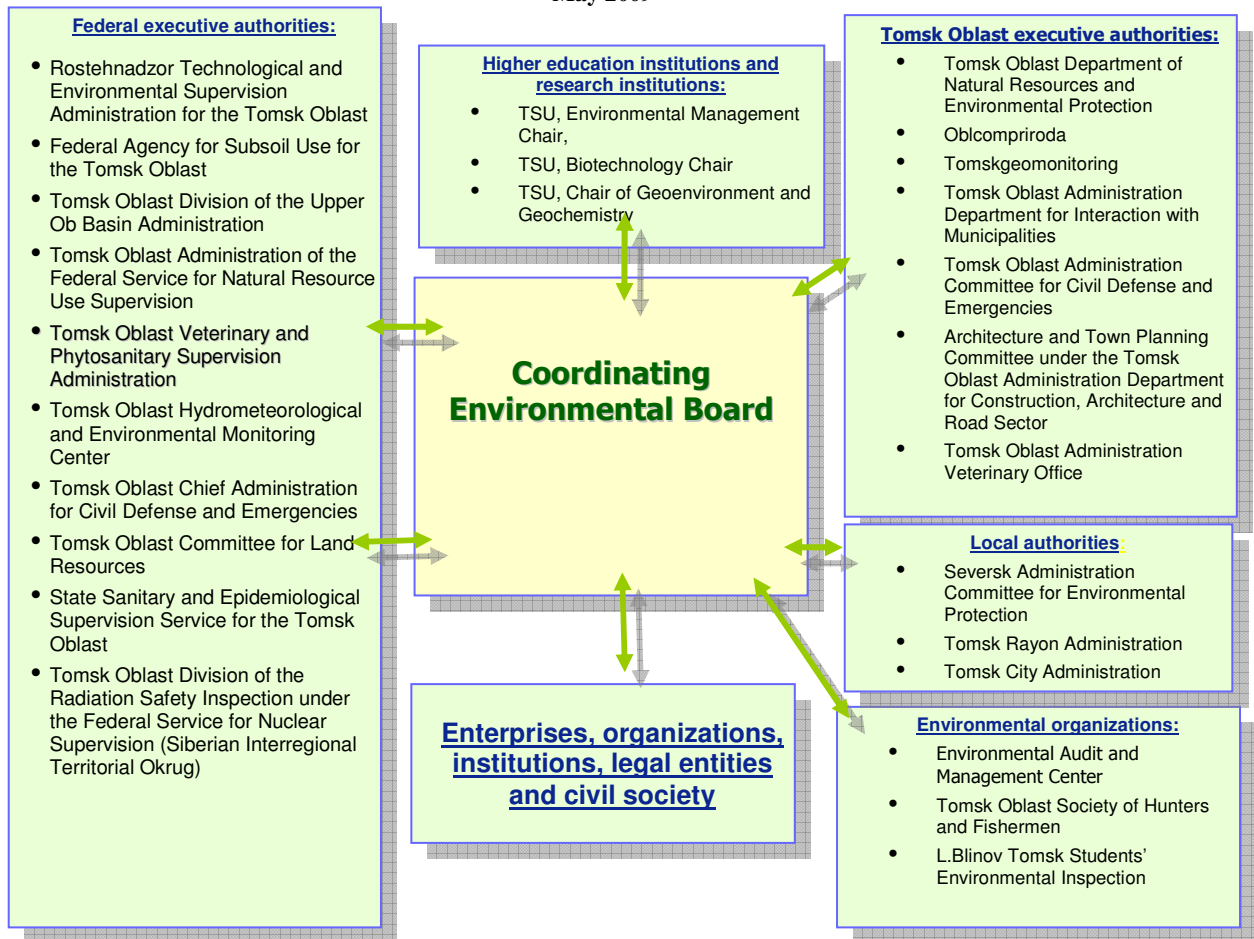


Figure 2.2. Interaction of environmental and natural resource entities in Tomsk Oblast

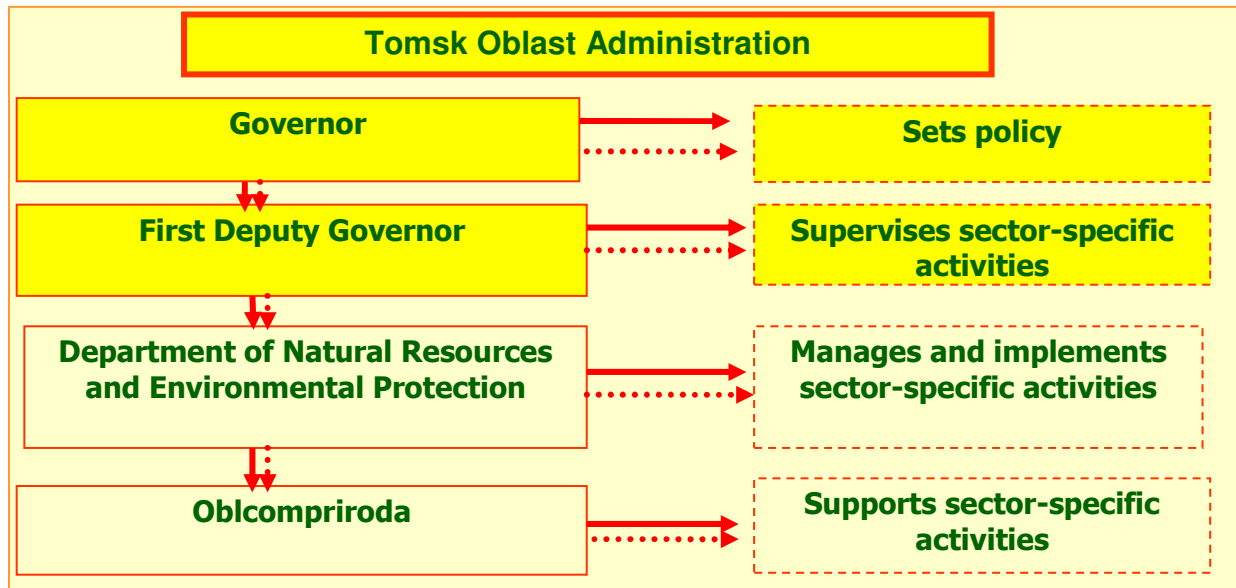


Figure 2.3. Institutional structure of the Tomsk Oblast environmental protection and management sector

Table 2.1. The Department of Natural Resources and Environmental Protection and “Oblcompriroda”: Selected 2008 Performance Indicators (preliminary) (Adam, 2009)

Goals, objectives and indicators	Meas. Units	2008	2008 vs. 2007	Result
Goal 1. To improve environmental safety for the population				
Amount of hazardous atmospheric emissions	thousand tons	347.7	-2.3	CCGT units installed at 5 enterprises
Amount of treated wastewater	million cubic meters	76.,32	+0.72	Treatment facilities are put into operation in 5 settlements (treatment wetlands)
Amount of waste recycled/disposed in compliance with established requirements	thousand tons	131.1	+28.7	11 MSW sites are put into operation in rayon centers
Objective 1.1 To provide for comprehensive enforcement of environmental legislation				
Number of natural resource users inspected within 2 years	No. of users	450	+54	The number of facilities subject to planned control on a priority basis has increased
Number of users of common minerals inspected within 2 years	No. of users	40	+5	The number of facilities subject to planned control on a priority basis has increased
Corrected violations as a share of total detected violations of the environmental legislation	%	90	+0.3	Control efficiency has improved
Goal 3. To disseminate environmental information and knowledge among authorities and population				
Number of people participating in environmental activities	No. of people	4,100	+100	Broad-based participation in the National Days of Protection from Environmental Hazards
Share of the population participating in environmental activities	%	4.04	+0.04	

3. COMPARISON OF RUSSIAN ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) WITH INTERNATIONAL GOOD PRACTICE

3.1. Brief overview of National EMSs: What can Russia gain from international experience?

75. This review aimed to evaluate EMS implementation in comparator countries to gather approaches and instruments applicable to EMS reform in the Russian Federation.⁹ The review was based on analysis of the data presented in Annex 1, summarizing major elements of the regulatory/legal framework, the EMS institutional framework, priorities and instruments of environmental policy, and public participation. Annex 1 also describes the main components of the Russian EMS as of 1998, using OECD data and 2008 information from the present study. The review aims to demonstrate that many EMS approaches have been successfully applied to implement efficient environmental policies. These are compared and summarized in Table 3.1.1, and discussed later.

76. Many countries reviewed had consistent legal, regulatory, and constitutional linkages with the environment. In Russia, the legal and regulatory basis in environmental protection sector remains loose and inconsistent with a relatively weak implementing agency, the Ministry of Natural Resources and Ecology at the Federal level, struggling to balance natural resource development, environmental protection, and preservation. As discussed earlier, the recent decade of legislative, regulatory and institutional reforms has, for the most part, undermined EMS functioning.

77. Weak federal-level capacity has eroded relationships with regions; some regions have adopted more proactive approaches to environmental management; for example the Tomsk Oblast. Despite positive historical legacies of environmental inspectorates, monitoring and enforcement functions and capacities have recently deteriorated significantly (Bogoloubov, Kludeneva, Kichigin, 2008).

⁹ Twelve environmental management systems (EMS) were reviewed for this study, including United States, Canada and Mexico, OECD members that cooperate under the North American Free Trade Agreement (NAFTA); Germany and Sweden, two western-European member states of the EU; the Czech Republic, Lithuania and Poland, three central-European member states of the EU; the EU itself, because key elements of the Member States' environmental management system are set at the central EU level (e.g., environmental standards and permitting); China and India, two of the world's largest, most-rapidly-developing countries; and Kazakhstan and Ukraine, two representative CIS countries.

Table 3.1.1 Summary comparison of Russia and selected country's EMS

Attributes of EMS	International experience	Russia
Legal framework & objectives	<p>Legal and constitutional links with the environment</p> <p>Specific laws and regulations per media and process (e.g., EIA)</p> <p>Policy goals set in terms of quantitative targets of environmental quality and tracked through sets of indicators</p> <p>Often decentralized environmental authority to regions with federal oversight and conflict resolution; however, levels of decentralization vary widely across countries</p>	<ul style="list-style-type: none"> - Constitutional reference to the environment - Specific laws, codes and regulations are in place, but inconsistent across sectors and are multi-layered; several detailed regulations are non-existent - Environmental Doctrine (2002) specifies generic goals without reference to objectives, implementation or instruments - Concept of Long-Term Socioeconomic Development through 2020 sets country-wide targets, but still needs realistic objectives and an implementation strategy
Environmental institutions	<p>Separate ministries for environmental protection and natural resources due to the inherent conflicts of interest</p>	<ul style="list-style-type: none"> - One ministry – Ministry of Natural Resources and Ecology with single mandate - Frequent institutional changes
Regulatory impact assessments	<p>Regulatory Impact Assessment (RIA) to estimate economic, social and environmental costs of new legislation</p>	<ul style="list-style-type: none"> - Financial and economic impact review of draft laws, but no RIA on assessing social or environmental dimensions
Ambient monitoring systems	<p>Monitoring and evaluation network at several levels with uniform coordination for key air and water pollutants at the national level</p>	<ul style="list-style-type: none"> - Largely fragmented and institutionally disintegrated system based on varying approaches and a general decline in technical and physical capacity - 2008 reorganization under one ministry offers opportunities for integration
Ambient environmental standards	<p>Consistent standards for air quality based on protecting human and ecological health; water quality standards set at the local level catering to environmental conditions</p>	<ul style="list-style-type: none"> - Large number of parameters but missing several key ones such as PM_{2.5} and PM₁₀ - Unrealistically stringent standards and not monitorable under current state of M&E system
<p>Environmental Assessment (EA)</p> <p>Environmental Impact Assessment (EIA)</p> <p>Strategic Environmental Assessment (SEA)</p>	<p>EA process for project and development screening with agreements on overlapping authority</p> <p>EIA assessments with stakeholder input</p> <p>SEAs for sectoral plans and programs with cumulative effects assessment</p>	<ul style="list-style-type: none"> - Application of EA system (State Environmental Review) and EIA system (OVOS) established in 1990s was dramatically reduced in 2006; only a few categories of projects are subject to EA
Controlling releases of industrial pollution	<p>Usually uniform, sector-specific, emissions standards</p> <p>Facility-based requirements using best available technologies and techniques (BAT) and managed through a site-specific permitting system; small set of core pollutants</p>	<ul style="list-style-type: none"> - Facility-specific release standards based on theoretical design performance - Provisions for 'negotiated' releases that essentially reset the new standard
Permitting system	<p>Integrated permitting or single-facility licensing with single operating permit across all media to avoid pollution transfer and decrease administrative burden</p>	<ul style="list-style-type: none"> - Single-media permitting with often unattainable requirements leading to negotiated permits and the potential for corruption
Enforcement	<ul style="list-style-type: none"> - Sufficient number of inspectors 	<ul style="list-style-type: none"> - History of strong inspection capacity, but deteriorating

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Attributes of EMS	International experience	Russia
	<p>Ensure minimum, uniform requirements for enforcement; focused and targeted towards worst polluters</p> <p>“Pyramid of enforcement” beginning with initial contacts/notices, then penalties and then criminal action or closures</p> <p>Self-reporting of violations by polluters to reduce penalties or actions</p>	
Economic instruments	<p>Broad range of economic instruments- incentives, tax relief, pollution fees, fines</p> <p>Schemes to finance environmental funds or earmark revenues for environmental performance improvements</p> <p>Emission trading to reduce specific pollutants such as SO_x, NO_x, CO₂</p>	<p>- Pollution fees for emissions or user fees for natural resource use, but are too low to act as an incentive for change</p> <p>- Revenues are not earmarked for environmental performance improvement</p>
Public information & participation	<p>Public participation is integral to formulating environmental policies and EMSs</p> <p>All comparator countries have signed the Aarhus Convention, which guarantees public rights to environmental information, participation, and judicial access in environmental matters</p> <p>Greater role of informal incentives for environmental management through programs of public disclosure of environmental performance by industry (e.g., China) or publically available Pollution Transfer and Release Inventories (PRTRs)</p>	<p>- Public participation is seldom applied and weak in its effectiveness</p> <p>- Public participation on proposed legislation and regulation is on an ad hoc basis</p>

78. Typically, international good practice includes several levels of process or impact assessment such as environmental assessment (EA), environmental impact assessment (EIA), and strategic environmental assessment (SEA). By contrast, Russia now has only a rudimentary State Environmental Expertise (Review) and Environmental Impact Assessment, which are applied unevenly and selectively. Although there are numerous ambient environmental standards covering a wide array of pollutants, the requirements are unattainable using existing production technology, and impossible to monitor due to the inadequate monitoring and enforcement capacity (OECD, 1999, 2003a; World Bank, 2004) .

79. Russia's permitting system follows good practice for facility-level implementation of standards but the permits are often single media, creating potential to shift pollution to another media to meet compliance objectives. Recent development practice grants a single facility operating permit that includes standards for all media. Anecdotal evidence suggests that the mix of industry-specific permits can be 'negotiated,' which undermines environmental protection and encourages corruption.

80. International experience with 'polluter pays' policies shows that channeling proceeds into environmental funds that firms can tap for clean technology adoption provides incentives for change. By contrast, in Russia, the current pollution fee system lacks incentives for change because 'polluter pays' rates are not linked to actual environmental costs, and the proceeds are not earmarked for environmental performance improvements.

81. A strong body of evidence suggests that raising public awareness about the environment is a vital element of improved environmental performance. Public disclosure of environmental statistics regarding air and water quality, or pollution release inventories can create pressure on polluters and government to improve environmental regulation and enforcement, for example. The role of Russian civil society in environmental management is now limited and considerably lags international standards. Public participation or debate are rare at the policy level when new environmental laws or regulations are being drafted, and citizens are not included among potential stakeholders in environmental impact studies, which have been sporadic and infrequent. Civil society engagement can help strengthen overall environmental improvements.

Comparing Environmental Management System Attributes

82. Most comparator countries have the following legal framework and environmental policy objectives:

- Constitutional reference to protecting the environment
- Framework environmental law
- Media-specific laws (air, water, soil) and procedural laws (e.g. EIA);
- Detailed regulations for implementation
- Public disclosure and consultation for proposed legislation (OECD countries).

83. All countries reviewed set broad policy objectives and conduct regular evaluations of implementation progress. Good practice examples exhibit environmental policy goals that use quantitative targets, in particular for environmental quality, so that progress can be tracked with measurable indicators. For example, Sweden's *Environmental Objectives* identify over 70 indicators, of which most are environmental quality targets that monitor progress across the 16 action areas and include indicators of ambient levels of key air pollutants such as NO_x. Yearly reports and multi-year evaluation assessments track progress.

84. Mexico has set quantitative environmental targets within the scope of its National Development Plan, and ministries report on annual progress. The Czech Republic's Environmental Policy for 2004-2010 includes several quantitative targets.

85. Most countries are reshaping relations between federal and subnational public authorities in the sphere of environment; regional governments and some municipalities have increasingly important roles. Canada exemplifies maximum decentralization; in many sectors provincial governments and legislative acts and norms dominate, particularly for sustainable natural resource use and most environmental regulation, unlike most other federal countries, including India and the USA, where national laws prevail. However, the Canadian federal government retains a role in enforcing national performance standards and settling conflicts among regions.

86. Russia's overall framework is similar to that of most federal countries; the Constitution includes references to protecting the environment. A framework law and specific laws or codes exist to protect the environment and its aspects. However, regulations governing the environment and regulations governing other sectors are not always compatible or coherent. For example, the MNR of RF introduces the provision that at designing forest development projects and allocation of stock for clear and selective felling, the forests belonging to protected areas should be marked out. However, the Federal Law #69 (2007) allows to transfer lands of especially protected areas to other categories if their end use is impossible due to loss of their special environmental values. At the same time, no clear definition of term "loss" is provided and a quite legitimate probability exists that e.g. in Leningrad Oblast half of the natural monuments and especially protected areas will cease to exist (Kulibaba, 2008). Similarly, detailed sector regulations are nominally comprehensive but increasingly comprise a layered patchwork of conflicting and inconsistent requirements. Public participation and consultation on proposed legislation and regulations are undertaken selectively and *ad hoc* (OECD, 1999; Larin, Mnatsakanyan, et.al, 2003).

87. Russia has a formal strategic environmental instrument in place, the 2002 Environmental Doctrine, which was designed as a basis for national environmental policy, and specifies primary generic policy goals, but fails to include an implementation strategy, priority directions, objectives, or key instruments to monitor progress. A document entitled, *The Concept of Long-Term Socioeconomic Development for the Period though 2020*, established several country-wide environmental performance targets. However, a priority task is to now specify generic targets for major sectors and regions, defining realistic objectives for environmental quality and indicators to monitor them.

88. Russia's situation might be described as a federal/ regional relationship that is by tradition and legal basis, strongly dominated by federal authority and power. However, the federal environmental authority has been neglected, reducing federal institutional capacity to exercising authority or carry out associated responsibilities and resulting in a *de facto* devolution of authority to the regional level, where capacity and local policy priorities exist. This devolution has been formalized in 2005-2008, but better delineation of specific responsibilities is still required.

89. Russia's opportunity at this juncture is to decide whether to continue the devolution process or reassert the traditional centralized model that operates through regional branches of federal authority. In either case, the priority should be to ensure that the regions have sufficient capacity, building on the efforts of the many regional/municipal administrations that have maintained effective environmental management systems. Any changes to structure and responsibilities should be implemented gradually to avoid eroding system capacity.

Environmental Institutions

90. In most countries reviewed, environmental protection and natural resources are each managed by a separate dedicated ministry and minister.¹⁰ An exception to this occurred during the 1990s when several Canadian provinces placed both environment and natural resources under one ministry. However, they have now reverted to the older practice of separate ministries for each, in recognition of the inherent conflicts of interest.

91. One difference among countries is the role of autonomous agencies. At one end of the spectrum, the US Environmental Protection Agency (EPA) carries out most functions, including enforcement, although regional entities play an important role in implementation, as described below. At the other end of the spectrum, Sweden has a small ministry that sets policy objectives and conducts oversight, but implementation is carried out by several well-financed agencies that handle everything from environmental and nature protection to chemicals and nuclear waste management.

92. **Russian context.** Prior to mid-2008, Russian environmental policy was set by a Ministry of Natural Resources, and separate agencies below ministerial status but reporting to the head of government, carried out functions such as technical inspections, enforcement, and monitoring. But the 2008 reorganization eliminated these agencies' separate mandates and placed them under the renamed Ministry of Natural Resources and Ecology. Regional structures mirror the federal structure, although several regional administrations maintain strong capacity in Departments of Natural Resources and Environment.

93. Defining clear terms of reference and providing adequate budget support to all relevant agencies still remains an urgent task. In the future, it might be useful to consider official segregation between federal and regional levels of environmental protection functions and natural resource management.

Regulatory impact assessment

94. All OECD countries now have mandatory regulatory impact assessments (RIA) that estimate costs and benefits of major proposed legislation to improve the design of policy instruments and inform decision makers of potential impacts. In many countries, RIA was introduced to estimate the economic impact of new legislation on public sector budgets and private sector operating costs, as was the case in the United States, which introduced RIA in the early 1980s.

95. Today, in many countries, RIA has expanded to include economic, social, and environmental costs and benefits of legislative proposals. In Sweden, RIA focuses on cost/benefits for small and medium-sized enterprises and the environment; any proposed legislation is assessed against overall Government environmental objectives. Mexico's RIA also includes economic, social and environmental costs and benefits; as many as three levels of analysis may be required for potentially high-impact proposals.

97. **Russian context.** In Russia, a mandatory financial and economic review evaluates the impact of proposed draft laws, *inter alia*, on the national budget. The MoF scrutinizes the process and rejects many legislative initiatives. However, no official regulations define an

¹⁰ In China, the State Environmental Protection Agency was elevated to ministerial level in March 2008. In the US, the head of the EPA has cabinet status, and the agency essentially has the same powers as a department (a US federal ministry).

RIA or similar requirements to assess economic, social and environmental impacts of draft legislation.

98. It is recommended that Government consider introducing an RIA system that includes environmental cost/ benefits of proposed legislation, and is linked to the development of Strategic Environmental Assessment methods.

Ambient monitoring systems

99. A few countries have a single national agency undertakes most monitoring activities, for example, Poland and the Czech Republic have national environmental inspectorates. However, most countries in the study have several levels of government monitoring environmental conditions, which requires coordination. In the USA, state and local monitoring of air and water quality are tied into national systems, overseen by the EPA. Similarly, Sweden's EPA coordinates county and local monitoring systems. These broad monitoring networks typically focus on ensuring uniform monitoring of a small set of parameters across a broad network. For example, in the USA, over 4000 stations monitor six key air pollutants; Mexico monitors five air pollutants and most countries have supplementary monitoring of additional pollutants in highly polluted areas.

100. **Russian context.** Russia has a broad public monitoring system that evaluates environmental conditions by relying on agency-specific methods, approaches, and laboratory networks. However, the system is fragmented, the institutions are not well-integrated, and deterioration of technical capacity reducing ability to monitor toxic substances and priority pollutants such as fine particulate matter. The 2008 reorganization that places environmental functions and sustainable use of natural resources under a single federal ministry offers opportunities for optimization, consolidation, and efficient integration of available capacity.

101. It is recommended that Government attempts to ensure that all levels of monitoring rely on unified and efficient networks, similar to international network standards. The environmental monitoring system might focus on only the most significant pollutants and priority environmental challenges. Public disclosure of environmental monitoring information and public information dissemination should be strengthened.

Ambient environmental standards

102. All OECD countries in this study set ambient environmental standards at levels that would protect human and ecological health. For ambient air quality, most comparison countries have established standards to monitor a few airborne pollutants that have the most widespread impacts on human health; for example the American system covers six parameters and the EU system covers twelve.

103. Water quality standards exhibit less uniformity and are more complex in number, category of water use, and location. In the US, they are set at the state level and depend on the pressure exerted by specific pollutants on water bodies; in the EU, water quality standards for 41 pollutants are set at EU level and Member States can set additional standards at their own discretion. Russia may find it useful to examine the transition from Soviet norms to EU standards undertaken by the Baltic countries within a short period; the example of Lithuania is given in Box 3.1.

Box 3.1. Lithuania's transition to an EU water management approach

Prior to 1997, Lithuania used the 'maximum allowable concentrations,' known as the MAC-based Soviet system of water/wastewater regulation. To meet conditions for EU accession Lithuania undertook an accelerated transition to the main elements of EU water/wastewater regulations during 1997-02, drawing on strong EU support. Since 2002, municipal wastewater discharges have been regulated by the basic requirement of emission limit values (ELVs), and full transfer to ELVs should be completed by 2010. Lithuania also introduced additional regulatory requirements based on water-quality objectives, but EU good-status objectives are not yet in force. Biological water-quality parameters, such as concentrations of macro invertebrates for rivers and phytoplankton for lakes, were adopted as core monitoring indicators replacing historical Soviet-era hydrochemical parameters.

Hazardous substances are regulated through a system that identifies and categorizes all hazardous substances (75 substances were reviewed for Lithuania), all industrial emitters (180 facilities were identified), and non-industrial sources. Priority hazardous materials (EU list I), including pollutants such as cadmium, mercury and dichloro-diphenyl-trichloroethane (DDT), must be eliminated; lower-priority substances (EU list II) such as polyaromatic hydrocarbons (PAH), volatile organic compounds (VOC), heavy metals, and polychlorinated pesticides are to be reduced gradually to below quality standard levels; and an additional 25 substances are to be controlled at point of discharge. Lithuania has developed a national reduction program that has evaluated existing pollution loads and established targets for reduction and control measures.

Implementing the EU approach was costly and time consuming. During 1994-00, Lithuania invested about 290 million Euro in wastewater treatment, another 350 million Euro investment is anticipated by 2010.

Based on materials of Dr. Simonas Valatka (Environmental Protection Policy Centre, Vilnius)

104. Soil contamination standards vary widely among countries but the trend is to set uniform basic standards that apply to various types of land use, with provision for site-specific health and environmental receptor risk analysis to address exceptions.

105. **Russian context.** Russia has a nominally comprehensive system of ambient environmental standards that cover a vast number of parameters compared to other national systems, even though some parameters are excluded, such as fine particulate matter, which is a priority for health impacts. However, when Russian standards are compared to international standards (OECD 1999, 2003b, 2007; World Bank 2002, 2004) they can be unrealistically stringent, inflate apparent risks, omit higher priority risks, and are impractical to enforce given existing capacity of the country's monitoring systems. At the same time, Russia has no sound basis for efficient measurement or monitoring of environmental performance or risks, and no flexibility for taking account of local contexts.

106. The Russian system should optimize environmental standards by benchmarking them to international standards to make them more practical and monitorable. A basic set of environmental standards should be defined, covering types of air and water pollution that have the most significant impacts on human health and the environment.

Environmental Assessments

107. All comparator countries have some form of environmental assessment (EA) process comprising an EIA (environmental impact assessment) required for large infrastructure projects such as industrial facilities or roads, and a state environmental review for project approval. Most countries have a screening system to determine which projects require an EA and to what level of detail each one should be assessed, based on potential impacts and/ or public concerns. The EA and the broader strategic environmental assessment (SEA) processes are critical to improve decision-making prior to granting permission to build by accurately assessing potential impacts. Stakeholder consultations can yield important

information for decision makers to consider in addition to technical assessments, or to trigger them to reconsider initial technical assessments.

108. In the federal systems surveyed, responsibility for environmental assessments is distributed between federal and regional levels of government, depending on overall allocation of environmental authority. In Canada, specific agreements have addressed cases of overlapping authority, and the country is initiating an SEA applicable to major government policy and development initiatives; in some provinces, the EA process, specifically the EIA, requires cumulative impact assessment. China has also introduced an SEA-like requirement, which is not yet fully implemented.

109. The EU has introduced SEAs to provide an overview of impacts from proposed sectoral plans and programs that will address cumulative effects, for example, in the aggregate, individual projects that could yield a major environmental impact which was not captured in individual EIAs.

110. ***Russian context.*** Until 2006, Russia retained a basic system of requiring an EIA-equivalent for all developments, regardless of scale or potential impact, a state environmental (expertise) review (SER) process, and some nominal provision was made for public review. However, this system had a cumbersome administrative and declarative approach, and ultimately there were no resources available to sustain it. In 2002, the Bank evaluated EA system capacity and made recommendations for improvements, including introducing screening and scoping (World Bank, 2003). In 2006, system coverage was so drastically reduced that it was virtually eliminated in many areas, in part to encourage economic development. Limited, residual capacity within environmental authorities remained to undertake any environmental assessments that were applied.

111. It is recommended that Russia reinstate the requirement for EA/EIA and independent review of outcomes, especially for projects with potentially significant environmental impacts, and consider transition to SEA and assessment of cumulative impacts for important policy and development decisions. However, it should be noted that no major regulation, e.g. those introduced in the EU, can be embedded in the Russian system without considerable adjustment.

Controlling releases of industrial pollution

112. The case study countries manage pollution emissions from industrial sources differently, often depending on the sector. One approach uses strict emissions standards; for example, the EU sets uniform emissions standards for several types of industries, such as large power plants and hazardous waste incinerators. A second approach is to set facility-specific requirements, determined on a case-by-case basis and managed through the permitting system, taking into consideration facility characteristics, pollution control technologies and methods, and their economic costs. Many permitting systems were initiated on this basis, such as those in America and Sweden, but the results can be very different requirements for facilities in the same sector.

113. The facility-specific approach can address the problem of different requirements by specifying the use of best available technologies and techniques (BAT) for pollution reduction. The EU adopted BAT under its Integrated Pollution Prevention and Control (IPPC) Directive, and has developed lengthy BAT reference documents (BREFs) that detail best technologies and techniques for major industrial sectors. Thus, the EU system limits flexibility for individual facility requirements by setting a high benchmark; however, the EU

approach allows Member States to set facility-specific requirements through an assessment of BAT requirements, and factors such as local environmental conditions, and facility technology.

114. While industrial pollution control mechanisms have varied among case study countries, their general approach has focused on a few core pollutants, which differ by country and type of polluter. Mexico focuses on only two standards, biochemical oxygen demand and suspended solids, for wastewater discharges from small urban areas, although it has seventeen parameters for discharges from larger areas and industry.

115. **Russian context.** In theory, the approach to point source emissions is similar to traditional international practice, with some generic facility- and technology-specific release standards set in regulations. In practice, standards are more commonly set on a facility-specific basis within the scope of a periodic permitting process. Facility-specific release standards are usually based on actual or theoretical performance of existing technology, using complex dated theoretical methodologies. Provision also exists for setting “negotiated” temporary release limits that exceed those that might have been set originally or may have been set in regulation, but have become the *de facto* new release standard, due to financial penalties that are too low to provide a disincentive to pollute (OECD, 2007; Trutnev, 2008).

116. Government can consider the following recommendations:

- Focus on a few pollutants that enable monitoring emitters’ actual performance.
- Use the EU BREFs as a reference to develop national guidelines for setting realistic and enforceable air and water standards.
- Eliminate “negotiated” temporary standards in favor of a single set of realistic/enforceable BAT-based facility standards.
- Integrate compliance with permitting, including realistic compliance schedules that allow pollution payment holidays, or time-bound offsets, followed by enforcing substantial penalties.
- Undertake full phase- in of IPPC-type approach; begin with larger facilities and economically stronger but significantly polluting sectors.

Permitting system

117. Increasingly, OECD countries are adopting integrated permitting systems. Sweden has had integrated permitting since 1969, the EU adopted it in 1996. Mexico has adopted a single environmental license that incorporates all permit requirements.

118. Integrated permitting, or a system of single-facility environmental licensing aims to offer a single permit for each facility across all polluted media (air emissions, wastewater discharges, and waste disposal) to coordinate requirements so that pollution levels are not simply transferred to another medium, so for example, strict air pollution levels do not lead to facility remodeling that increases effluent discharges. Other goals may include reducing administrative requirements for enterprises, increasing permitting process transparency, and creating consistent environmental performance norms across sectors while ensuring that the BAT concept is applied.

119. **Russian context.** [The permitting process remains complex and fragmented; it burdens enterprises, particularly small- and medium-size enterprises (SMEs) with a high administrative load, and overstretches the capacity of understaffed and under-

resourced authorities. Separate permits are required for each medium under a system that is administered by multiple agencies at the federal and regional levels. Since requirements are often unattainable, it is common practice to “negotiate” temporary-but-renewable permits (renewal frequency may be annual), which offers little incentive to improve environmental performance, but creates potential for corruption.

120. It is recommended that Government simplify and consolidate permitting process by first focusing on major pollution sources, and establishing attainable requirements, permit conditions, and agreed schedules for improved performance. An integrated system should be phased in stages; the first stage could be to consolidate permits into a single “environmental license” for facilities; the next stage could be to introduce BAT-based performance standards, beginning with a pilot program in a single sector.

Enforcement

121. ***Institutions.*** The Czech Republic, Lithuania, and Poland have strong national environmental inspectorates that lead enforcement efforts. The Czech Republic has about 500 inspectors; Poland, about 2500; Ukraine, about 3000. Lithuania’s 350 inspectors carry out more than 11,500 inspection visits per year. In federal countries such as America, Germany, and Canada, regional and local governments have a strong enforcement role. In America, enforcement is a shared responsibility; the EPA provides overall coordination and intervenes if state enforcement is insufficient for more serious cases. In Germany and Canada, regional governments lead enforcement.

122. Efficient and effective enforcement requires a set of minimum, uniform requirements that align with enforcement resources. In the EU, a recommendation specifies overall minimum inspection requirements, and several pieces of legislation specify inspection requirements for EU Member States to implement, but enforcement is carried out at the national level. To manage their enforcement resources budget, both America and Poland have taken explicit steps to focus efforts on the worst polluters.

123. Inspections are not the only tool for enforcement. In the USA, the federal EPA and some regional governments have launched information campaigns on environmental requirements targeted to private industry to raise awareness and encourage compliance. The USA, EU, and more recently, Mexico, have used public participation and information, through publicly available pollutant release and transfer registers.

124. ***Sanctions for violations.*** Systems of sanctions, combined with enforcement actions, such as inspections, ensure compliance, prevent and deter violations, and punish violators.¹¹ In general, OECD countries use a combination of administrative, criminal, and civil penalties in response to violations. In general, OECD countries employ a “pyramid of enforcement,” although in detail their systems of sanctions differ due to their different legal traditions. When a violation is detected, first steps might be informal contacts or notices for the facility to move to compliance. If these are not effective, or if a violation is severe, enforcement authorities levy administrative and other penalties. In general, penalties increase for more serious and repeated violations.

125. Among the range of sanctions, many enforcement authorities, including the US EPA, can issue time-bound compliance orders for facilities to meet requirements, which is a useful tool if a facility must invest in substantial new pollution-control or process equipment. The

¹¹ OECD, 2008.

USA also has a system of strong criminal penalties that can be used in cases of clear negligence, but facilities can also “self-report” violations in exchange for reduced penalties, an approach that works well in combination with a system of inspection and enforcement.

126. Some sanctions are used because authorities lack recourse to more effective instruments; for example, in India, pollution control boards can take violators to court, but the judicial system is slow and inefficient. Instead, in China and India, environmental authorities can simply cut the water or power supply to noncompliant facilities, or even close them. In most OECD countries, the court systems function efficiently, so violators can be prosecuted rapidly; as a result, temporary or permanent facility closures are rarely necessary and authorities require a court order to carry such extreme sanctions (OECD, 2005b, 2008) .

127. *Russian context.* Prior to 1999, capacity and coverage of environmental inspection were major strengths of the Russian EMS, since then, they have been largely degraded and organizationally fragmented. Now, compliance verification is sporadic and uneven and unless the situation is remedied, this downward trend will undermine the effectiveness of any EMS reforms. Attempts to enforce compliance increasingly resort to using the legal system, which is, however, more costly, time-consuming and less effective. It is recommended that Russia move immediately to provide sufficient resources to strengthen inspectorate capacity and authority, particularly at the regional level.

Economic Instruments

128. Comparator countries in this study have used a broad range of economic instruments for environmental management. New EU members such as the Czech Republic, Lithuania, and Poland, have comprehensive pollution fee systems that finance environmental funds; China also collects pollution fees. These economic instruments are primarily revenue-producing. In contrast, Sweden has introduced incentives to reduce emissions in the form of environmental taxes, notably on SO_x emissions from industrial facilities. Emissions cap-and-trade systems have been used widely in the USA for air emissions of NO_x and SO_x from large power plants, and in the EU for CO₂ emissions. Several American states and Canadian provinces are considering the use of CO₂ cap-and-trade systems, and British Columbia, a Canadian province, is introducing a carbon tax.

129. *Russian context.* Principal among Russian economic instruments for environmental management are pollution fees for emissions and user fees for natural resources; revenues that are earmarked for environmental performance improvement. So far, neither instrument is an effective market-based incentive for pollution reduction because fees are set too low to be a deterrent and administration is inefficient. However, pollution fees could be established at a level that discouraged poor performance and tradeoffs could be provided to adopt BAT-based standards. Among promising economic mechanisms are internal emission-trading procedures based on emissions limits for priority pollutants and/or greenhouse gases to provide incentives for large enterprises to improve environmental performance.

Environmental expenditures

130. Environmental expenditure levels vary among comparator countries, due to many factors, including policy choices to address priority environmental challenges.¹² A general trend among economies-in-transition countries, such as Mexico and some new EU states, is a process of developing effective EMSs with ratios of expenditures to GDP that exceed those

¹² Data was not available for all countries.

of high-income countries with more mature EMSs. In the Czech Republic, expenditure on environmental investments reached about two percent of GDP in the early part of this decade, as the country invested heavily to implement the EU environmental *acquis*.¹³ Several case-study countries, including the Czech Republic, Lithuania, and Poland, have environmental fund systems that provide dedicated financing for environmental performance improvements, although their small scale may limited their effectiveness.

131. **Russian context.** Russian environmental expenditures are generally lower, as a portion of GDP, than expenditures in other economies in transition countries that are undergoing rapid industrial modernization while improving environmental performance. However if Russia wants to sustain economic growth, improve its declining competitiveness, modernize its aging industrial technology, and reduce its high pollution intensity, the Government will have to consider significant increases in environmental expenditures in the public and private sector, to sustain growth, particularly the industrial sector. Substantial public resources should be allocated for modernizing and strengthening the country's EMSs.

Public Information and Participation

132. Generally, all OECD countries and an increasing number of developing countries and economies in transition have embedded public information and participation in decision-making into their environmental polices and EMSs. All the EU countries reviewed and most major CIS states, except Russia, have signed the Aarhus Convention, which guarantees the public right to environmental information, participation in environmental decision making, and access to justice in environmental matters. In Canada, India, and Mexico, public information and participation are important elements of environmental policy and mechanisms for implementation are built into their legislative and regulatory frameworks, and into elements of the EMSs.

133. **Russian context.** The Russian EMS nominally provides for public information and participation but their application and effectiveness are limited and weak, putting Russia well behind international trends. In the future, rising economic status and interest in quality-of-life values will expand public demand for a voice and inclusion in environmental decision-making and EMS reforms and modernization will need accommodate public participation.

134. It is recommended that Russia become a signatory to the Aarhus Convention, and that Government undertake public consultations to help prepare and strengthen the EMS, especially revisions to regulating and permitting systems, EIA implementation, and the like.

3.2. Specific features of environmental management systems in some countries of Eastern Europe, Caucasus and Central Asia (EECCA)

135. To understand the status, development trends and options for the Russian EMS, this study examined systems in leading developed and developing countries, and in Eastern Europe, Caucasus and Central Asia (EECCA) countries with systems similar to Russia's.

136. A recent review¹⁴ highlighted the following common challenges for EECCA countries, challenges that generally apply to the Russian EMS. Therefore EECCA countries' experiences in EMS modernization and reform could benefit Russia;

¹³ Spending was also high in the early 1990s, to address high levels of air pollution from industry.

¹⁴ Environmental policies and EMSs in EECCA countries are regularly reviewed by the Task Force for the Implementation of the Environmental Action Program for the Central and Eastern Europe (EAP Task Force). A recent review was prepared as a basis for discussion at the Conference of EECCA Environment Ministers and their Partners (OECD, 2003).

- Persistence of inefficient production structures;
- Extensive, deteriorated environmental infrastructure that is expensive to operate;
- Unenforceable regulations;
- Enforcement systems focused on punitive rather than remedial actions;
- Culture of top-down environmental management;
- Limited access to wider international experience on environmental management;
- Low priority of environmental issues on the political agenda.

Environmental authorities still focus on enforcing flawed laws and regulations, rather than achieving well-defined targets for protecting human health and environment.¹⁵ However, one of the major lessons from EECCA countries would be that EMS reform is a very serious and long-term undertaking requiring substantial preparation. For example, the experience of Ukraine shows that it takes many years to introduce a system of integrated permits.

137. During the late 1990's and early 2000's, in EECCA countries and in Russia, environmental agencies were reorganized multiple times and responsibilities for environmental protection and natural resource management were redistributed (see Box 3.2). However, restructuring in Ukraine and Kazakhstan led to reestablishing independent environmental ministries that do not include natural resource management, unlike the outcome of Russian reforms.

Box 3.2. Reorganization of Environmental Institutions in Ukraine and Kazakhstan

In Ukraine in February 2002, a new Ministry of Ecology and Natural Resources was established by merging several existing agencies: the Ministry of Environmental Protection and Nuclear Security; the Committee for Geology and the Use of Subsurface Resources; the Committee for Hydrometeorology; the State Nuclear Regulation Administration; the Main Department for Geodesy; Cartography and Cadastre; and the State Commission for Testing and Registration of Plant Protective Agents and Growth Regulators and Fertilizers.

In September 2003, responsibility for environmental protection and natural resource management was reassigned when the Ministry of Ecology and Natural Resources became the Ministry of Environmental Protection and the separate State Committee for Natural Resources.¹⁶ Strong environmental inspection ensuring environmental monitoring continued to operate despite the reorganizations.

In October 1997, Kazakhstan abolished the Ministry of Ecology and Biological Resources and the Ministry of Energy and Natural Resources; their responsibilities were transferred to a newly-established Ministry of Ecology and Natural Resources. In October 1999, the Ministry of Ecology and Natural Resources was reorganized into the Ministry of Natural Resources and Environmental Protection (MNREP), which had a wide range of functions in forestry, fishery, hunting, and water management that had been performed by the Ministry of Agriculture. As a result, by early 2000 the MNREP included four Committees with responsibility for: Forestry, Fishery and Hunting; Water Management, Environment, and Geology and Subsurface Protection. In December 2000, MNREP was restructured again; responsibility for geology and subsurface protection was transferred to the new Ministry of Energy and Mineral Resources. In 2002, the MNREP was renamed Ministry of Environmental Protection (MEP).

In October 2005, the Kazakhstan government undertook further reforms and established the Committee for Environmental Control under the MEP, thereby reinstating a government agency to assume overall responsibility for environmental management.¹⁷ In early 2008, the Committee for Environmental Regulation and Control was established under the MEP with eight regional environmental departments reporting directly and accountable to the national Committee. Major Committee functions included environmental regulation and public environmental control, with regional agencies providing for implementation of environmental policy.

Specific Features of EMS in Ukraine

¹⁵ OECD, 2005b

¹⁶ Official website of the Ukrainian Ministry of Environmental Protection: http://www.kmu.gov.ua/control/ru/publish/article?art_id=72206&cat_id=71998.

¹⁷ Official website of the Kazakhstan Ministry of Environment: <http://www.nature.kz/ministerstvo/min1.php>

138. During the 1990s, Ukraine rapidly developed its environmental legislation; although the process has since slowed, in general, the legislation is comprehensive, comprising about 200 laws and regulations, some of which are complicated and inconsistent.

139. The Ukrainian EMS is special in its orientation toward convergence and harmonization of environmental legislation with EU regulations. The Ministry of Environmental Protection (MEP) adopted this direction several years ago, a huge and costly challenge that would require about US\$1.0 billion to complete (UN ECE Committee on Environmental Policy, 2007). A key element of harmonization is introducing a system of integrated permits for emissions, discharges, and waste disposal, based on technological regulations using BAT in compliance with IPPC Directive 96/61/EC (integrated pollution prevention and control).

140. The reform process is underway, and MEP is phasing in adjustments to improve the regulatory system. Recently, the MEP Air Protection Department has amended implementing regulations several times to streamline the air emissions permitting process and introduce elements of BAT-based regulation. The MEP has actively supported several international technical assistance projects designed to prepare the implementation of integrated permitting. Since 2002, projects carried out with EU and World Bank funding have focused on analyzing the regulatory gap between Ukrainian and EU permitting systems and the potential for BAT implementation in selected industrial sectors in Ukraine (see Box 3.3).

Box 3.3. Arrangements for the Introduction of Integrated Permits in the Ukraine

Since 2002, Government has implemented several policy initiatives and activities in support of the introduction of integrated permits. In early 2003, an Interagency Working Group on Integrated Permits was established under MEP auspices. During 2002-03, a detailed comparison of legislation on the permitting systems in Ukraine and EC, with preliminary gap identification, was undertaken with technical assistance from TACIS/EU and the World Bank. The Bank project laid the groundwork to develop draft pilot permit applications for three industrial installations (plants for heat generation, an accumulator, and a coke-chemical operation). The project also recommended the scope of application and institutional arrangements for an integrated permitting system. Projects implemented since 2002 with EU and World Bank support have emphasized analysis of gaps between the Ukrainian and EC permitting systems, and opportunities for BAT implementation in several industries.

During 2005-06, an OECD case study (OECD, 2006a) analyzed conditions and made recommendations for phased introduction of an integrated environmental permitting system for specific manufacturing sectors. The case study was conceptually based on the Integrated Environmental Permitting Guidelines for EECCA countries developed by the EAP Task Force Secretariat; the study showed that design of an integrated permitting system should be based on a determination of the scope of regulated activities/sectors. About 2,700 facilities could fall under the integrated permitting regime, which accounts for about 15 percent of all enterprises currently regulated under the emissions permitting system. The proposed integrated permitting system has been broadened beyond the scope of application of the IPPC Directive to include the mining industry, due to its high potential as a polluter. The OECD study estimate for the preparatory period of a permitting system phase-in was a maximum of five years, following a government decision to implement integrated permitting; another ten years would be required to complete the phase-in.

141. Despite MEP's early preparatory steps, serious impediments remain for the EMS reform process. Primary among these is weak high-level political support for environmental regulatory reforms, because environmental management is a low priority for Government compared with economic and social issues. Second, Ukraine's environmental policy priorities are mired in ambiguity and endless discussions within the MEP and with other ministries.

Third, Government appears to fear the proposed changes, due to lack of understanding the new system and its cost/ benefits, and entrenched bureaucratic interests¹⁸.

¹⁸ OECD. 2006a

142. Ukrainian industries' poor financial condition creates significant potential problems that will hamper investments necessary to implement BAT, and acquire resources and trained staff to administer the new permitting system. As of 2004, Ukraine's 27 regions had only 130 permitting officers responsible for issuing permits to about 15,000 facilities (OECD, 2006a). Of these officers, 41 percent were responsible air emissions permits; 37 percent for wastewater permits, and 22 percent for waste regulation. On average, one officer handles 115 facilities. By contrast, in the Czech Republic, one environmental permitting officer at a regional authority is responsible for an average of 25 facilities.

143. Among Ukraine EMS strengths is guaranteed public access to environmental information and public participation in decision-making on environmental matters. Ukraine has impressive achievements in environmental education; primary and secondary education reforms introduced environmental education programs and standards. Ecology is now a mandatory discipline at all higher-education institutions, and several new environmental training programs have been developed. State Education Standards and a mandatory curriculum for environmental specialists have been approved. The Ministries of Education and Environmental Protection cooperate to promote environmental education at technical schools, universities, and other higher educational institutions.

Specific Features of EMS in Kazakhstan

144. Kazakhstan has declared that sustainable development is a national priority. In 2006, the Concept Paper on the Transition to Sustainable Development for 2004-2024 (CTSD) was adopted, which includes long-term plans, quantitative targets, and monitoring indicators. Institutions were established to enable implementation, including a National Council for Sustainable Development. The task is to balance environmental, social, and economic objectives without eroding international competitiveness; Kazakhstan aspires to become one of the world's top 50 competitive countries by 2012.

145. Kazakhstan's Environmental Code, adopted in 2007, is another major achievement; it integrated key environmental laws and regulations, included commitments under international environmental conventions; extended permit validity periods from one year to three or five years; introduced BAT-based integrated environmental permits, and differentiated regulation of small- and medium-size enterprise performance; and increased the status of inspections and enforcement agencies. In 2008, another significant step was reducing the number of pollutants included in the system of pollution fees, although the list remains much longer than that of OECD countries.

146. However, the 2007 UN ECE Review of Environmental Performance for Kazakhstan noted that efforts to achieve sustainable development are not fully consistent with the initial intentions; the Concept fails to provide instruments for an inter-sectoral approach; environmental concerns are still not integrated into management of energy, transport, or agricultural sectors; and sector-specific sustainable development programs and action plans have initiated in only a few areas.¹⁹

3.3. Major Characteristics of the Russian EMS as Compared to the International Practice

147. This review confirms that no universal solutions exist for establishing a national EMS and that countries apply a variety of approaches to implement efficient environmental

¹⁹ UN ECE Committee on Environmental Policy, 2007.

policies. It is recommended that the MNR of Russia, and other Russian government agencies involved in the preparation and implementation of large-scale EMS changes, would review and draw upon international experiences in EMS modernization and reforms.

148. As discussed earlier, the problems facing Russian EMS are common to most EECCA countries, so it is heartening to see that some of these countries have made significant progress in modernizing their environmental policy and EMS. In particular, Ukraine's preparations to introduce integrated permits and its system of environmental education and public information provide useful examples. Similarly noteworthy are Kazakhstan's approaches to policy elaboration and institutional frameworks for transition to sustainable development, and its adoption of an Environmental Code and phasing in of streamlined environmental regulation and permitting practices.

149. As it can be seen from the overview national EMS provided in section 3.1 major deviations from international practice of the Russian EMS include the following:

In policy setting and institutional development:

- Ongoing trend toward major downgrading of environmental policy and institutions;
- Weak and poorly coordinated environmental monitoring;
- Limited understanding of environmental issues/priorities;
- Ineffective instruments of environmental policy;
- No system or process for environmental priority-setting, which leads to...
- No environmental objectives and indicators, or linkages between them, such as monitorable environmental indicators for main economic sectors and regions; and
- Unclear responsibilities among federal, regional, and municipal authorities and institutions.

In instruments of environmental policy:

- Excessive and sometimes unenforceable environmental standards;
- Permitting process based on often strict ambient maximum allowable concentrations and "uniform" enforcement applied to all facilities;
- Inadequate environmental safeguard tools (State Environmental Review and EIA), weak environmental and social protection;
- Lack of screening and scoping in State Environmental Review and EIA;
- Limited and ineffective application of economic instruments;
- Lack of instruments and targeted programs for national environmental priorities; and
- Weak information disclosure and public participation.

150. To remain competitive, Russia must become more proactive on environmental quality. Russia's narrow economic base and dependence on natural resources extraction is an unsustainable development path with high social and economic costs; these may be compounded by non-tariff barriers for Russian exports and a loss of credibility in a global marketplace that values the environment.

151. International experience demonstrates that investments to improve environmental policy and institutions and provide incentives to modernize industry can halt

environmental degradation and begin to reverse it. Russia's environmental history and continuing reliance on resource extraction and heavy industrial sectors now make this investment a virtual necessity.

4. OVERVIEW OF CONDITIONS AND DIRECTIONS OF EMS MODERNIZATION IN RUSSIA

152. The existing Russian EMS lags OECD countries, major developing countries and some CIS countries. This study prepared generic recommendations for potential EMS improvements, based on international experience and proposals. The proposals for reforms presented in Section 4.1 below have been discussed with Russian experts and government representatives at three workshops held in June and October 2008.

4.1. Recommendations for improving the Russian EMS

153. Reforming Russia's EMS and aligning it with international practice is a long-term process that requires systematic planning anchored in sound and sustained policy direction. However, some shorter-term reform initiatives on priority components in the EMS and the supporting institutional structure should be addressed in parallel and coordinated with the broader policy process. The recently consolidated ministry for environment and natural resource management could be a useful structure in which to develop this process. The following recommendations are for the near term.

Begin with Environmental Policy and Planning

154. *Develop a national environmental policy or broader sustainable development strategy and a planning process to support it.* Government may delegate overall responsibility for developing an environmental policy to MNRE, who will draw on expertise from representatives of other federal agencies, regional environmental authorities, civil society (Public Chamber, NGOs) and the private sector. The MNRE could establish and formalize a high-level environmental policy planning process within Government that would be institutionally sustainable. This planning process is critical to provide continuity, retain institutional memory, and build sustained federal-level capacity to oversee long-term reform and modernization the country's EMS.

155. The national environmental policy should establish national environmental priorities, and be supported by an implementation strategy to guide EMS organization and operation at a detailed technical level, and mandate to reform and modernize the EMS. The effectiveness and credibility of the policy and strategy will require a set of concise but comprehensive environmental policy objectives to be achieved and monitorable indicators to measure implementation progress.

156. The environmental policy development and planning process must be positioned within the institutional structure so that it can operate efficiently and effectively. It is recommended that Russia consider establishing a dedicated senior-level unit or task force in MNRE, with sufficient resources and expertise to support it. This unit could have primary responsibility for developing the policy and planning documents outlined above, and would be the focal point for inputs and consultations, including with the ministries, federal and regional administrations, the private sector, and civil society.

157. The MNRE might also consider linking formalized environmental policy and planning capacity to development of a broader National Sustainable Development Strategy that would integrate environmental and economic priorities within overall government activities. This initiative, with a similarly high-level institutional structure and capacity, could be located in a major economic ministry, or created as an interagency structure supported

directly by the environmental policy and planning unit within MNRE, a role common among Ministries of Environment in other countries. Formalizing national environmental policies and sustainable development strategies based on credible content and performance measurement is common among countries with effective EMSs.

Reform Environmental Legal and Regulatory Frameworks

158. *Simplify existing frameworks and select a few key areas of focus.* Formal legal and regulatory systems governing environmental protection must evolve to respond to emerging circumstances. However, in Russia, change has been the result of ad hoc interventions that have greatly undermined the basic legal and regulatory framework and rendered it ineffective, instead of a long-term well considered process. Therefore it is recommended to consider the following principles and concepts:

- Specify political and policy requirements to establish a sustainable long-term process to simplify the legal and regulatory system within the established framework.
- Utilize existing or pending legislative initiatives such as the Law on Technical Regulation as a vehicle to mandate and implement restructuring of the legal and regulatory framework to remove overlaps and redundancies, and create a relevant and practical network of technical regulation, standards, and norms. To align the Russian EMS with international practice it is recommended that the number and scope of standards and norms is based on environmental strategy priorities and institutional capacity to administer and enforce them.
- Establish checks and balances to introduce new and amended legislation and regulation and regularly confirm their currency and relevance. International good practice suggests mechanisms to achieve this could include: (i) a formal regulatory impact assessment for new and amended legislation and regulation, including an environmental cost/ benefit assessment; (ii) a review for coherence within the overall legal system; and (iii) mandatory periodic review, justification, and updating provisions in major legislation and regulatory documents.
- Provide a formal and transparent process of stakeholder consultation for new and amended legislation and regulation.

Stabilize and Streamline Institutional Structures

159. *First, complete the process of consolidating environmental responsibilities and optimize resources and capacity.* For more than a decade, the institution that develops and administers the Russian EMS has been undergoing constant restructuring, which has eroded performance and created a patchwork of responsibilities among federal- and regional-levels agencies, frequently linked to unfunded or underfunded mandates. As a result, the EMS has been characterized as inefficient with significant coverage gaps and overlaps and insufficient capacity to improve environmental performance. Therefore it is recommended to create units with clear mandates and responsibilities, and provide for strong functional coordination among them at all levels.

160. *Second, the EMS should decentralize so it can operate as close to its clients as possible.* The principle is to create a single EMS focal point to ensure consistent application and minimize the regulatory burden on industry, either through regional or federal agency branch offices, but a single federal-level administrative unit should retain overall control and authority of responsibilities for national-level policy, standards, environmental performance and monitoring, information consolidation, and trans-boundary impacts. Government could establish regional branches to decentralize authority, if clear responsibilities and communication channels exist between levels. Since the lack of an effective federal system

has led regional administrations to develop strong EMS capabilities, MNRE might consider a formal agreement to transfer devolve more responsibilities, accompanied by periodic reviews.

161. ***Third, ensure sufficient resources are provided—budget, staff, and infrastructure.*** The EMS should have sufficient resources to attract and retain qualified staff. Despite a decade of staff migrations to the private sector, substantial capacity remains, particularly at the regional level, and should be developed and expanded through an EMS staffing plan that includes training and professional development. Overall, budget and staffing allocations should match responsibilities, particularly where poorer regional administrations cannot fill the gap.

Modernize Key Areas of the EMS

162. Modernizing Russia's EMS to a level comparable to international good practice and standards is a long-term project; the following are key recommendations.

163. ***Establish an effective and practical environmental assessment process.*** There is widespread agreement that drastically reduced scope of legislated EA process (SER/OVOS) addressed inefficiency and excessive regulatory burden but has been rendered ineffective. Government should review this system and restore its coverage to all new and expanded development proposals and facilities that pose significant environmental risks. An efficient, effective, and credible system would require a screening process, established mandatory and excluded development types for a formal application of EIA, guidance on performing EIAs that conform to international good practice; a role for civil society in the review process; and an effective linkage to subsequent permitting through enforceable conditions resulting from the State Environmental Expertise.

164. ***Streamline the emissions permitting system.*** First, the process should adopt a “one-window” approach to administration. Permits should focus more on priority pollutants and on larger polluting enterprises and facilities, and less on small and medium enterprises (SMEs). It is also recommended that Russia phase in integrated permitting or a facility-specific environmental licensing model and use BAT-based standards considered international best practice, and likely a key indicator of EMS viability in international comparisons.

165. ***Phase in BAT standards and guidelines that are “fit for purpose” and can be benchmarked against international standards.*** Since sector and industrial process-specific standards, particularly those established in the EU, but also by international organizations, will be used to assess the environmental integrity of Russian exports, adopting these will be efficient. Streamlining the permitting system is linked to upgrading emission/discharge standards to realistic levels; providing attainable compliance incentives and flexibility to adapt to local ambient conditions (particularly if these are highly unsatisfactory); and selecting a few priority pollutants that can be monitored effectively.

166. ***Reconstruct the national monitoring system so ambient pollutants measured and routinely monitored substances are critical indicators of environmental and human health.*** These should include fine particulates (PM₁₀, PM_{2.5}) that are not now monitored by national monitoring network. Ambient air and water pollution levels are known to be unacceptable in many areas, but the system of environmental monitoring and the ambient environmental standards against which results are measured are inefficient, ineffective, and obsolete. In addition, a more effective process is required for data collection, analysis, reporting, and dissemination. Ambient standards should address core pollutants with realistic levels, benchmarked against international standards.

167. ***Address priority environmental issues with targeted environmental programs.*** Most developed countries have specialized programs to address acute, nationwide, or important regional issues such as phasing out toxic pollutants (e.g., lead, mercury, POPs, dioxins), fighting acidification, eutrophication, or restoring ecosystems of significant water bodies (e.g., Rhine or Great Lakes). Priority programs have almost ceased to exist in Russia due to limited national capacity; consider reviewing environmental programs that existed in the 1990s to align them with current priorities, and develop national programs to fit present institutions and resources.

Address Prior Environmental Liabilities

168. ***Sustain government response to cleaning up prior environmental liabilities (PEL).*** Russia needs to clarify legal responsibility for PEL, assume a public sector finance role, establish domestic capacity and standards for PEL assessment and remediation, facilitate “brown-field” private-public partnerships, and begin pilot demonstration projects on identified sites. This situation is urgent not only because Russia may have the world’s largest inventory of prior environmental liabilities (PEL) such as contaminated sites and infrastructure, but also because the country is about 20 years behind other industrialized nations in systematically addressing these legacies, a fact that has been documented in a World Bank report²⁰ and recognized in a recent government initiative. Addressing PEL is a priority because the contaminated sites pose a large and growing threat to the environment, human health, and economic growth.

Integrate Public Information and Participation into EMS

169. ***Boost international environmental credibility by increasing transparency, including public disclosure of environmental information and public participation in decision-making.*** Rising economic status and interest in quality-of-life issues will inevitably expand public demand for government accountability with regard to the environment. Specific recommendations include the following:

- Incorporate mechanisms in formal public policy for disclosure of environmental information and meaningful public participation in forming environmental policy;
- Incorporate provisions for public information and participation in the EMS, particularly for legislative/regulatory development and review, the EIA and permitting process, and access to environmental performance information, specifically through development of a publicly assessable Pollutant Release and Transfer Registry, or equivalent;
- Ratify the UN ECE Aarhus Convention to align with other CIS neighboring countries;
- Recognize the benefits of public consultation and participation, including with government critics.

Introduce Effective Economic Instruments

170. ***Gradually phase in more effective integrated economic instruments to replace the pollution fee system.*** Examples include phased-in substantive direct taxation on emission of priority pollutants; facility-specific compliance agreements that eliminate pollution fees for a specified period in exchange for achieving BAT emission levels; product stewardship taxation that incorporates environmental costs into production costs and sale prices; and use of targeted funds and other financing tools to stimulate public/ private partnerships to implement cleaner production and brown field urban development. Strengthen and enforce the system of fines for environmental violations as a disincentive to pollute.

²⁰ *Past Environmental Liabilities in the Russian Federation*, World Bank, 2007.

Establish and Maintain International Credibility

171. *Embark on the long-term process of gaining international recognition for environmental achievements.* Russia has the financial resources, economic leverage, and human capital to overcome its environmental problems, repair its image as environmentally backward country, and gain international standing on environmental matters, which will improve credibility on the international stage and among the G-8, and improve competitiveness in the global economy. Clearly, this will require substantial and demonstrable progress. Immediate actions could include the following:

- Signal the beginning of a new era of environmental commitment by ratifying outstanding international and regional conventions and agreements, and demonstrating behavior change, including timely and proactive efforts to meet environmental obligations using national resources;
- Establish a credible EMS, including a transparent process of benchmarking Russia's standards and performance against international standards.

172. The huge environmental agenda in Russia will require strong and sustained political commitment, effective environmental policy, regulations, and institutions, and broad public support. Recent positive trends at the highest political level suggest there is now a window of opportunity to embark on this challenging agenda. The World Bank stands ready to provide assistance to the Russian government to improve its existing environmental management system based on international good practice and tailored to the Russian context.

4.2. Review of EMS modification proposed by the Russian Government.

173. Environmental issues acquired high visibility during the 2008 presidential election campaign and Russia's political leadership has recognized the need for improvements in its EMS; a special 2008 meeting of the Security Council set the task of, "...providing the prerequisites to base further growth of the Russian economy on high environmental standards," (Rossijskaya Gazeta, 2008).

174. During the reorganization of the Government of Russia in May 2008, Rostekhnadzor and RosHydromet, which is responsible for environmental monitoring, were placed under the MNR, renamed the Ministry of Natural Resources and Ecology. Rosprirodnadzor and Rostekhnadzor functions were redistributed, but the establishment of an independent environmental protection agency, eagerly anticipated by environmental professionals and activists, has not yet occurred. Environmental protection agencies' staffing has not yet been increased, nor any additional financial resources provided for technical or scientific support.

175. Nevertheless, Government intention to modernize and reform the EMS was strongly endorsed by President D. A. Medvedev's Decree of June 4, 2008, "On Measures to Improve the Energy and Environmental Efficiency of the Russian Economy," (Presidential Decree № 889).

Box 4.1. President D. Medvedev's statements at the Meeting on Improving Environmental and Energy Efficiency in the Russian Economy, Moscow, Kremlin, June 3, 2008

"According to the data currently available, 40 million of our citizens live in substandard environmental conditions. Of these, one million are forced to live in areas with dangerous levels of pollution. Naturally, this situation does not encourage the introduction of environmental and resource-saving technologies, and therefore outdated technologies are still in place, which is a sign of backwardness and waste, things that unfortunately are found everywhere. And in the final analysis, as I have already said, this affects our international competitiveness."

"First, we need to prepare a fully-fledged system of standards for allowable impact on the environment. Such a bill is now being prepared, and I expect that by 1 October 2009 it will be introduced in the State Duma. Secondly, we must prepare a differentiated system of standards for the quality of water, air and soil for each territory, differentiated according to current conditions in particular regions of Russia. Thirdly, we must promote environmentally sound technologies in a variety of ways. Part of the discussions in Chelyabinsk involved provisions whereby a small business could declare compliance with environmental requirements, rather than go through the excessive and burdensome process of verification. It is simply impossible for small businesses to cope because this process is accompanied by substantial money extractions."

"I have to say at least a word about the need to review the system of environmental responsibility. In this regard we have to think about how to do this properly. In some cases we can strengthen the rules; in others, if we believe that liability rules have become detached from reality, we can fix them. As everyone knows, the most important thing about judicial responsibilities is their inevitability."

176. At end-2008, the MNRE proposed measures to improve the EMS; subjective environmental protection regulations would be replaced by unified regulatory principles and adoption of BAT; temporary norms for emissions and discharges would be abolished, except where limited by Security Council decisions or a Presidential decree. These proposals were formulated in a condensed form by the Minister of Natural Resources and Ecology during "Government Hour" at the State Duma, December 3, 2008, which laid out a two-stage approach: during 2009-10, Government would undertake short-term EMS modernization; and during 2010-12, undertake longer-term reforms of existing environmental regulations.

177. During 2009-10, MNRE envisages modernization of existing environmental protection legislation in the following three directions.

Modify state regulation system of environmental protection.

- Introduce integrated environmental permits; include a simplified procedure for SMEs and reduce the number of regulated chemical substances and compounds;
- Transition to a declarative system of compliance with environmental regulations for businesses that have insignificant impact on the environment; and
- Increase charges for environmental damage; use the court system to prosecute heavy polluters and impose fines substantial enough to create a deterrent effect.

Introduce modern management methods.

- Introduce a system of voluntary and mandatory environmental insurance, certification, and audits. The MNR proposal suggests radical enhancement of the role of environmental auditors, whose activities would be controlled and managed by a self-regulating institution.
- Allow SMEs that have insignificant impact on the environment to submit declarations drawn up by environmental auditors.

Provide economic incentives for enterprises to apply new technologies.

- Adopt a system of tax and non-tax incentives for enterprises to upgrade treatment facilities, employ alternative energy sources, and construct new facilities for processing industrial and municipal wastes. The MNR proposal notes the potential for

introducing regional taxation of products that damage the environment, such as disposable polymer ware, fluorescent tubes, and so forth.

178. The MNRE has already submitted a draft resolution to Government that would eliminate temporary limits on wastewater discharge and phase in higher charges for inadequately treated wastewater discharge. The draft resolution also proposes a six-fold increase in charges for untreated wastewater discharge by 2014; and sets out a plan to restore the role of the State Environmental Review (Expertise) and enhance EIAs' role in the planning stage of economic activities, since EIAs are the most effective instruments to prevent environmentally detrimental developments (see Box 4.2).

Box 4.2. Excerpts from presentation by the RF Minister of Natural Resources and Environment during the "Government Hour" at State Duma, December 3, 2008

"Regrettably, upon adoption in 2006 of amendments to the Urban Planning Code, the institution of the State Environmental Expertise in Russia was practically annihilated.

"Currently, environmental expertise is conducted only within protected natural areas, in the internal marine basins, and at the continental shelf.

"Meantime, the environmental impact assessment (EIA), undertaken within the unified principal state expertise, is only voluntary and does not affect the course of any project implementation.

"We believe that the segment of environmental expertise, integrated into the urban planning expertise, should be independent and have a determinative influence on final decisions adopted."

179. Upgrade the EMS is an initial step to build a system of economic incentives for polluters to reduce discharges and emissions, primarily through sanctions. The second step would be to phase in a BAT-based system of environmental regulations, which MNR estimates would take four to five years in two stages: (a) Stage one would develop normative and regulatory bases (2008-10), and (b) Stage two would produce a register of BATs and implement the new system (2010-12).

180. The MNR notes that BATs available models mitigate environmental impacts of more than six thousand categories of products, including those with the strongest negative impacts, and will require adaptation to the Russian context. International experience with BATs suggests the time line proposed for these reforms is overly optimistic, considering the state of Russian environmental protection institutions and the magnitude of implementation. The OECD estimates that even the preparatory stage of implementing Ukraine's integrated environmental permitting system may take to five years, and full-scale transition may take up to fifteen years (OECD, 2006a). Similarly, OECD believes that even for Kyrgyzstan, which has only 4000 regulated industrial installations, the transition to integrated permitting will take between 10 and 15 years (OECD, 2006b).

181. The MNR also plans a 10 percent reduction of limiting values for permissible atmospheric emissions, discharges to water bodies and solid waste accumulation by 2010, in comparison to 2007 levels, and a 20 percent reduction by 2020.

182. New environmental policies will be institutionally based on an upgraded EMS. These policies are designed to meet national development priorities to 2020 and the new post-industrial level of development of Russian society.²¹ Under CLTD 2020, support for economic environmental efficiency is not only a direction for business activity and economic policy, but also for innovative economic development, linked to improving resource

²¹ The need for significant modernization and reform of environmental policies and of the EMS was underscored in the high-level strategic document, *The Concept of Long-Term Social and Economic Development to 2020*, (CLTD 2020), approved by the Decision of the Government of the Russian Federation of November 17, 2008. CLTD 2020 includes a section entitled "Environmental Safety of the Economy and Human Ecology" that describes the directions of new policies.

consumption efficiency; CLTD 2020 envisages improving technological and environmental economic efficiency to reduce negative environmental impacts by a factor of 2 to 2.5 by 2020. In general, CLTD 2020 and MNR proposals for upgrading environmental policy align with current international trends and the recommendations of this study,²² and if successfully implemented, would improve Russia's EMS effectiveness and performance.

183. The Concept (CLTD 2020, see footnote 21) highlights the following four directions to align national economic development, environmental protection, and environmental standards that contribute to human health and quality of life.

- **Industrial environment.** Phase in reduction of environmental impacts from all anthropogenic sources to achieve three to seven-fold reductions, depending on the sector. Implement new environmental impact regulations and taxation policy incentives for upgrading to BAT-based production, to encourage adoption of modern technologies.
- **Human environment.** Establish minimum quality standards for all media to meet accepted levels of human health and safety. Prescribe acceptable norms for anthropogenic loads; establish quantitative and qualitative benchmarks for local environmental programs; plan for phased mitigation measures for negative impacts by business entities. The target benchmarks for 2020 are: (a) five-fold reduction in the number of cities with 'high' or 'extremely high' pollution levels; and (b) minimum four-fold reduction in the number of people living in environmental conditions that consistently fail to meet minimum environmental quality standards in one or more media for specified extended time periods.
- **Environmental business.** Develop an effective new economic sector based on 'green' technologies, including general and specialized machine manufacturing, engineering and technology development, and environmental consulting. Benchmark targets will be a five-fold market growth in environmental development, goods and services, and expanding the sub-sector workforce from 30,000 to 300,000 positions.
- **Nature conservation.** Protect the natural environment and conserve biodiversity through a system of specially-protected territories, using new methods of territorial planning, land use, and capital construction that take account of existing environmental conditions. Target indicators will be increased consistency across the regional network of specially-protected natural reserves, increased bio-productivity of the natural systems to safe levels, and increased recovery of species diversity.

184. Most environmental specialists and experts agree²³ that a major impediment to the EMS reform program is the current state of environmental protection institutions, which are so understaffed and under-resourced that they cannot even fulfill the environmental protection functions under existing legislation, much less handle any additional responsibilities that will likely emerge during the reform process. Unfortunately, the publicly accessible documents do not clarify the Government of Russia's plans for improving environmental protection institutions' capacity, so little is known about this at present.

185. However, developing and strengthening these institutions will be a priority because, for example, proposed procedural changes in establishing charges and fines for adverse

²² Presented by the authors of this study in workshops in June and October, 2008; see Section 4.1.

²³ Environmental Performance Overviews of eight regions and other background studies and materials, prepared under the frame of this study

environmental impacts, and the proposed transition to court-enforced compensation payments for environmental damage will heavily overload the economic and legal departments at MNR headquarters and regional offices. These changes will require highly qualified staff capable of appearing in court to contest the claims of experts representing the polluting companies.

186. Estimating the level of financial resources needed to implement modernization and reform of the Russian EMS is difficult without more detailed plans and proposals, and could be the topic of another study. However, new EU member countries experiences show that the costs for a protracted program may be rather high. In the Czech Republic and other countries, for example, introducing basic legislation and EU environmental regulations was estimated to cost about two to three percent of national GDP (UNDP, 2007). In Bulgaria, estimated costs were as high as 11 percent of GDP²⁴.

4.3. Prerequisites for launching EMS reform

187. The deepening financial and economic crisis is likely to precipitate further declines in industrial production and investments, which begs the question of timing for intensifying the pace of EMS modernization and environmental policy reforms. It could be argued that anti-crisis measures to support the economy are more urgent for Government now, and the MNR-proposed measures for higher charges for environmental damage and the associated complex administration requirements may provoke objections from business and economic block ministries. But declining economic activity would decrease levels of environmental impact, which would lower the cost of penalties, reducing this disadvantage of EMS modernization. Prompt launch of preparatory actions, followed by implementation of a large-scale program to reform the EMS, would generate additional incentives for technology upgrades in industry and transport, laying the foundation for Russia's high-tech post-crisis economic growth.

188. To prepare and implement EMS the magnitude of modernization and reform proposed by Government will take many years. To stay on track, this prolonged process will require an overall guiding strategy document that sets forth the overall goals and objectives, and a step-by-step action plan for implementing each phase of crafting state environmental policy and environmental legislation, and strengthening environmental protection institutions. This strategic document should also set out mechanisms for implementing environmental policy, objectives of implementation, and the indicators to be used for monitoring and evaluation of results. The initial stage of drafting an *Action Plan for EMS Reform* should include (i) a broad discussion of principal alternatives in EMS modernization; (ii) economic and social assessments that examine potential impacts of reforms; (iii) estimates of resources required to implement the strategy; and (iv) risk assessments.

189. **Public and analytical support.** To develop an Action Plan for EMS Reform it is recommended that Government establish a high-level interagency working group and give it sufficient authority, resources, and staff to coordinate inputs, gather information, and undertake consultations with stakeholders from federal agencies, regional administrations, the private sector and civil society. Inputs from the territorial and municipal authorities, and the business and environmental communities are essential because the process of adopting new legislation and regulatory mechanisms will affect everyone, therefore, all their interests must be taken into consideration and balanced. Furthermore, transparency and public disclosure of the issues emerging during preparations for EMS reform is critical to informing public debate and debate among environmental professionals and experts. Therefore, a communications

²⁴ *Bulgaria: The Problem of Satisfying EU Ecological Directives*, World Bank, 2000.

strategy is also an essential component of the overall reform strategy, and should use the mass media to gradually build support and credibility for reforms.

190. The *Action Plan for EMS Reform* will need supplemental intellectual resources, drawn from contiguous fields of knowledge, efficient interagency cooperation, and close interaction with the Russian business community, environmental institutions, and other stakeholders. Dialogue with civil society may be conducted via existing bodies such as the Public Chamber, Public Council under the MNR of Russia, environmental committees of the Chamber of Commerce, the Russian Union of Industrialists and Entrepreneurs, and the newly established consulting mechanisms. The Commission on Environmental Policy and Protection of the Environment of the Public Chamber has proposed convening an Environmental Forum to collect inputs from stakeholders and build support for reforms, similar to the 2003 Social Forum supporting ratification of the Kyoto Protocol.

191. Current scientific, methodological, and analytical capacity in environmental issues available to the President of Russia and the Government of Russia is insufficient to take on the enormous task of developing the overall strategy for EMS modernization and reform. However, contributions from the Russian Academy of Sciences, MNR, Russian research and development (R&D) institutions and centers should be consolidated, including those entities involved in nature protection and management, and strategic social and economic development. Perhaps networking communities could be created to consolidate expertise that is now spread across universities, R&D institutes of RAS, agency institutions and centers, public organizations, and the private sector.

192. **Resources and institutional support.** Preparing and implementing a program of EMS modernization and reform will require supplemental financial resources and dedicated staff to carry out research, draft regulations and methodologies, engage staff, train and retrain experts, and undertake procurement of hardware, software, and equipment. The deterioration of the Russian EMS during the last decade has resulted in a major staff shortage at the environmental control authorities at every level, while their responsibilities overstretch their available resources. Unfortunately, sources of adequate financial, methodological, and institutional support for EMS modernization have not yet been identified in any documents that are publicly available from MNR. Identifying resources is a prerequisite for launching and implementing reforms, particularly for managing a system of integrated BAT-based permits, which will require an institutional home, staff, and technical and financial resources. Five principal functions/authorities will be needed in the process.

193. Implementing a system of integrated BAT-based permits will require the following steps: (i) design and implement a national-level system of integrated permits; (ii) issue integrated permits; (iii) monitor adherence to permit standards and requirements; (iv) review appeals of permit decisions; and (v) build expertise and data support for the integrated permit system.

194. The MNR would play a key role in preparing a system of integrated permits, working closely with the Ministries of Agriculture, Economic Development, Energy, Industry and Trade, and representatives of state agencies, industrial associations, business communities, NGOs, and others. Government could consider founding a National BAT Center that would offer expertise and data support to state agencies and industries for BAT routines and technical advice; MNR could provide basic financing for the Center to undertake its publicly-mandated functions, and revenues from commercial activities and services could provide co-financing.

195. New EU member countries have found that pilot projects are the best way to introduce the benefits of integrated BAT-based permits to industry, regulatory authorities and other interested agencies that take part in permit issuance, and NGOs. Pilot project benefits are maximized when pilots are launched in all industries subject to regulation under the integrated permit system, creating potential to accumulate practical experience while testing routines to issue integrated permits, application permit forms, and BAT recommendations.

196. Implementing voluntary market-based mechanisms such as labeling or energy efficiency certification, requires a pool of well-trained, knowledgeable specialists both on both sides—the regulator and the regulated entities. Many processes, parameters, and indicators are complex to monitor and require technical and technological expertise; such expertise is likely available among consulting companies offering environmental and energy audits, EIAs, EMS, and environmental inventories, that would expand operations if the demand were increased. Lack of government capacity in this area is the major concern.

197. **Decentralizing the process of EMS modernization and reforms.** Eventually, the success of reforms will depend on the actions, competence, and adherence to the EMS modernization principles and processes, among territorial management bodies, and MNR departments and environmental authorities—the on-the-ground agents of the Russian Federation that carry out state environmental control.

198. Across the Russian Federation, reform-readiness levels vary considerably; therefore, a full-scale, centrally-directed, simultaneous roll-out of reforms across the whole country is inadvisable. Instead, an inventory of useful lessons learned in variable Russian conditions could be built by enabling each region to experiment in addressing its environmental priorities. The process of developing and testing new environmental regulations, instruments, and approaches will help determine the best balance between centralized uniform approaches and flexible regional-based approaches. Government may wish to consider faster and deeper reforms in pilot regions selected for strong commitment and readiness to initiate and implement reforms. Regional authorities could be delegated the right to define the content and pace of reforms so they can take the regional context into account; federal agencies would provide methodological and financial support.

199. Lessons learned from the economic experiment of 1989-92 that successfully introduced economic methods of environmental management (see Box 4.3) could be studied and applied. New elements of an EMS that were fine-tuned during that experiment were incorporated in legislation and remain in force.

Box 4.3. Lessons Learned from the experiment on improving economic mechanisms in environmental management in Russia (Natural resource management economics, 1994)

Introducing economic methods of environmental management was a key element in environmental policy and EMS reform undertaken during 1989-92; economic management methods were introduced in phases.

Phase I: 1989-90. Following a decision by the Russian Government, 38 republics, krajs, oblasts, and cities experimented with developing mechanisms to levy charges for environmental pollution and to develop nature-protection funds. To coordinate these activities, sum up results, and draft proposals for GosKomPrirody RSFSR (State Committee of Natural Resources), a Working Group was established that included scientists, environmental experts, and representatives from participating regions; Working Group meetings undertook regular reviews of progress and experiences gained were also shared in theoretical and practical conferences.

Phase II: 1991. Analysis of the results of the experiment provided a basis for developing unified country-wide methodological approaches, standards of charges for environmental pollution, and routines for collecting payments, all approved by the Decree of the RSFSR Council of Ministers of January 9, 1991.

Phase III: 1991-92. Methodological principles and provisions fine-tuned in the course of the economic experiment were consolidated in the Law of the Russian Federation, on, "Protection of the Environment" (December 1991). Legal provisions were elaborated in the regulatory document, "*Charges for Environmental Pollution, Disposal of Wastes, Other Detrimental Activities: Value Setting and Limiting Routines,*" approved by Decree of the Government of the Russian Federation, No 632 of August 28, 1992.

200. The principal task is to build a single EMS Center at either regional or territorial level to support coordinated functioning of the system and to rationalize the regulatory burden on industrial enterprises. Responsibility for these functions may be lodged with regional authorities and the territorial departments of the relevant federal agencies. Overall control and execution of state functions such as developing strategy and state standards, analyzing and monitoring results, analyzing data, and monitoring trans-boundary impacts, should be the responsibility of a single federal-level administrative structure. Government may decentralize its authority to the regional or territorial level, where a clear division of responsibilities and efficient mechanisms of interaction among all levels are secured. Lacking an efficient federal system, certain regional administrations (Subjects of the Federation) have built strong environmental protection agencies, so MNR may consider official agreements to delegate a wider scope of authority to them, envisaging periodic inspections. The principal criterion in delineating areas of authority should be the integrity of an EMS that guarantees efficient management of territorial environmental protection activities, not a guaranteed income stream for the respective budget.

201. Decentralizing EMS modernization and reform to pilot regions will achieve faster results and avoid short-term negative effects of the reform process in areas as yet unready for full-scale modernization.

4.4. Recommendations on developing international cooperation in environmental protection to support EMS reforms

202. Russia can benefit from the international lessons learned from the experiences of several new EU member states that have embarked on similar reforms, and some that have completed the process of reforming their national EMSs. Furthermore, Government can draw on the enormous body of experience in environmental protection amassed by international organizations such as UN system, the OECD, and the World Bank, among others. However, Russia should first express its readiness to promote international cooperation and define its priorities within the scope of such cooperation.

203. Environmental Performance Reviews (EPR) are among the most important independent assessments of national EMSs, and are crucial to improving national environmental management practices. The EPR scope includes a broad analysis of national environmental protection activities and facilitates mainstreaming of the environmental agenda in primary economic sectors. Typically, EPRs are based on independent analysis by international experts who provide an impartial review of national environmental issues.

204. Ministries of the environment and many national governments use EPRs during consultations and negotiations, and while drafting project proposals, strategies, and programs. The EPRs and their recommendations are valuable tools to improve environmental policies, upgrade existing practices to international standards and requirements, and create accountability for compliance with international requirements in policies implemented in various sectors of the economy.

205. In the countries of Eastern Europe, the Caucasus, Central Asia, and South Eastern Europe, EPRs were initiated by environment ministers during the Second Conference “Environment for Europe” in Lucerne, Switzerland, in 1993. Then, the UN ECE Committee on Environmental Policies decided that EPRs should be a part of its regular program, and several countries have already conducted two EPRs. Some OECD assessments conducted by the Department of Non-Member Countries, by its Special Working Group on Implementing the Action Program in Protection of the Environment, has benefited environmental policy development in these countries.

206. It is recommended that MNR of Russia study EPR materials from countries that have undertaken EMS modernization and reform, and consider a second EPR for Russia, which would provide an independent international assessment of the EMS and recommended actions. The first EPR was conducted in 1999 with OECD participation, and its recommendations are presented in Box 2.1.

207. Successful implementation of EMS reforms and modernization would enable Russia to establish and maintain a reputation for environmental protection. The country has the financial, economic, and human resources required but needs to demonstrate significant, highly visible progress in forming a reliable EMS, and national readiness to harmonize standards, indicators, and practices in environmental protection with international norms. One near-term step that Russia could take is to demonstrate adherence to key global and regional environmental protection conventions and agreements, and commit to implementing them, using the country’s own resources.

208. Russia enjoys the status of a world leader and is already a global donor after some years as a recipient of international help and technical assistance. Therefore, the Russian authorities may wish to revisit former mechanisms of cooperation in environmental protection (such as grants). Russia is in a position to become a participant and contributor to international programs and projects, and take advantage of the opportunity to access international knowledge and experience in EMS modernization.

209. Essential opportunities for mobilization of financial resources, knowledge and expertise in support of EMS modernization can be found in existing and new programs of IBRD, EBRD, IFC and other IFIs. For instance, the Russia Cleaner Production Program launched by the International Finance Corporation (Box 4.4) that could provide considerable support for preparation of an introduction of BAT in several important economic sectors.

Box 4.4. IFC: Russia Cleaner Production Program

The IFC Russia Cleaner Production Program (RCPP) is a five-year program designed to stimulate investment in cleaner production technologies and techniques in Russia. By promoting cleaner production practices the program will contribute to advancing economic and environmental performance of Russian industry.

RCPP will initially focus on six sectors: (i) machine manufacturing and foundries; (ii) chemical industry; (iii) agribusiness; (iv) wood processing; (v) sub-national (municipal) energy and water supply and consumption systems; and (vi) generic industrial cleaner-production technologies.

Expected results

By implementing cleaner production Russian industrial companies will: (i) reduce and prevent pollution; (ii) increase profitability; (iii) improve product quality and operational performance; and (iv) mitigate climate change through reduction of greenhouse gases.

The IFC approach

The Program consists of three components: information, advisory support, and investments.

Information

To raise awareness and appreciation of cleaner production and management techniques in Russian industry and among policymakers, the Program plans to: (i) conduct sectoral benchmarking and market studies; (ii) assess opportunities for introduction of cleaner production and best available technologies (BAT) at Russian companies; (iii) publish information materials on cleaner production; and (iv) conduct seminars for managers and technical specialists of companies and policy decision makers.

Advisory support

The Program supports cleaner production programs at partner companies. The advisory support package, for which IFC can cover up to 50 percent of direct costs, can include: (i) visits of IFC technical specialists to identify clean production opportunities; (ii) full-scale clean production audit or technical review by an independent team of consultants; (iii) coaching and advising during implementation of identified measures; (iv) final evaluation of the impact and results of clean production intervention.

Investments

IFC aims to facilitate over US\$250 million of dedicated financing for clean production investments either on IFC's account or via partner financial institutions. The program is supported with funds from Germany's Free State of Saxony, the Ministry of Employment and the Economy of Finland, the Agency for International Business and Cooperation of the Dutch Ministry of Economic Affairs, and IFC FMTAAS.

For more information about the Program please visit: www.ifc.org/rcpp

210. Generally speaking, the Bank assistance strategies should be separate from the analysis. Addressing past environmental liabilities (PEL) is another prospective area for Government cooperation with the World Bank. The study on PEL in the Russian Federation was undertaken by the Bank jointly with the Rostekhnadzor in 2007 (World Bank, 2007). The concept of the pilot federal project on Addressing Past Environmental Liability was developed by the Rostekhnadzor jointly with the Bank and approved by Government. Now the Ministry of Natural Resources and Ecology is a main institutional champion of the project. A principal Project objective will be to develop legal, institutional, and financial mechanisms to address PEL in the long-term. The Project's systematic approach aims to identify environmental and socio-economic problems and assess their scale; develop regulating instruments; implement practical operations on PEL abatement and brown-field clean-up (primarily on a pilot basis); monitor and evaluate results; and provide recommendations to improve the regulation process.

211. Energy Efficiency and Pollution Abatement Project is a new operation proposed by the Ministry of Economic Development for preparation jointly with the World Bank; primary objectives include: (i) facilitate institutional and regulatory development of energy efficiency sector in Russia; and (ii) prepare and finance pilot energy efficiency projects with high pollution abatement potential, as models for broader replication. The project concept is under development and submission to the Bank and the government was planned for May 2009.

212. Gaining a higher profile in environment-focused international cooperation may attract significant environment-oriented investments and serve as a catalyst for EMS modernization. As a starting point, the Russian Federation can claim the role of a global leader in following the principal commitments of the Kyoto Protocol, one of the few international agreements to

protect the environment. The Russian Federation commands a large national quota reserve in GHG emissions (estimated 4-5 billion tons CO₂-equiv for 2008-12), because emissions have dropped since 1990. This large national reserve in Russia's quota offers the opportunity for Russia to become a principal player in international emissions trading, under the Kyoto Protocol and to take advantage of the resulting proceeds of several billion Euros to support energy-efficient and resource-saving programs and projects.

213. As early as 2001, it was Russia that suggested countries channel emissions trading revenues to financing upgrades of obsolete power industry infrastructure, or to implementing efficient strategies in pollution abatement, which would boost the environmental efficiency of international trading. Since then, many countries have adopted the substantive, methodological, and institutional fundamentals of a new financial mechanism, now known as green investment schemes or GIS. Recently, several countries have announced GIS deals but Russia has yet to arrive at the practical implementation of such a scheme.

214. Designing and implementing a GIS scheme may catalyze environmental protection investments the public and the private sectors, aimed at implementing and disseminating climate-friendly technologies. If Russia implemented a GIS, this action could drive EMS modernization and provide new environmental benefits and institutional innovations. For example, such as the following:

- Apply innovative economic mechanisms such as direct grants, performance grants, warranties, and soft credits;
- Establish new monitoring and verification procedures for environmentally valid results from GIS projects involving third-party validation and verification;
- Implement transparent procedures to share gains from implementing GIS and verify project results;
- Facilitate corporate social and environmental responsibility, and new EMS organizational and economic good practice for Russian companies.

215. It is recommended that Government prepare, on an urgent basis, a few pilot GIS operations, based on bilateral intergovernmental agreements. Investment projects and programs suitable to claim financial support within the GIS framework should be identified and judged on the criterion of maximizing a positive effect on rehabilitation of the environment.

216. Capturing potential revenues from carbon trading requires political will at the highest level to participate in the international carbon market, which would facilitate Russian companies accessing financial resources, low-carbon technologies, and innovative approaches for financial structuring. However, so far, established procedures for joint implementation projects approval are not operational. Active participation by the Russian Government and companies in international emissions trade, inter alia, in the framework of GIS, the World Bank Carbon Partnership Fund, and other initiatives in trading emissions after 2012, may become an important factor to support the Russian "Bali Roadmap," and the country role in the new international climate agreement.

217. In 2007, the process began to negotiate a new climate agreement to extend beyond 2012; this process is unprecedented in the scope and complexity of the problems and anticipated effects on international economic development and human life in general. This agreement will also profoundly affect Russia's economic development. Among issues of exceptional importance for Russia to be reviewed during negotiations are the following:

- Substantiate scenarios Russia's commitments levels for 2020-30, including mechanisms of transfer/accounting quota reserves accumulated during 2008-12 in these commitments;
- Formulate approach to acceptable commitment levels by the USA, European Union, Japan, China, among other countries;
- Formulate potential approach for introducing new international financial mechanisms (such as supra-national taxes and levies, tied to GHG emissions or to per capita GDP) to support developing country activities to adapting or prevent climate change;
- Formulate approach to auctioning trading rights to GHG emissions and targeting proceeds to assistance funds for developing countries;
- Account for forests, forestry, and land-use practices in the budget of country-specific GHG emission/absorption.

218. It is recommended that Government develop and adopt a long-term national climate strategy to enhance its effectiveness in these negotiations. The World Bank would consider providing technical assistance to develop a long-term national climate strategy, based on Government request.

CONCLUSIONS

219. Unlike many other countries, until 2008, Russia had not yet adopted environmental protection as one of the principal national priorities despite its serious environmental issues. Instead, response has been mixed, but this appears to be changing against the backdrop of the global financial crisis that emerged late in 2008, highlighting the need for comprehensive risk assessment, including evaluation of environmental factors. Risk mitigation depends on diversification of risks and more efficient use national capital, in particular, natural resources. Mainstreaming environmental protection into economic development supports economic modernization and builds an innovative, socially-oriented society as directed by the "*Concept of Long-Term Development of the Russian Federation to 2020.*" Strengthening environmental policy and institutions will not only improve public health and the quality of life for millions of citizens, but also will facilitate technological change, diversification of exports, and improve Russian competitiveness in international markets.

220. In effect, there is global convergence around the principle that environmental protection is a prerequisite to long-term sustainable economic development and that a modern EMS is a fundamental requirement for full participation in the global economy. Recently, political leadership Russia has recognized that ecological improvements are essential to address environmental problems, if prerequisites for reforms can be secured.

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Main Elements of Environmental Management System in Selected Countries

Legal and Regulatory Framework

	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
Russia: 1999 OECD Environmental Performance Review	<ul style="list-style-type: none"> • Constitution of the Russian Federation (1993) guarantees a citizen's right to a healthy environment (Art. 42) and a duty to protect the nature (Art. 58); • Law on Environmental Protection (1991) establishes citizen's right to a healthy environment, responsibilities of Federal and other government levels, and other core aspects, like precautionary principle, polluter pays principle; • A set of Federal Law on Environmental Review (Expertise) (1995), on Specially Protected Nature Territories (1995), on Ambient Air Protection (1999), etc) regulates specific environmental issues; • Water Code (1995) sets a framework for river basin management; • Lack of comprehensive legislation for solid and hazardous waste. 	<ul style="list-style-type: none"> • Law on Environmental Review (Expertise) has provisions which required to evaluate environmental impacts of new programs, laws, regulations, urban planning documents • These provisions were used in few occasions 	<ul style="list-style-type: none"> • Regions have the power to legislate in environmental protection. Regional legislation is subordinate to the Federal laws.
Russia: 2008 Current Environmental Performance Overview	<ul style="list-style-type: none"> • The new Law on Environmental Protection (2002) introduce main framework principles and provisions in environmental protection such as governmental competence in environmental sphere, citizen's rights to healthy environment, economical mechanism, environmental requirements for industrial and other activities; environmental enforcement, etc; • Amended Water Code (2006), Land Code (2001), City Planning Code (2004) and Forestry Code (2006); • Major changes (2004-2005) in the Law on Environmental Review (Expertise); • Major legal initiatives in 2000s have a tendency to minimize environmental safeguards (EA, permitting, enforcement) in favour of economic development 	<ul style="list-style-type: none"> • <i>Amendments to the Law on Environmental Review (Expertise) and City Planning Code</i> eliminated the process of evaluation of environmental impact of new laws and regulations • Environmental Review (Expertise) is required to evaluate environmental impacts of new regulations, technological methods, federal and regional state target programs, that might affect the environment. 	<ul style="list-style-type: none"> • Regional legislation is allowed and subordinate to the Federal laws. • After changes in legislation in 2004–2006 regions have less environmental competence than in the previous period; • Distribution of responsibilities between federal and regional level is unclear

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	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
USA	<ul style="list-style-type: none"> • National Environmental Protection Act (1969) provides overall framework legislation and in particular requires EIA procedures • Key sectoral laws cover areas including: air quality, water quality, solid and hazardous waste, pesticides and many others • Environmental legislation is inserted directly into US legal code (see, for example: http://topics.law.cornell.edu/wex/Environmental_law) • EPA can issues detailed rules (regulations) for implementation – when a sectoral law specifically delegates this power • The President can issue Executive Orders, which are binding mainly on the federal administration • The judiciary has extensive powers to review and interpret legislation – in particular, to review the constitutionality of laws and the appropriateness of EPA rules under the delegating law 	<ul style="list-style-type: none"> • Regulatory impact assessment of all proposed new legislation • While RIA initially focused on economic costs (when introduced in the 1980s), it now considers environment and social impacts as well as economic ones • Carried out by independent government agency (Office of Management and Budget) based on extensive guidance • Extensive use of quantitative methods (valuation, regulatory burden estimates, cost/benefit analysis) • Several government bodies undertake ex post evaluation of policies and legislation, notably the Government Accountability Office, an agency that reports to the US Congress 	<ul style="list-style-type: none"> • Core environmental legislation is set at national (federal) level • National laws (and international treaties) pre-empt state and local laws • While US constitutional in principle law reserves for the states all those powers not expressly given to the federal level, federal powers in practice are extensive: many environmental laws specifically pre-empt state action • States (i.e. regional level) nonetheless have passed numerous environmental laws – though are most on secondary and implementation issues • Some states have gone beyond federal requirements on specific issues; California is one example, and has used its rights under the national Clean Air Act to pass stricter air quality standards and requirements • Native American tribes are in general subject to federal laws but not state laws
Canada	<ul style="list-style-type: none"> • Legal authority for environmental management split between federal and provincial governments with primary authority decentralized to the provincial level except where federal jurisdiction applies constitutionally. • Provincial governments in particular control natural resource exploitation (for non-renewable resources) • Canadian Environmental Protection Act, 1999 (CEPA) is core national environmental legislation applicable to federal lands and resources under federal jurisdiction (fisheries, wildlife, navigable waters and international obligations). • Generally each province has parallel umbrella environmental protection legislation governing environmental management activities under provincial jurisdiction and authority for EA, regulatory performance standards and enforcement. • Territorial authority delegated by the federal government selectively, based on local capacity and first nation interest. 	<p>Federal</p> <ul style="list-style-type: none"> • Assessment of major legislation mainly via stakeholder consultation. Formal regulatory impact assessment for secondary legislation (regulations) • Mandatory Review of CEPA every five years including public consultation and intended to modernize/update core legislation and regulatory framework under it. • Under a targeted mandate for Environment and Sustainable Development oversight, regular environmental policy, legislation, and regulation effectiveness review by Auditor General (independent national fiscal oversight reporting to parliament, not the Government) with public reports and targeted corrective action recommendations. • Five year review of federal provincial harmonization agreements <p>Provincial</p> <ul style="list-style-type: none"> • Covered in some provinces by periodic legislative/regulatory review requirements and general practice to apply regulatory impact (cost/benefit, efficiency, practicality etc) to new or amended legislation and regulation. 	<ul style="list-style-type: none"> • See Overview of Legal Structure • In most provinces, primary competence for legislation lies with provinces, which constitutionally is not subordinated to federal law, except where direct federal interest legally exists. • This determination subject to periodic legal tests, often initiated by third parties (NGOs) taking one or both levels of government to court. • Two provinces have broader “Sustainable Development” legislation

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	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
EU	<ul style="list-style-type: none"> • EU Treaty calls for “high protection” of environment, for sustainable development and for policy integration • EU does not have a single, overall environmental law • For key sectors (air, water, waste): “framework” directives with more detailed “daughter” directives • Environmental legislation is implemented by Member States • European Commission drafts legislation: its central legal service ensure coherence among sectoral legislation; inter-service committees review and discuss new legislative proposals • The EU is currently codifying its legislation (including environmental legislation), to create a single, coherent body of law and to ensure clarity of laws that have been amended 	<ul style="list-style-type: none"> • EU <i>Better Regulation Initiative</i> focuses on streamlining legislation, ensuring better implementation and making <i>ex post</i> evaluations • Mandatory (regulatory) <i>impact assessment</i> of new legislation for economic, social and environmental impacts (costs and benefits) <ul style="list-style-type: none"> ○ EU has established guidelines for regulatory impact assessment ○ public consultation is required ○ reports are published on line • EU <i>Better Regulation</i> policy calls for increased use of both <i>ex ante</i> impact assessment and <i>ex post</i> evaluations • Many pieces of legislative call for regular Member State reports on implementation • European Commission leads periodic <i>ex post</i> reviews of legislation, with an eye to proposing amendments for improvement • The EU Court of Auditors makes independent reviews of spending programmes such as the EU Structural and Cohesion Funds 	<ul style="list-style-type: none"> • <i>Not applicable</i>
Germany	<ul style="list-style-type: none"> • The German constitution establishes the obligation for all public authorities to protect and preserve the environment • Extensive sectoral environmental legislation is at present being shaped into a single environmental code, which might be adopted before end 2009 • Competence on environmental matters is shared between the central government and the regions (Länder) • Federal legislation frequently sets the framework, while detailed legislation is adopted by the regions 	<ul style="list-style-type: none"> • Regulatory impact assessment required for federal laws and regulations; public consultation is required in process • Focus on economic costs of legislation: health and environment are assessed for some but not all legislative proposals • A preliminary RIA undertaken in first discussions, to decide whether legislation is needed; a full RIA conducted when legislative proposal is drafted • RIA often does not lead to a separate document, but contributes to governmental discussions • <i>Ex post</i> review of legislation includes a “retrospective” RIA to assess whether law/regulations met their objectives • A federal agency, the Bundesrechnungshof, audits government financial management 	<ul style="list-style-type: none"> • Extensive regional competence for legislation, in particular in the areas of nature protection, water management and waste management • A recent change in the German constitution provides for a new repartition of competences in environmental matters between the federal and the regional level, with a view to improve decision-making and transparency of the legislation • Regions undertake the implementation of environmental legislation: for many sectors, they develop detailed implementing legislation
Sweden	<ul style="list-style-type: none"> • A single Environmental Code (1999) amalgamates 15 previous acts and enunciates general principles, which include: precautionary principle, polluter pays principle, product choice principle and principles regarding resource management, recycling and suitable localisation of activities and measures. The Code is available at: http://www.sweden.gov.se/sb/d/2023/a/22847 • Supervisory and licensing authorities can base regulations and the decisions in individual cases on the general principles set out in the Environmental Code 	<ul style="list-style-type: none"> • Regulatory impact assessment focuses on impacts on small businesses and on environmental impacts (based on a checklist of national environmental objectives) 	<ul style="list-style-type: none"> • <i>Not applicable</i>

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	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
Czech Rep.	<ul style="list-style-type: none"> • The Constitution establishes a right to a healthy environment • Sectoral laws provide implement EU requirements and legislate in areas where EU does not have legal acts (e.g. forestry, monitoring) 	<ul style="list-style-type: none"> • Regulatory impact assessment focuses on costs and benefits for government budgets, economic actors and also on society and environment (where important) 	<ul style="list-style-type: none"> • Czech Republic has 13, recently created regions plus the capital city • Regions can pass subordinate laws – as yet few have legislated in area of environment • Municipalities can approve ordinances
Poland	<ul style="list-style-type: none"> • Constitution establishes the protection of the environment as a duty of public bodies • National Environmental Protection Act (2001) provides framework for environmental legislation • Sectoral laws provide implement EU requirements and legislate in areas where EU does not have legal acts (e.g. forestry, monitoring) 	<ul style="list-style-type: none"> • Regulatory impact assessment for major legislative proposals (i.e. with important economic and social impacts expected); public consultation is required • Health and environmental impacts are assessed if this is considered necessary 	<ul style="list-style-type: none"> • <i>Not applicable</i>
Lithuania	<ul style="list-style-type: none"> • The Constitution affirms that “The State and each person must protect the environment from harmful influences” • Law on Environmental Protection sets framework for environmental policy development and implementation • Sectoral laws implement EU requirements and legislate in areas where EU does not have legal acts (e.g. forestry, monitoring) • Detailed requirements are set in decisions of the Government and orders of the Minister of Environment 	<ul style="list-style-type: none"> • Mandatory assessment done for all draft laws and governmental regulations, regarding social, economic and environmental impacts as well as implications for state finances 	<ul style="list-style-type: none"> • <i>Not applicable</i>
Mexico	<ul style="list-style-type: none"> • Constitutional right to a healthy environment. • The 1988 General Law on Ecological Balance and Environmental Protection deals with air, sea and fresh water quality, hazardous waste, soil, protected areas, EIA and noise at the Federal level. • Other Federal Laws address specific issues, such as forestry, public access to information, and solid waste 	<ul style="list-style-type: none"> • Regulatory Impact Assessment covering multiple impacts, including economic, social and environmental impacts for all Federal Laws (but not subsidiary regulations). RIA introduced in 1992 and expanded in 1996, 1997 and 2000 • Some RIA at regional level, in certain states. • The RIA procedure includes consultation with public stakeholders • Mexico differentiates between “high impact”, “ordinary” and “periodic regulation” RIAs: thus, deeper analysis is carried out for major legislation with greater impacts • Independent control body, Federal Regulatory Improvement Commission (Cofemer): no regulation can be published without its final judgment • Strong sanctions exist for repeated violation of the RIA requirements 	<ul style="list-style-type: none"> • Mexico is a Federal Republic with 31 autonomous federal entities, which each has a constitution and can enact regional legislation. • Any competence that has not been explicitly given to the Federal level remains with the regional entities • Environmental protection and natural resources is a concurrent competence of the Federal Government and the regional entities. • The distribution of competence for each environmental sector is regulated under the 1988 General Law on Ecological Balance

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	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
China	<ul style="list-style-type: none"> The 1982 Constitution established that the State must protect and improve the living and ecological environment, prevent and control pollution control and other hazards, and protect forests. The Environmental Protection Law (1979, amended 1989) establishes the basis of environmental policy and determines the responsibilities of the authorities (national and local) Sectoral laws (many approved or revised in the last 10 years) regulate specific areas, including: waste, clean production, EIA, water, air pollution, forests, noise, wildlife 	<ul style="list-style-type: none"> No national requirements or practices identified 	<ul style="list-style-type: none"> Governments of provinces, autonomous regions and municipalities can pass subordinate legislation: they have approved an estimated 1000 environmental laws Lower levels of government may set local standards for items not covered by national standards They may also set more or less stringent standards for items already covered by the national legislation (these modifications must be reported to the national administration)
India	<ul style="list-style-type: none"> National constitution calls for protection of the environment, which it states is a duty of all citizens Legislation includes an Environmental Protection Act (1986, amended 1992) Sectoral laws cover main environmental issues, including air pollution (1981, amended 1987), water pollution (1973, most recent amendment in 2003), wildlife and biodiversity (2002) and cross-cutting requirement (e.g. EIA, environmental tribunals) 	<ul style="list-style-type: none"> No national requirements Used on occasion (e.g. for major decisions) in some states 	<ul style="list-style-type: none"> States can pass their own environmental legislation, but main environmental requirements are set at national level
Kazakhstan	<ul style="list-style-type: none"> The Environmental Code of the Republic of Kazakhstan was enacted in 2007. The Code regulates relations in the field of environment protection, rehabilitation and conservation as well as natural resource use at the territory of the Republic of Kazakhstan. Its main special feature and sustainable development focus is based on the principle that "causes shall be dealt with instead of consequences". The Code is harmonized with all international conventions ratified by the Kazakhstan. Specific environmental problems are regulated by the following laws: the Law on Licensing (1995), the Law on Natural Catastrophes and Manmade Emergencies (1996), the Law on Sanitary and Epidemiological Protection of the Population (2002), the Law on Plant Protection (2003), the Law on Fauna Protection, Reproduction and Utilization (2004), the Law on Food Quality and Safety (2004), and the Law on Mandatory Environmental Insurance (2005). 	<ul style="list-style-type: none"> The implementation of the Environmental Code envisages the approval of 46 regulatory legal acts, 21 Resolutions of the Kazakh Government, 25 government agency acts. Mechanism for assessment of impact of legal and regulatory innovations is not developed 	<ul style="list-style-type: none"> The regions of the Republic of Kazakhstan do not have competence for legislation.

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	Overview of legal structure	Improving the legal and regulatory framework (e.g. regulatory impact assessment)	Regional competence for legislation
Ukraine: 2007 UN ECE Environmental Performance Review	<ul style="list-style-type: none"> Legislative framework is rather comprehensive No recent progress made in environmental policies/strategies development Contradiction between some laws, discussions on necessity for codification Law on Environmental Audits (2004) Recently, emphasis has shifted from creating new laws to drafting lower level regulations, including government decisions, methodological and procedural documents which provide better guidance for interpreting, implementing and enforcing existing laws 	<ul style="list-style-type: none"> Formally, new legal acts should be analyzed regarding economic and environmental impact but no environment assessment takes place in reality RIA mechanism is not developed 	<ul style="list-style-type: none"> Regions (oblasts) are only implementing environmental legislation while division of responsibilities and funding are not clearly defined

Environmental institutions and broad policy objectives

	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Russia: 1999 OECD Environmental Performance Review	<ul style="list-style-type: none"> State Committee on Environmental Protection (SCEP) develops policy instruments, establishes and supervises standards, manages nature protection Ministry of Natural Resources (MNR) responsible for natural resources, including management and protection of water Presidential office includes a Special Advisor on Environment (but unfilled) and a Committee on Environmental Security (no longer meets) 	<ul style="list-style-type: none"> Sustainable Development Strategy (1997) State Committee on Environmental Protection should co-ordinate environmental policies across government – this is difficult as it lacks ministerial status 	<ul style="list-style-type: none"> State Strategy for Environmental Protection and Sustainable Development (1994) sets overall policy, and is implemented via biennial plans as well as sectoral plans No information on monitoring or evaluation 	<ul style="list-style-type: none"> After 1991, a trend to devolve implementation of environmental policy to the regional level Regional Committees on Environmental Protection in each member of the Federation, with offices in principal towns and districts: typically, these bodies report to both the State Committee and the regional administration The Regional Committees collect fees and fines and issue permits Capacities of the Committees vary greatly across regions Many districts and cities have their own environmental administrations

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Russia: 2008 Current Environmental Performance Overview	<ul style="list-style-type: none"> • In 2000 SCEPT was eliminated and its functions were transferred to MNR • Several other major institutional reorganizations including transfer of most regulatory functions to Rostekhnadzor • In May 2008 Rostekhnadzor and Roshydromet were subordinate to the Ministry of Natural Resources which was renamed as the Ministry of Natural Resources and Ecology; • Ministry of Natural Resources and Ecology (MNRE) has a competence for developing policy and issuing environmental laws and regulations; • Federal Services and Agencies reporting to the MNRE are responsible for the state environmental and nature resource management, environmental control and monitoring; • Several Federal Agencies (e.g. Rospotrebnadzor) reporting to other Ministries also have fragmented environmental competence. • Duma Committee on Ecology was eliminated in 2007 and its mandate was transferred to new Committee on Natural Resources, Nature Use and Ecology 	<ul style="list-style-type: none"> • Environmental Doctrine of Russian Federation (2002) suggested main principles and directions of sustainable development but did not elaborate implementation strategy, or institutional champion/s. • Ministry of Natural Resources and Ecology is responsible for policy development but does not have sufficient resources, staff and expertise • There is only one Department within the Ministry dealing specifically with environmental issues 	<ul style="list-style-type: none"> • Environmental Doctrine (2002) specified a set of generic policy goals which are not prioritised; • No specific and quantitative objectives were formulated; • No targets or other instruments for monitoring the progress of reaching objectives were elaborated. 	<ul style="list-style-type: none"> • Federal authorities undertook several initiatives on redistribution of responsibilities between federal, regional and municipal authorities; • All Federal Agencies have regional departments; • Regional administrations have regional departments dealing with natural resources management and environmental protection, most departments have representatives in key municipalities; • The competence and capacity of these regional environmental departments differ greatly across the regions; • Some main municipalities have small environmental units.
USA	<ul style="list-style-type: none"> • Environmental Protection Agency sets and enforces pollution standards, undertakes research and oversees several financing programmes • EPA is an independent agency under the President; its head is a member of the cabinet • EPA has 10 regional offices, each of which operate in several states • US Department of the Interior manages natural resources, including national parks, mining, fisheries; also plays a role for water resources (quantity issues) 	<ul style="list-style-type: none"> • Council on Environmental Quality within President’s Office coordinates federal initiatives for the environment • President’s Council on Sustainable Development operated from 1993 to 2000: its high-level members of national, state and local government, business, NGOs and other groups advised the president 	<ul style="list-style-type: none"> • EPA has a multi-year Strategic Plan: most recent covers 2006-2011 (the Plan is updated <i>halfway</i> through each multi-year period). See: http://www.epa.gov/ocfo/plan/plan.htm • The current Plan sets five strategic goals (e.g. clean and safe water, clean air and global climate change) – and each goal has several objectives • Each objective has numerical targets that can be measured via indicators • The EPA’s annual report present progress towards goals, based on most recent indicator results 	<ul style="list-style-type: none"> • All states (regional level) have their own environmental protection agencies or departments • EPA (and other federal bodies) work closely with state agencies through special programmes, partnerships and agreements • EPA delegates permitting and enforcement for many pieces of legislation to “state” (i.e. regional) level, with close Federal supervision • Local level (cities and counties) typically provide water services • Land-use planning is mainly a local responsibility

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Canada	<ul style="list-style-type: none"> • Environment Canada is primary federal government environmental management agency. Some regulatory responsibilities shared with or allocated to other Departments such as Department of Fisheries and Oceans • Canadian Environmental Assessment Agency administers federal environmental assessment process at federal level • Parliamentary Standing Committee on Environment and Economy is elected oversight. • Commissioner of Environment and Sustainable Development under the Auditor General advises Parliament on Federal Government policy and environmental management performance. 	<ul style="list-style-type: none"> • Concept of “equivalency” built into CEPA whereby provincial legislation, approval processes and regulations can be applied by agreement to areas of federal jurisdiction within a province where deemed equivalent or superior in terms of environmental protection, although application controversial due to subjective and political nature of determination. • Legal recognition of federal interests in some but not all governing provincial environmental legislation. • Agreement on harmonization of environmental management activities and requirements between federal provincial and territorial jurisdictions. • Consensus based establishment of national standards and guidelines facilitated through Canadian Council of Ministers of Environment • Formal agreements between federal and individual provinces and territories on shared responsibilities. • Selective provincial participation in administration of international agreements where a direct interest exists. • National Round Table on Environment and Economy (NRTEE) is independent body of industry, labour, native tribes, NGO and university officials who advise on environment and economy 	<ul style="list-style-type: none"> • Canada’s <i>Sustainable Development Strategy 2007-2009</i> identifies four broad goals (e.g. environmental protection) and objectives for each goal • The Strategy also sets “commitments” for federal government action • The strategy is to be evaluated in 2009 	<ul style="list-style-type: none"> • Canada has 10 provinces and 3 territories. • All provinces and territories (sub-national bodies) have Departments of Environment either as independent ministries or as part of broader ministries that may have conservation, labour or natural resource management mandates as well. Several provinces also have Provincial environmental assessment agencies. • Provinces have moved away from ministries that combine responsibilities for environment and natural resources (more common in 1990s) and increasingly have established separate bodies • Provincial legislation and regulations cover all activities not explicitly under federal jurisdiction and as may be deemed equivalent under CEPA or applicable under joint jurisdictional agreement. • In practice provincial authority for environmental management has precedence in most situations. • Canadian Council of Ministers of Environment brings together the federal and regional ministers to discuss national priorities. The Council provides a vehicle for development of common national standards and harmonization of requirements.

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
EU	<p>European institutions</p> <ul style="list-style-type: none"> • Commission proposes legislation • European Council and European Parliament approve legislation • Commission provides main oversight of implementation in Member States and directly manages many programmes • European Court of Justice resolves disputes, including those regarding Member State implementation • Specialised agencies: European Chemicals Agency for chemicals management; European Environment Agency for environmental information; many others 	<p>Institutions</p> <ul style="list-style-type: none"> • Within Commission, most legislative proposals must be reviewed by an “inter-service committee” with officials responsible for enterprise, competition and other sectors • Commission inter-service committees have oversight for some aspects on implementation (e.g. Structural Fund spending) <p>Policies</p> <ul style="list-style-type: none"> • Gothenburg Strategy for Sustainable Development • Major environmental components in EU policies, especially those for energy, agriculture 	<ul style="list-style-type: none"> • The EU’s sixth Environmental Action Programme (6EAP) sets overall policy goals for 2002-2012 • Seven Thematic Strategies under the 6EAP cover areas such as air pollution, marine environment, urban environment and soil. • The 6EAP and its strategies do not propose quantitative targets (and were criticised for this) • Instead, they propose policy actions and legislation, some of which has been passed (e.g. on marine environment) • A mid-term review (2007) noted a “gap” between objectives and measures taken: http://ec.europa.eu/environment/newprg/review.htm 	<p>EU interactions with regional and local levels</p> <ul style="list-style-type: none"> • EU regions and cities are represented in the EU Committee of the Regions, which must be consulted for new legislation affecting regional and local levels (Committee has advisory role only) • EU regional funds disburse money directly to regions, which are responsible for spending decisions (with Commission oversight) • Local governments have a role in implementing some EU legislation – e.g. on urban wastewater treatment • Water Framework Directive calls for creation of river basin districts, both within Member States and among them, for shared waters
Germany	<ul style="list-style-type: none"> • Federal Ministry for the Environment • Federal Environmental Agency with strong autonomy, advises on technical and scientific matters; helps implement legislation in areas such as emissions trading and chemicals policy; and collects, disseminates data • High-level expert group on environmental matters advises the Government on strategic policy questions • Separate agencies for nature protection, water and other areas. 	<p>Policies</p> <ul style="list-style-type: none"> • 2002 national strategy for sustainable development <p>Institutions</p> <ul style="list-style-type: none"> • State Secretaries' Committee on Sustainable Development brings together high-level government officials • Business, labour, environmental and other stakeholders participate in the advisory Council on Sustainable Development 	<ul style="list-style-type: none"> • The 2002 sustainable development strategy identifies 21 indicators with targets across areas from climate change to employment to health • Regular statistical publications show progress towards meeting the targets (typically long-term, to 2020) 	<ul style="list-style-type: none"> • Environment ministries in the 16 German regions • Each region also has an autonomous environment agencies for technical issues and data • National legislation and regulation is necessarily framework legislation. The details of implementation and application are set at local, provincial and regional level. • A continuous liaison between the different levels ensures implementation • Federal and regional officials meet regularly in the Conference of Ministers of Environment and its thematic working groups (air, water, waste, etc.)

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Sweden	<ul style="list-style-type: none"> • The Ministry of Environment is small and leads on policy issues for environmental protection as well as related areas, including environmental research, housing and certain aspects of energy policy • The Swedish Environmental Protection Agency, under the Ministry, leads on the implementation of environmental policy as well as the development of new policy proposals. The Agency is oversees environmental monitoring and reporting, evaluates the effectiveness of measures to achieve national Environmental Objectives and also appears in court on licensing questions. • Other agencies reporting to the Ministry of the Environment include: The National Chemicals Inspectorate (KemI); Swedish Nuclear Power Inspectorate; Swedish Nuclear Waste Fund; Swedish Radiation Protection Authority; National Land Survey; and National Board of Housing, Building and Planning 	<p>Policies</p> <ul style="list-style-type: none"> • The Swedish Parliament has adopted 16 national environmental quality objectives. These include: Clean Air, A Non-Toxic Environment, A Safe Radiation Environment, Sustainable Forests and A Rich Diversity of Plant and Animal Life. See: http://www.miljomal.nu/english/english.php • Sweden focuses efforts to achieve the environmental objectives in three action strategies: <ul style="list-style-type: none"> ○ more efficient energy use and transport ○ non-toxic and resource-efficient cyclical systems, including an integrated product policy ○ better management of land, water and the built environment <p>Institutions</p> <ul style="list-style-type: none"> • An Environmental Objectives Council leads implementation; the Swedish EPA provides its secretariat • Different government bodies work on each strategy: e.g. six agencies on the energy and transport 	<ul style="list-style-type: none"> • Sweden’s 16 environmental objectives are fleshed out by interim targets, of which there are currently 72. The interim targets refine the focus and time frame of the general objectives • For 15 of the objectives, detailed objectives are set regional (county) and local level • The Environmental Objectives Council publishes annual reports on implementation, and every few years publishes in-depth evaluation reports. See: http://www.miljomal.nu/english/english.php 	<ul style="list-style-type: none"> • The 21 counties (län) have environmental responsibilities • Each County sets its own targets under the national objectives as well as implantation plans. • Sweden’s 298 local municipalities have strong local powers and oversee functions for physical planning and building, housing and environmental and health protection. • Most local authorities have adopted local environmental objectives under the national objectives

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Czech Rep.	<ul style="list-style-type: none"> • The Ministry of Environment leads on establishing environmental policy • Key agencies reporting to the Ministry include: <ul style="list-style-type: none"> ○ The State Environment Fund, which collects pollution charges and uses them to finance investment ○ Agency for Nature Protection and Landscape Conservation ○ Czech Environmental Inspectorate 	<p>Policies</p> <ul style="list-style-type: none"> • National strategy on sustainable development (2004, now under revision) • State Environmental Policy 2004-2010 sets overall environmental strategy for country as a new EU Member State (see: http://www.env.cz/AIS/web-en.nsf/pages/State-Environmental-Policy) <p>Institutions</p> <ul style="list-style-type: none"> • Government Council on Sustainable Development 	<ul style="list-style-type: none"> • From 2000, EU approximation was a central focus on Czech Environmental Policy • Strategy for Approximation in Environment identified legal reforms needed and estimated investment costs for economy • In early part of decade, the Ministry published a newsletter every two months detailing progress in approximation (as well as related issues) • State Environmental Policy 2004-2010 identifies new legal administrative actions and also sets quantitative targets for environmental improvement in many areas of action • Policy also provides an overview of environmental financing sources and costs of implementation • In 2007, the Ministry of Environment reviewed progress on the 2004-2010 Policy. An overview was provided in SoE report: 15 indicators were positive, but 6 were stagnating and 2 saw negative trends. 	<ul style="list-style-type: none"> • The 13 regions and the capital city are responsible for several areas of environmental management, including IPPC and EIA • Each has an Environment Department (sometimes combined with other sectors) • Municipalities also have Environmental Depts. (which can be combined with other sectors) • Municipalities have a central role in financing and managing water services and waste management
Poland	<ul style="list-style-type: none"> • Ministry of the Environment is responsible for pollution management, nature conservation, forestry and mining (though other state bodies share responsibility for mining) • Advisory councils and commissions support the ministry on key areas such as nature conservation, mining, EIA, GMOs and scientific research • State Environmental Inspectorate, responsible for environmental monitoring and enforcement • National Fund for Environmental Protection and the Ecofund provide substantial financial assistance for environmental protection investments and activities that are of high priority nationally and/or whose significance is more than regional. • State Forests Enterprise, responsible for managing forested lands in State ownership 	<ul style="list-style-type: none"> • National environmental policies (1991 and 2000) provide long-term framework • National Sustainable Development Strategy (2000): <i>Poland 2025 – Long-term strategy for Sustainable Development</i> 	<ul style="list-style-type: none"> • EU accession has dominated Polish environmental policy • No recent reviews of national policy 	<ul style="list-style-type: none"> • Regional branches of the national Environmental Inspectorate monitor environmental conditions, ensure compliance with environmental laws and prepare periodic “State of the Environment” reports for their regions. See: http://www.gios.gov.pl • Environmental funds at the regional (voivode) and local levels provide financial support for environmental investments and activities that are high priorities regionally/locally. See: http://www.nfosigw.gov.pl • Regional governments are also responsible for programming and disbursing a large share of EU funds • Local self-governments are typically responsible for ensuring environmental infrastructure services, i.e. water supply, wastewater/sewage collection and treatment, solid waste collection and disposal.

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Lithuania	<ul style="list-style-type: none"> • Ministry of Environment is main institution for environmental protection and forestry, as well as construction and territorial planning. • Other national institutions have specific environmental responsibilities: Ministry of Economy for renewable energy, radioactive waste management; Ministry of Health Care for ambient noise regulation and drinking water quality; Ministry of Agriculture for fisheries • Several governments agencies and bodies report to the Ministry of Environment, including: <ul style="list-style-type: none"> ○ The Environmental Protection Agency, responsible for monitoring, water basin management, chemicals ○ The State Environmental Inspectorate ○ Eight regional environmental departments (law enforcement and inspection) ○ Environmental projects management agency (programming and oversight of environmental investment projects) 	<p>Institutions</p> <ul style="list-style-type: none"> • Council on Sustainable Development chaired by Prime Minister <p>Policies</p> <ul style="list-style-type: none"> • National strategy on sustainable development 	<ul style="list-style-type: none"> • In this decade, implementation of EU legislation dominated environmental policy • Lithuania’s 2002 <i>Strategy for Approximation in the Environment Sector</i> details legal and administrative actions and also estimates costs for economy (as well as benefits) • In addition to national overview, European Commission closely reviewed process of legal approximation through accession in mid-2004 	<ul style="list-style-type: none"> • Lithuania has 10 counties and 60 district and city municipalities • Municipalities have a central role in managing water services and waste management

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Mexico	<ul style="list-style-type: none"> • The Secretariat of the Environment and Natural Resources (SEMARNAT), a ministerial-level body, is competent for air, water and waste management, nature conservation and forestry • SEMARNAT develops environmental policy, issues permits, sets national and regional standards and participates in international and inter-ministerial negotiations. • SEMARNAT has various agencies and departments, with offices in many parts of the country • While SEMARNAT has some responsibility for natural resources, it does not cover petroleum and other hydrocarbons 	<p>Policies</p> <ul style="list-style-type: none"> • National Development Plan 2007-2012: 1 of the 5 main themes is Environmental sustainability • On the basis of NDP, a Sectoral Programme for the Environment and Natural Resources was adopted, with mandatory objectives, strategies and targets. • Specific programmes and actions, e.g. on sustainable tourism, sustainable urban development, ecological land use planning, further promote integration • Special Programme for Sustainable Rural Development including targets and actions • All government offices must include environmental sustainability criteria in their purchases <p>Institutions</p> <ul style="list-style-type: none"> • The National Consultative Council for Sustainable Development (NCSO), including both government bodies and NGOs • In the framework of the SPCC, an Inter-ministerial Commission enacting legally binding resolutions 	<ul style="list-style-type: none"> • National Plans including quantitative targets, for example for water quality and waste management targets • Each ministry (e.g. health, education, etc) must report to the President at the end of the year on the progress in meeting interim environmental targets. Targets are reviewed for the following year. These reports are publicly available. 	<ul style="list-style-type: none"> • Each state (region) has an autonomous environmental body dealing with environmental protection for that state. (e.g. the Agency for Environmental Protection and Natural Resources of Nuevo Leon). • In their areas of competence, the 31 states can enact legislation, carry out monitoring and implement environmental policy. • The Programme for Environmental Institutional Development gives financial and technical support for institutional capacity building in state governments to support decentralisation for environmental matters.

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
China	<ul style="list-style-type: none"> • The Environmental and Resources Protection Committee (ERPC) of the National People’s Congress develops and enacts environmental legislation. • The leading executive agency for environment, the State Environmental Protection Agency, became the Ministry of Environmental Protection (MEP) in March 2008. • SEPA/MEP develops environmental policies and programmes. It has 11 departments dealing with specific areas of environmental protection. • Some other Ministries are also involved in environmental policy aspects, such as the Ministry of Land and Resources, Agriculture, Railways, Water Resources, Agriculture and Civil Aviation. 	<ul style="list-style-type: none"> • China’s Five-Year Plans for National Economic and Social Development (FYPs) and Five-Year Environmental Plans (FYEPs) provide the framework for policy development. • China’s 11th FYP (2006-2010) identifies as an objective the achievement of a better balance between economic, social and environmental development 	<ul style="list-style-type: none"> • Environmental objectives and targets are set in the FYP’s and FYEP’s 	<p>Regional and provincial level</p> <ul style="list-style-type: none"> • The approx. 2500 provincial or local Environmental Protection Bureaus (EPBs) are responsible for the implementation of legislation and monitoring pollution • The EPBs are part of provincial administrations, and supervised by SEPA. • Accountability of local leaders and local EPBs for environmental protection is often limited. • Hong Kong and Macao have special status and further powers for environmental protection <p>Local level</p> <ul style="list-style-type: none"> • Decentralisation has given local governments new environmental responsibilities, sometimes without the budgets to carry them out • Municipalities take decisions on large investment projects with have major environmental impacts • Planning Commissions (at the county level and above) develop local economic and social development plans on the basis of the FYP. • Industrial bureaus, which control state enterprises, work on specific actions for pollution reduction • Urban construction bureaus will, among other tasks, control the construction of wastewater treatment facilities and solid waste facilities

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
India	<ul style="list-style-type: none"> Ministry of Environment and Forests is core government body for environment Central Pollution Control Board oversees state pollution control boards (SPCBs), providing technical assistance and guidance, plans national pollution control programmes and can prosecute polluting industries 	<ul style="list-style-type: none"> The integration of environmental concerns into economic and social development is one of the objections of the National Environment Policy Ministry of Environment and Ministry of Industry have together prepared a voluntary Charter on Corporate Responsibility for Environmental Protection A few states (e.g. Gujarat) have sought to integrate environment into industrial development policy Energy policy has addressed renewable energy and energy efficiency – however, implementation has been slow 	<ul style="list-style-type: none"> National Environment Policy (NEP) 2006, approved by national cabinet, sets broad objectives and key principles for India’s environmental policy Principles include: right to development; economic efficiency and polluter pays principle; precautionary principle : available at: http://www.envfor.nic.in/ Calls for actions including legal reforms, institutional reforms and administrative actions No quantitative targets for environmental quality; no time frame for achieving strategies and actions To be reviewed every three years with stakeholders, scientists and other groups Separate action plans address most polluted zones in the country; other special actions for key sectors 	<ul style="list-style-type: none"> States (regional level) have Environment and/or Forest and Wildlife Departments Effectiveness of state institutions varies considerably across the country State Pollution Control Boards (SPCBs) provide permits and enforce national standards – and can establish stricter local standards if warranted SPCBs answer to both Central Pollution Control Board and state governments: this dual line of command can create conflicts Many SPCBs reportedly face staff shortages, including technical staff, and also need training A coordination group for SPCBs has been proposed
Kazakhstan	<p>Organizational structure of the Ministry of Environmental Protection includes:</p> <ul style="list-style-type: none"> the Environmental Regulation and Monitoring Committee (includes 5 Divisions); 4 Departments; 8 territorial divisions; State Republican Institutions (Kazhydromet, Environment and Climate Scientific Research Institute, Kazaeroservice JSC, Information and Analytical Center). 	<ul style="list-style-type: none"> The Concept of Transition of Kazakhstan to Sustainable Development in 2007-2024 (2006). The Concept objective is to reach the balance between economic, social, environmental and political aspects of Kazakhstan development as the basis for improving life quality and ensuring Kazakhstan competitiveness in the long-term perspective. The action plan for 2007-2009 (aimed at the implementation of the Concept of Transition of Kazakhstan to Sustainable Development in 2007-2024) was approved. The Government approved 34 inter-sectoral targets for the transition to sustainable development based on 12 targets of the Concept. Meeting the standards allows enterprises to plan investments, reserve the required time for introduction of technical innovations. The Environmental Safety Concept for 2004-2015 (2003). 	<ul style="list-style-type: none"> The Kazakh Presidential Administration is in charge of monitoring of the implementation of the Concept of Transition of Kazakhstan to Sustainable Development in 2007-2024. The Kazakh Government submits annually to the Presidential Administration a report on the Concept implementation progress. The Kazakhstan Sustainable Development Committee was established in 2005. The Committee included heads of key ministries and agencies, deputies of the Parliament as well as representatives of business, NGOs and scientific institutions. Kazyna Sustainable Development Foundation. 	<ul style="list-style-type: none"> The territorial environment protection divisions of the Kazakh Environment Protection Ministry (arranged by basins as per the Concept of Transition of Kazakhstan to Sustainable Development) perform functions in the field of environment protection – independently and in cooperation with other state authorities which have monitoring and control functions. Regional authorities participate in resolution of environmental problems; they monitor the implementation of regional environment protection programs.

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	Principal national institutions	Mechanisms for policy integration and environmental “mainstreaming”	Setting and monitoring environmental policy objectives	Role of regional (and local) institutions
Ukraine: 2007 UN ECE Environmental Performance Review	<ul style="list-style-type: none"> Ministry of Environmental Protection (MEP) has (after several institutional changes) a key role in development and coordination of environmental policy Management of natural resources was brought back to MEP (by coordination of land, forests and water committees) State Ecological Inspectorate of MEP remained unchanged despite several reorganizations 	<ul style="list-style-type: none"> Need for integration is recognized but not implemented, Strategy for Sustainable Development is still in draft, Commission for Sustainable Development is idle New Concept of National Environmental Policy (approved by Cabinet of Ministers in October 2007) is built on integration principles 	<ul style="list-style-type: none"> Unlike Main Directions of Environmental Policy (1998) there are attempts to set clear objectives and targets in new Concept of National Environmental Policy Prioritization, however, as well as indicators to evaluate progress are still largely lacking 	<ul style="list-style-type: none"> Oblast environmental authorities are supposed to be involved in the on-going process of development of Regional Development Strategies, which should become the main source of funding for regional development in Ukraine

Instruments for Environmental Policy – 1

	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
Russia: 1999 OECD Environmental Performance Review	<ul style="list-style-type: none"> • Russia had about a dozen separate monitoring networks • Roshydromet responsible for ambient air and water monitoring is separated from SCEP • Several other agencies are responsible for monitoring, • Programs, guidelines and analytical techniques are poorly coordinated, lack of integrated data bases; • Air quality monitoring in about 250 cities • Almost 1800 water quality monitoring sites, few considering Russia's size • Plan for Unified State System for Environmental Monitoring not yet implemented • Self-Monitoring - enterprises are responsible for reporting their own emissions and discharges • Broad network of state analytical laboratories under SCEP 	<ul style="list-style-type: none"> • <i>Maximum allowable concentrations</i> (ambient standards) set for over 470 air pollutants, 2700 water pollutants, 100 soil pollutants. • Standards are typically more stringent than WHO or OECD country levels and are difficult to meet • Facility standards for <i>air emissions</i> and <i>water discharges</i> calculated based on ambient standards. Approach not always implemented due to its complexity. Resulting standards usually cannot be met. • As a result, "temporary" emissions and discharge standards "negotiated" with polluters have become main policy instrument 	<ul style="list-style-type: none"> • A complex system: separate permits for natural resource use, water use, wastewater discharges, air emissions, solid waste disposal • Emission limit values are often unattainable (set on the basis of excessively stringent environmental standards) • Permitting can involve federal, and regional authorities 	<ul style="list-style-type: none"> • Over 250 inspectorates at different levels report to State Committee on Environment • In 1997, about 250 000 facilities inspected • Environmental prosecutors assist enforcement: in 1996, 20 000 cases filed

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
<p>Russia: 2008 Current Environmental Performance Overview</p>	<ul style="list-style-type: none"> • Main elements of the system are basically the same • Status of monitoring system deteriorated due to lack of investment, progressively outdated principles of operation, lack analytical and technological capacity, overall lack of resources • Many key indicators (e.g. air - PM₁₀, PM_{2.5}, O₃) are not routinely measured or poorly measured (e.g. nutrients in water) • Poor interaction of environmental monitoring and environmental management • Lack of monitoring programs targeted to special issues, priority pollutants or territories • Since May 2008 the Federal Service on Hydrometeorology and Environmental Monitoring reports to the Ministry on Natural Resources and Ecology • After several reorganizations the network of state analytical laboratories transformed into a network of state commercial entities 	<ul style="list-style-type: none"> • Standards system for the air and water emissions did not change much since 1990s; • The number of standards continue to exceed the capacity to monitor them; • Introduction of technical standards based on BAT principles is extremely slow • Availability of about 800 environmental regulations most of them with unclear, overlapping and advisory functions 	<ul style="list-style-type: none"> • Main principles are the same • A system became more fragmented and burdensome for polluters as they have to interact with more federal agencies (Rostekhnadzor, Rosprirodnadzor) and regional environmental departments with unclear split of responsibilities 	<ul style="list-style-type: none"> • Enforcement is ineffective (unenforceable requirement, lack of resources, absence of strategy) • Fragmentation of enforcement between several federal agencies and their regional departments • Changing and insufficiently specific distribution of responsibilities between federal and regional authorities • Elimination of municipal enforcement • Mismatch between objectives of enforcement, allocated resources and staffing (far to much to enforce for too few inspectors) • There are about 800,000 facilities which have negative environmental impact and subject to environmental control. After delineation of responsibilities about 10% (or 80,000) of them will be subject for federal control. • Considerable overall decrease of inspectors on federal and regional level and increase of a number of inspected facilities (air emissions – 265444, water discharges- 115663, wastes – 234786) • Increasing role of public prosecutor office (the number of detected law violations from 2003 to 2007 increased 3 times to reach 241133 cases), most violations are attached to poaching, illegal logging, administrative violations • Courts are more active too (number of environmental crimes increased from 14818 in 2000 to 41883 in 2006)

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
USA	<ul style="list-style-type: none"> EPA leads environmental monitoring States play an important supporting role: the Clean Air Act requires each state to set up an air quality monitoring programme Air quality monitoring focuses on 6 core pollutants About 4000 state and local air quality monitoring stations are linked together in the national network Additional monitoring carried out in highly polluted areas and for other needs EPA has set up a separate national monitoring network for six hazardous pollutants States carry out water quality monitoring, though EPA, other federal agencies and local governments also play a role Enterprises provide self-monitoring of their emissions and discharges under permits. For emissions trading of NO_x and SO_x, facilities are undertake continuous, automated monitoring In addition, large enterprises in most sectors must provide data on releases of about 650 substances to the publicly available Toxic Release Inventory 	<ul style="list-style-type: none"> Environmental quality standards set at Federal level, with a focus on six core pollutants: CO, Pb, NO₂, O₃, particulates and SO₂ Ambient <i>air quality</i> standards are based on health considerations and focus on six parameters; in parks and protected areas, visibility is also a criterion for standards Standards have been revised with new information on health impacts (e.g. shift in focus from particulates overall to PM₁₀ and PM_{2.5}) <i>Air emissions</i> standards focus on new and modified stationary sources; stricter standards in areas where air pollution does not ambient standards Federal government also sets vehicle emissions standards; California sets stricter requirements States enact <i>water quality</i> standards, based on health and ecology criteria: these standards must be approved by EPA <i>Water emissions</i> standards based on 'best practicable technology'; in addition, stringent standards set for 6 toxic chemicals 	<ul style="list-style-type: none"> Most permitting is carried out at state level: specific facility requirements set by the states, based on federal requirements Permitting still mainly by media (air, water, waste); typically, large facilities need numerous separate permits for water use, wastewater discharge, air emissions, toxic chemical storage, hazardous waste storage and other categories Both EPA and state governments undertake initiatives to ensure that polluters – and small facilities in particular – are aware of legal requirements: e.g. extensive information available on Internet; and they carry out active “compliance assistance” programmes 	<ul style="list-style-type: none"> Strong civil and criminal sanctions for violations focus on (1) recovering cost of damages and (2) deterring future violations EPA has strong powers for enforcement: e.g. to enter and inspect facilities; to issue compliance orders (requirements to come into compliance); administrative sanctions (fines); and initiative court actions National and state levels work closely together: e.g. for each air rule, states must submit an enforcement plan to EPA EPA’s “smart enforcement” approach focuses on facilities where violations would create the highest environmental risks Both national government and many state governments reduce penalties when facilities self-report violations
Canada	<ul style="list-style-type: none"> Ambient monitoring carried out by both federal and provincial agencies. Source monitoring and reporting generally by industrial or utility operators as permitting/licensing condition and subject to review and compliance audit by regulatory authorities. General issue of public sector resources and capacity for monitoring and its oversight. Some provinces have formal systems of accreditation for environmental monitoring/analysis. 	<ul style="list-style-type: none"> Standards can be set by individual jurisdictions but there is general adoption of consensus based “Canada-Wide standards” for priority pollutants. Similarly national environmental quality guidelines are established that may be adopted provincially as regulatory standards. Several provinces (Quebec, Manitoba) are introducing legislated “sustainable development indicators” as performance measurement tool, 	<ul style="list-style-type: none"> Environmental assessment approval process typically a permitting/licensing prerequisite for all other development permitting at both federal or provincial level. Media specific permitting for emissions and discharges primarily at the provincial level Discussion of integrated permitting concepts linked to requirements for cumulative impact assessment but to date limited application. 	<ul style="list-style-type: none"> Federal and provincial environmental authorities typically have empowered enforcement officers with powers of a “peace officer”, in some cases (Federal) within a dedicated branch. General issue of public sector resources and capacity for enforcement with coverage being exception based in many jurisdictions often in response to public complaint. Sanctions for non-compliance vary with offence and jurisdiction and encompass progressive actions from warning, through compliance orders, shut down, civil fines and criminal offences. Where criminal action is applies, evidence of strong impact based on example.

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
EU	<ul style="list-style-type: none"> Monitoring carried out at Member State level Different pieces of EU environmental legislation specify monitoring actions required (e.g. Water Framework Directive for water sector) Enterprises report directly on the pollutant releases and transfers to the European Pollutant Emission Register, whose information is available online European Environment Agency links together national monitoring through its web-based EIONET as well as other mechanisms EEA publishes regular reports using EU-wide monitoring data 	<ul style="list-style-type: none"> EU sets a broad range of ambient and emissions standards and approaches; in many areas, Member States can set stricter standards if they wish <i>Air quality standards</i> set for 12 pollution parameters, based on human health considerations: PM_{2.5}, PM₁₀, SO₂, NO₂, Pb, CO, Benzene, O₃, As, Cd, Ni, PAH. See: http://ec.europa.eu/environment/air/quality/standards.htm National emission ceilings are also set for <i>air emissions</i> of SO_x, NO_x, VOC and NH₃ in each Member States Drinking water standards set for 48 parameters, with WHO guidelines as an important input for standard-setting <i>Surface water quality standards</i> proposed in 2008 for 41 pollutants, based on risks to animal and plant life and human health, ranging from atrazine to benzene to lead. http://ec.europa.eu/environment/water/water-dangersub/pri_substances.htm Water Framework Directive sets objective of “good status” for all surface water and groundwater, to be achieved by 2015 for a broad set of parameters IPPC Directive sets <i>Best available technique</i> requirements for major industries: these are defined in reference documents (BREFs); IPPC allows authorities flexibility, e.g. for technical characteristics of plants and local environmental conditions <i>Air emission standards</i> for large combustion plants, hazardous waste incinerators 	<ul style="list-style-type: none"> IPPC Directive sets overall framework for permitting throughout the EU, with an integrated approach across all environmental media (air pollution, water pollution, waste) Member States carry out permitting Complex system has faced implementation difficulties in some Member States which did not previously have permitting systems EU has recently reviewed IPPC and is considering revisions to strengthen permitting and address implementation issues 	<ul style="list-style-type: none"> Enforcement carried out by Member States Minimum requirements for inspection are set in an EU Recommendation (not binding) A network of enforcement agencies (IMPEL) shares experience and identifies best practices Commission has proposed minimum sanctions for environmental violations, as Member State sanctions vary greatly and many are low
Germany	<ul style="list-style-type: none"> Monitoring almost entirely done at regional and local level. Federal and regional environment agencies influence monitoring via data collection, evaluation etc. 	<ul style="list-style-type: none"> Germany has pursued uniform <i>air emissions</i> standards. Most recent rules are set in 2002 revision of TA Luft, which sets strict standards for all facilities (and thus implements EU IPPC with less flexibility). Emission standards vary by industrial sector, but typically include limits for PM, SO_x and NO_x, dioxins and heavy metals. See: http://www.bmu.de/english/air_pollution_control/ta_luft/doc/36958.php Similar approach for <i>wastewater discharge</i> standards, which are set in national Wastewater Ordinance: specific limits for main industrial sectors. Limits for chemical industry, for e.g., cover COD, N, P and total toxicity System thus provides legal clarity to polluters, though less leeway for permit negotiations TA Lufts also incorporates EU <i>air quality</i> standards 	<ul style="list-style-type: none"> National legislation sets clear framework for granting permits, supplemented by some regional legislation: legislation establishes clear system that restricts discretion of permitting authorities. 	<ul style="list-style-type: none"> Enforcement undertaken at regional and local levels: Regions have enforcement bodies; often also provinces and local authorities. Police agencies also contribute to enforcement

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
Sweden	<ul style="list-style-type: none"> • Environmental quality monitoring is closely linked to Sweden's Environmental Objectives, such as those for clean air (see under standards). • The Swedish Environmental Protection Agency coordinates monitoring in Sweden. The Environmental Objectives Council distributes funds for national and regional environmental monitoring. • County administrative boards coordinate environmental monitoring at the regional and local (municipal) levels • Local authorities monitor air quality and bathing water in urban areas and set standards for self-monitoring by companies in their area. • Companies carry out self-monitoring of emissions, which they can submit via Internet to the Swedish Portal for Environmental Reporting 	<ul style="list-style-type: none"> • Sweden implements EU standards • Sweden's Environmental Objectives include many goals set in terms of environmental quality standards: for example, the clean air objectives include targets for ambient levels of SO₂, NO₂, O₃, VOCs, PM₁₀ and benzo(a)pyrene. These air quality targets are generally stricter than EU standards. • Sweden largely uses BAT standards for facilities, set in integrated permitting, rather than fixed emissions and discharge standards 	<ul style="list-style-type: none"> • Sweden has had an integrated permitting system in place since 1969 • This system now incorporates the EU IPPC Directive • Permits are issued by the regional environmental protection departments of the Ministry of Environment 	<ul style="list-style-type: none"> • County and local authorities lead in the enforcement of pollution and other requirements at industrial facilities • For chemicals, the national Chemicals Inspectorate plays a key role in enforcement • In the 1990s, over 1200 officials at different levels enforced environmental requirements • National, county and local authorities can require facilities in violation to undertake remedial work for compliance • Environmental Code has introduced administrative penalties that can be levied directly by the supervisory authorities: previous system based on court cases was slow and not always effective
Czech Rep.	<ul style="list-style-type: none"> • Czech Hydrometeorological Institute leads monitoring on air quality and water quality and quantity • Air quality monitoring has a core system of several hundred automated stations connected in an integrated information system • Recently, monitoring in urban areas has been strengthened to address and track air pollution from traffic 	<ul style="list-style-type: none"> • Czech Republic implements EU standards 	<ul style="list-style-type: none"> • Regional authorities are in charge of integrated permitting (IPPC) and other permitting • In addition to environmental permits, new facilities must obtain land use/construction permits from regional or local authorities (construction departments) • Permits also needed to build on agriculture land (i.e. change to industrial/urban land) 	<ul style="list-style-type: none"> • Czech Environmental Inspectorate, with about 500 inspectors, monitors and controls compliance of large and medium facilities • The Inspectorate operates through regional offices (which are not linked to regional governments) • Municipalities responsible for small facilities • Inspectorate usually uses administrative sanctions, esp. fines for violations • Fines are paid in about 80% of the cases, but levels are not high enough to deter violations • Inspectorate rarely goes to court to apply criminal law

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
Poland	<ul style="list-style-type: none"> National Environmental Inspectorate has leading role for monitoring the Inspectorate has a national and regional offices Monitoring carried out at national, regional and local levels Most enterprises undertake self-monitoring (i.e. report their emissions levels) More detailed emissions monitoring for 80 “worst polluters” 	<ul style="list-style-type: none"> Poland implements EU standards 	<ul style="list-style-type: none"> Voivods (regions) grant environmental permits for large facilities Counties (poviats) grant permits for small and medium-sized facilities 	<ul style="list-style-type: none"> National Inspectorate responsible for enforcement at large and special facilities Regional (voivod) inspectorates responsible for enforcement in other facilities Poland has about 2500 environmental inspectors in total Inspectorates have wide powers to impose administrative sanctions (e.g. fines) Facilities emitting above limits must pay fines (10 times higher than charges); inspectorates often allow them to make investments in lieu of paying fines
Lithuania	<ul style="list-style-type: none"> Law on Environmental Monitoring establishes three levels of monitoring: state, municipal and economic entities. Ministry of Environment has the overall responsibility for state monitoring Environmental Protection Agency under the Ministry is the central institution organising and supervising state monitoring Government adopts detailed multi-annual programmes for state environmental monitoring, setting responsibilities and actions for key institutions The monitoring system covers about 70 parameters in water sector and 13 parameters in air sector 	<ul style="list-style-type: none"> Lithuania implements EU standards In addition to EU standards, Ministry of Health Care Requirements also sets requirements for noise management 	<ul style="list-style-type: none"> Integrated permits are issued by the Regional environmental protection departments of the Ministry of Environment, following EU IPPC Public is informed of all applications for environmental permits 	<ul style="list-style-type: none"> Main institutions are the State Environmental Inspection and the Regional Environmental Protection Departments About 350 environmental inspectors working full-time. In addition, about 150 other employees of environmental inspection, regional departments and other institutions have authorisation as inspectors Inspectors are provided intensive training The laws set both administrative and criminal sanctions for violations of environmental laws Economic sanctions can also be applied In case of damage to the environment – e.g. based on the amount of pollutants emitted during an accidental event About 6500 industrial facilities are inspected per year: in total about 11500 inspection visits per year

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
Mexico	<ul style="list-style-type: none"> Monitoring carried out through both national and local programmes (23 permanent, automated monitoring stations in most polluted areas; manually operated systems in other areas) Monitoring is usually carried out by National Research Institutes that are part of SEMARNAT, such as the National Institute for Ecology and the National Institute for Statistics, Geology and Information. National System of Air Quality Information (SINAICA) administers permanent monitoring systems for air pollution, including stations in many polluted areas Five traditional air pollutants are permanently monitored to verify progress towards and achievement of the objectives: CO, NO₂, SO₂, PM₁₀, ozone Ecosystem monitoring uses remote sensing techniques to identify changes in land use and vegetation Other monitoring programmes or networks for surface water quality, marine environment protection, forestry, toxic substance releases. Monitoring requirements are in cases scaled to pollution size: e.g. municipal wastewater monitoring requirements depend on population size. The Industry Verification Program is a self-monitoring programme requiring industries to measure their air emissions once a year and report the results. GHG-Mexico Programme for reporting and accounting GHG-emissions, which includes the national oil concern PEMEX. 	<ul style="list-style-type: none"> Standards are set at the Federal level, if necessary on the basis of inter-institutional coordination with authorities at state level. State standards can be more stringent than Federal ones In general, emissions and discharge standards have evolved from uniform sectoral limits to values based on ambient quality levels: e.g. air emission standards in major cities facing severe pollution Ambient <i>air quality</i> standards are set for seven parameters: CO, NO₂, SO₂, PM₁₀, lead, total suspended particles, PM_{2.5}. <i>Air emissions</i> standards for stationary and vehicle sources: a total of In addition, about 15 specific standards Mexico has also simplified and some of its standards: for example, standards in the area of waste water discharges were streamlined from 43 standards: for municipal discharges, two main standards are used, biochemical oxygen demand and total suspended solids. For <i>water quality</i> as whole, national limits are set for 17 parameters. Energy efficiency standards are coordinated between NAFTA partners in order not to create trade distortions. 	<ul style="list-style-type: none"> The 1988 General Law establishes a form of integrated permitting and self-regulation: the Single Environmental License allows companies to apply for all permits at the same time The Public Register of Water Rights lists water permits on the Internet 	<ul style="list-style-type: none"> The Federal Attorney for Environmental Protection (PROFEPA) is the enforcement administration of the Department of Environment and Natural Resources. Through its 31 offices across the country, it verifies compliance with Federal environmental legislation. Its budget has recently increased, but the number of inspectors has decreased. Its mandate covers industrial activities, natural resources management, hazardous waste and air regulations. PROFEPA is responsible for inspections, administration of fines and penalties and responses to public complaints, enforcement of international agreements. It cooperates with the Federal Prosecutor to pursue the environmental offences listed in the Federal Penal Code. The enforcement of water and waste water regulations is a responsibility of the National Water Commission. The National Programme of Environmental Auditing is a voluntary mechanism focused on the largest emitters awarding a Clean Industry Certificate. Since its reform in 2001, PROFEPA has issued over 3000 Certificates to businesses (e.g. national oil concern PEMEX)

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
China	<ul style="list-style-type: none"> • MEP (formerly SEPA) has overall responsibility for environmental monitoring • EPBs undertake pollution monitoring at local and provincial levels • Each monitoring organisation at the sub-national level is subordinated to an upper level monitoring station and to the same level environmental protection administration. • Monitoring is fragmented: China lacks a unified environmental information system, and many monitoring gaps remain • China has more than 3200 monitoring stations for water quality and 2000 for air quality (half belong to the nation-wide air quality network operated by the China National Environmental Monitoring Centre) • Monitoring of ambient air quality focuses on NO₂, SO₂, PM₁₀, CO, TSP, NO_x, and ozone. Also monitoring of acid rain (with pH less than 5.6) • Only 22 monitoring stations for nature protection. • Self-monitoring: industry is required to file a yearly pollutant discharge registration. 	<ul style="list-style-type: none"> • SEPA has set about 500 standards exist at the national level across the areas of ambient air quality, energy efficiency, drinking water quality, industrial wastewater, surface water quality and more • Separate air quality standards are set for natural, residential and industrial areas • Surface water standards cover 23 parameters, including chemical oxygen demand, biochemical oxygen demand, ammonia, phosphorus, total nitrogen, metals, petroleum and phenol (OECD Environmental Performance Review of China) • The provinces, autonomous regions and municipalities may establish local standards for environmental quality for items not specified in the national standards. • These local administrations may also set more or less stringent standards than those already covered by the national law, if reported to the national administration and published in a register. • China has both concentration-based standards for individual wastewater discharges and total load-based standards for all discharges in a region, but the two are not clearly co-ordinated. 	<ul style="list-style-type: none"> • The regional/local EPBs are responsible for issuing permits, which include water discharge permits, abstraction permits, permits for the operations of hazardous waste, and others • The current pollution permitting system is fragmented and not backed up by legally binding provisions and procedures • No systematic integrated permitting system. 	<ul style="list-style-type: none"> • China's five-year plans (including current plan) regularly emphasise the need to strengthen environmental enforcement and compliance. • Responsibility for compliance issues lies mainly at the sub-national level with the EPBs under the direction of the MEP (formerly SEPA). • In 2004, China had 3000 environmental inspection agencies with about 50 000 personnel at state, province, city and county levels • SEPA/MEP oversees enforcement actions, including coordination of disputes between provinces, inspection of polluted areas • In case of non-compliance with permit requirements, the permit can be withdrawn. However, in practice, the enforcement of permit requirements is weak • Civil and criminal sanctions exist for violations of environmental regulations.

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
India	<ul style="list-style-type: none"> • State Pollution Control Boards (SPCBs) monitor industrial emissions • Central Pollution Control Board sets guidance on rate of facility inspections: large and highly polluting facilities should be inspected more frequently • Reportedly, site inspections are usual partial (i.e. do not cover all emissions) • No standard procedures for emissions monitoring • Inspections are reportedly rare for SMEs, which emit about 70% of industrial pollution • Some states seek to focus on highly polluted areas • Some NGOs have supported monitoring, e.g. with air pollution monitoring kits for local groups 	<ul style="list-style-type: none"> • National government sets ambient standards (as well as emissions standards) • Central Pollution Control Board sets <i>air emission</i> and <i>wastewater discharge</i> standards for key industrial sectors: these set a minimum, and SPCBs can set stricter requirements in “consents” (permits) and for sectors not regulated at national level • Emission and discharge standards are often not met, and appear too strict for India’s level of development 	<ul style="list-style-type: none"> • State Pollution Control Boards (SPCBs) provide “consents” (permits) to “establish” and to “operate” under national air and water acts • Facilities need both a “consent to establish” and a “consent to operate” • Some new facilities also need a “Prior Environmental Clearance” based on an EIA • Each state sets its own rules, though Central Pollution Control Board provides overall guidance • Consents reportedly are rarely denied, but process can be lengthy • In practice, SMEs operate without receiving consents 	<ul style="list-style-type: none"> • SPCBs can require corrective action, set compliance schedules, remove “consents” and shut non-compliant facilities or cut power and water supplies • SPCBs have focused on largest polluters • Some states temporarily shut non-compliant facilities • Fines are less commonly used • SPCBs can also bring criminal cases, but trials are lengthy and may fail on minor points of law • Central Pollution Board has only 120 technical staff and only 500 total • SPCBs also lack adequate staff and budget • Lack of enforcement and compliance for India’s many small enterprises, which together are significant pollution sources • National Environment Plan calls for the introduction of civil liability for polluters to supplement criminal liability, which has not been sufficient. • State and central pollution control boards seek to raise polluters’ awareness of environmental laws

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	Environmental monitoring	Setting environmental standards	Permitting framework	Compliance and enforcement: institutions and approaches
Kazakhstan	<ul style="list-style-type: none"> • Kazhydromet monitors the environment condition. • Ambient air (20 stations), atmospheric precipitation (40 stations), inland and sea surface waters (observations at 176 hydrological sections), soils (in industrial cities), radiation (69 meteorological stations), background (one station in Borovoye) are monitored. Kazhydromet carries out the environmental monitoring in the Caspian Region. • Natural resources are monitored as well as special types of monitoring (monitoring of military test facilities, Baikonur space center, GHG gases and ODS, sanitary and epidemiological situation,, emergency situations and environmental catastrophes; space monitoring) are carried out within the frames of the Unified State System for Environment and Natural Resource Monitoring in Kazakhstan. • Government agencies' environmental monitoring systems implement certain elements of the environmental monitoring (Kazakh Land Resources Agency, Ministry of Agriculture, Ministry of Health, Ministry of Energy and Mineral Resources, Ministry of Emergencies). • Many industrial enterprises (natural resource users which production technologies include environment pollution sources) have industrial environmental monitoring systems. 	<ul style="list-style-type: none"> • The new revision of the Methodology to Determine Standards for Emissions into Environment was approved in 2007. • The environment management system is under implementation (ISO 14001:2004). • The Law of the Republic of Kazakhstan on Technical Regulation (2004) regulates certification, standardization and metrology of any domestically manufactured and imported products. • Key changes in environmental standards: <ul style="list-style-type: none"> - The list of the regulated substance was reduced. - The possibility to substantiate environmental standards based on environment quality targets and best available practices. • Changes in waste disposal: <ul style="list-style-type: none"> - The approach to classification and setting the standards was brought in line with the Basel Convention and relevant directives of the European Union. - The waste ownership standards, standards for waste ownership transfer from one party to another party and to the state were introduced. - The transition from waste generation regulation to waste disposal regulation. 	<ul style="list-style-type: none"> • The List of Environmentally Hazardous Types of Commercial Activities and the Rules for Their Mandatory State Licensing were approved in 2004. • The practice of issuing permits to flare associated and natural gas was introduced in 2006. • Starting from 2006 natural resource management permits have been issued for three to five years (instead of annual permits as per the previous practice). • The Environment Audit Chamber will be in charge of licensing works and services in the field of environment protection (licensing of environmentally hazardous types of activities, licensing of environmental engineering, standard setting and environmental expert assessment, licensing of environmental audit). 	<ul style="list-style-type: none"> • The main objective of the Environmental Regulation and Monitoring Committee is to monitor the compliance of state authorities and enterprises with environmental legislation requirements. • According to the Head of the Kazakh Environment Protection Ministry, the operation of 226 enterprises was suspended in 2007 due to environmental violations.
Ukraine: 2007 UN ECE Environmental Performance Review	<ul style="list-style-type: none"> • Main elements of the system is basically the same, various monitoring institutions report to different government bodies, no harmonized methodology • Interdepartmental Commission established in 2001 but doesn't work • State of Environment reports are not made after 2003 • The mandatory air monitoring program includes seven pollutants: TSM, NO₂, SO₂, CO, formaldehyde, lead and benzo(a)pyrene. 	<ul style="list-style-type: none"> • Standards system for water emissions did not change much since 1990s and still is based on MACs rather on discharge limits • Emission standards for air emissions (over 100 pollutants) introduced in 2006 applied uniformly for all industries independently on the size • 	<ul style="list-style-type: none"> • The environmental permitting system is based on individual permits, MACs (except of air emissions) and single-media standards • There is no prioritization and differentiation between large and small pollution sources • There are plans for environmental permitting reform and Law on IPPC 	<ul style="list-style-type: none"> • Enforcement is ineffective (unenforceable requirement, lack of resources, absence of strategy) • Total staff of State Environmental Inspectorate (SEI) is 4000 including 2900 inspectors which are reporting to SEI, MEP and oblast administrations • Presence of 1450 public inspectors in addition to SEI inspectors • Reliance on compliance rather than incentives • Use of economic sanctions is generally preferred, damage compensation instrument is complicated to use

Instruments for Environmental Policy – 2

	EIA/SEA	Economic instruments	Environmental expenditures
Russia: 1999 OECD Environmental Performance Review	<ul style="list-style-type: none"> • Obligatory EIA (OVOS) and State Environmental Review (Expertise) for all planned activities and constructions according to Law on Environmental Review(Expertise) (1995) and Regulations on EIA (2000) • State Ecological Reviews (“expertise”) undertaken by the SCEP and its regional committees • System provides opportunities for public information and participation in State Ecological Review process, but this opportunity used in only a few cases • System provides opportunity for undertaking Public Environmental Review (Expertise) 	<ul style="list-style-type: none"> • Charges for air and water pollution: revenues collected in federal and regional environmental funds. • Enterprises can “offset” their environmental investments, reducing pollution charge payments • Charges for water abstraction and other natural resources use • Consumer water prices typically do not cover cost of water services (drinking water and wastewater treatment) 	<ul style="list-style-type: none"> • Total environmental expenditures estimated at 2.2% of GDP in 1997; • Environmental Investments constitute only 20% of overall environmental expenditures (about 0.4% of GDP); • Enterprises cover about 60% of investments, environmental funds less than 20%; • Enterprises and local governments provide main support for water services; in many cities conditions are poor due to lack of resources; • 25 Federal Targeted Environmental Programme.
Russia: 2008 Current Environmental Performance Overview	<ul style="list-style-type: none"> • Sphere of application of EA system (State Environmental Review) and EIA system (OVOS) established in 1990s was dramatically reduced in 2006 • Amendments to the City Planning Code and to the Law on Environmental Review (Expertise) made the State Environmental Review and OVOS not obligatory for most investments including major and dangerous industrial projects 	<ul style="list-style-type: none"> • Wide-ranging system of charges, including for air pollution, for wastewater discharges, for waste disposal, for withdrawal of both surface water and groundwater; • Taxes for natural resource extraction; • Charges for negative environmental impact; • Fees and fines for violation of environmental regulations and standards; • Lack of incentives to reduce pollution; • No real implementation mechanism of tax relief for environmentally friendly technologies. 	<ul style="list-style-type: none"> • Total environmental expenditures estimated at 1.3% of GDP in 2005; • In 2006 total environmental investments from public budget estimated at 0.04% (2000 – 0.02%); • In 2006 the share of environmental investments in total investment was 1.5% (against 1.9% in 2000) with public federal/regional/local spending at 0.4 -0.5%.; • In 2006 enterprises covers 70% of investments, region and local budgets – 18.2%, federal budget – 10.4%, other sources - 1.4%.

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	EIA/SEA	Economic instruments	Environmental expenditures
USA	<ul style="list-style-type: none"> • EIA set in NEPA (1969): required for all federal government actions and all new projects and facilities requiring a federal permit • EIA studies should include a detailed statement on alternatives to the proposal and on mitigation actions, where needed • Several states (e.g. California) have EIA requirements for state actions • No SEA requirements 	<ul style="list-style-type: none"> • Emissions trading used to reduce air emissions of NOx and SOx • Trading rights have also been used in some states for water supply and wastewater treatment • Strong liability rules for accidents and land contamination have led major companies to improve safety and reduce spills • North-eastern states have prepared a CO₂ emissions trading system – see: http://www.rggi.org/ • On the other hand, tax incentives, such as accelerated depreciation, are used more frequently: e.g. Brownfield Tax Incentive to clean up and reuse contaminated sites such as old urban industrial areas • Environmental taxes not often used • A few states have applied economic instruments for diffuse water pollution: e.g. pesticides tax in Massachusetts • Users of water services (water supply, wastewater treatment) pay charges that cover at least maintenance costs • Some states use a deposit system drink containers 	<ul style="list-style-type: none"> • No data since 1999 • Federal grants for municipal water infrastructure were replaced by a low-interest loan programme in the late 1980s: each state has its own fund, initially capitalised by national and state budget and replenished by loan payments • State and municipal governments can also finance infrastructure via loans and bonds

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	EIA/SEA	Economic instruments	Environmental expenditures
Canada	<p>Federal</p> <ul style="list-style-type: none"> Legislative process under the Canadian Environmental Assessment Act governs EIAs and associated review/approval processes for developments and activities under Federal jurisdiction. EIA process provides for screening process, mandatory EIAs for certain types of projects as well as exclusions and conditions that trigger the federal process (including those nominally under provincial jurisdiction. Agreements with 7 provinces and 1 territory to undertake joint EA process where both jurisdictions have a jurisdictional interest (plus specific agreements with 2 provinces for EA applied to offshore oil and gas development) Major developments subject to formal quasi-judicial public hearing process Provision for application of CEAA process outside of Canada (i.e. international agreements or assistance) although not exercised to date. SEA's administered by CEAA provided for under Cabinet Directive and applied to Federal Departments, although the actual application is limited. <p>Provincial</p> <ul style="list-style-type: none"> All provinces have EA processes applicable to activities under provincial jurisdiction that generally have similar process characteristics related to screening, designated mandatory reviews and public participation. Main variation is in the application and frequency of formal quasi-judicial hearings before an independent body for major or controversial developments which is done in a number of provinces. Public pressure is forcing action on cumulative impact assessment particularly in the context of land use management and long term resource development 	<ul style="list-style-type: none"> Increasing application of economic instruments targeting particular policy priorities. Main application is provincial product stewardship measures as a waste reduction incentive and for financing of waste diversion usually by voluntary industry associations or independent stewardship boards. Recent federal national climate change initiatives introduces carbon markets and trading mechanisms but as yet not developed and have little substance. Several provinces have or are implementing cap and trade systems, some collectively with each other and also with US states. British Columbia is initiating a carbon tax. 	<ul style="list-style-type: none"> Business expenditures on environmental protection Cdn\$6.8 billion (2004), 53% on pollution prevention, 25% on pollution abatement. Expenditures constant from 2002 but significantly increased (25%) from 2000. Federal Government 2007 expenditures on environment Cdn\$4.3 billion, 5% increase from 2004. Consolidated Government (Federal, Provincial, Local) 2007 expenditures were Cdn\$14.3 billion, 21% increase from 2004
EU	<ul style="list-style-type: none"> Comprehensive EIA and SEA legislation at EU level: applied in all Member States EIA is obligatory for dangerous facilities, large power stations, major transport infrastructure, intensive pig farming For other projects and facilities, Member States decide on requirements and thresholds for EIA SEA required for major plans and programmes for land-use planning, forestry, transport, energy and other areas SEA should identify: adverse impacts; measures to prevent, reduce or offset these; related monitoring measures For both EIA and SEA, information must be made available to the public, which has a right to participate EU has a separate assessment procedure for projects and plans that can affect protected areas (Natura 2000 sites) 	<ul style="list-style-type: none"> Most prominent EU instrument: Emissions Trading System for CO₂ EU policy (e.g. Sixth Environmental Action Programme) and legislation (e.g. Water Framework Directive) encourages Member States to introduce economic instruments Water Framework Directive calls on Member States to recovery costs of water supply – including maintenance and financial costs of services as well as environmental and resource costs Setting taxes and charges is generally a national prerogative Integrated product policy establishes producer responsibility for consumer products In some areas (waste electronics, motor vehicles), producers are responsible for ensuring recycling of products at end of life 	<ul style="list-style-type: none"> EU Structural and Cohesion Funds provide grants for environmental infrastructure in poorer regions of EU: e.g. over €3 billion to build urban wastewater treatment in Poland from 2007 through 2013 EU sets strong accounting and control requirements Questions have been raised about cost-effectiveness of the grant-based funding approach European Investment Bank provides low-interest rate loans to co-finance environmental and other infrastructure in Member States (as well as some financing for third countries) LIFE Programme provides (much smaller) financing for pilot environmental/nature projects

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	EIA/SEA	Economic instruments	Environmental expenditures
Germany	<ul style="list-style-type: none"> EIA and SEA procedures aligned to EC legislation 	<ul style="list-style-type: none"> Ecotaxes, financial incentives, tax relief mechanisms are widely used, recently in particular to promote renewable energy sources 	<ul style="list-style-type: none"> Public sector: approx. 1.3% of GDP Private sector: approx. 0.3% of GDP Level steady since 1998
Sweden	<ul style="list-style-type: none"> Sweden implements EU EIA and SEA requirements Counties are largely in charge of EIA procedures and decide whether a proposed activity is likely to have significant environmental impact or not 	<ul style="list-style-type: none"> Sweden has introduced a series of environmental taxes, including on carbon dioxide emissions, sulphur emissions, thermal output from nuclear power plants, waste sent to landfills, pesticide. See: http://www.naturvardsverket.se/en/In-English/Menu/Legislation-and-other-policy-instruments/Economic-instruments/ Environmental taxes implement Sweden's Environmental Objectives Environmental taxes are part of green tax reform: Sweden has reduced labour taxes Environmental requirements are included in more than two-thirds of public procurements in Sweden, in particular to reduce greenhouse gas emissions. 	<ul style="list-style-type: none"> Public sector: approx. 0.3% of GDP Private sector: approx. 0.2% of GDP
Czech Rep.	<ul style="list-style-type: none"> Czech Republic implements EU EIA and SEA Regional authorities responsible for most EIAs National authorities responsible for EIAs of major projects and activities (e.g. projects with cross-border impacts; nuclear power plants; major motorways) National authorities responsible for SEAs 	<ul style="list-style-type: none"> Wide-ranging system of charges, including for air pollution, for wastewater discharges, for waste disposal, for withdrawal of both surface water and groundwater and for mining User charges for water supply and wastewater treatment Companies using dangerous chemicals must hold liability insurance against major accidents 	<ul style="list-style-type: none"> Environmental investments were about 0.7% of GDP at beginning of decade, a decline compared to 1990s, and are increasing again to an expected 2.0% to implement EU requirements State Environmental Fund provides an important source of investment financing (using pollution charge revenues) and also administers EU Structural and Cohesion Fund spending for the environment
Poland	<ul style="list-style-type: none"> Poland implements EU EIA and SEA requirements EIA Commissions exist at national and provincial levels to advise, respectively, the Minister of Environment and Provincial "Voivods" on EIA related matters and to monitor the functioning of the EIA system. 	<ul style="list-style-type: none"> Environmental charges for water consumption, waste disposal, pollutant emissions to air and natural resource extraction Although charges have been relatively high, they have a mainly revenue-raising function – i.e. restricted incentive effect in terms of reducing pollution Also non-compliance fines (see enforcement) 	<ul style="list-style-type: none"> National Environmental Fund as well as regional (voivod), county (powiat) and municipal environmental funds, all financed by pollution charges Ongoing concerns about transparency of the fund system Separate EcoFund financed by debt swap

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	EIA/SEA	Economic instruments	Environmental expenditures
Lithuania	<ul style="list-style-type: none"> • Lithuania implements EU requirements • During the EIA process, municipalities have right to decide if an economic activity can be carried out in their territory. If they decide against, EIA process is terminated • Final EIA decision is made by regional environmental department 	<ul style="list-style-type: none"> • Law on Charges on Environmental Pollution sets charges for water pollution discharges; air pollutants emitted by mobile and stationary sources; certain products (for batteries, tyres, oil and air filters, oil shock absorbers); and packaging (glass, plastics, PET, paper and cardboard, metal, composite) • Taxes are set on extraction of natural resources • Economic sanctions can be applied for when discharge limits are exceeded, for other damage the environment and for logging without permit • Subsidies are provided for public and private environmental investment • Excise tax reduction for bio fuels • Fixed (subsidised) tariffs for renewable energy • User charges for water supply, discharge of waste water and municipal waste management 	<ul style="list-style-type: none"> • Main sources of public environmental expenditure are EU Cohesion and Structural Funds (approx 75%) and national/local co-financing (approx 25%) • Municipal budgets and Environmental Investment Fund provide further finance • Public environmental investment is growing mainly because support from EU funds is increasing • Total public sector expenditure: approx. 0.7% of GDP • Private sector investment: approx.0.6% (investment) of GDP
Mexico	<ul style="list-style-type: none"> • Responsibility for EIA at the Federal level belongs to the under-ministry of environmental management, part of SEMARNAT. An EIA is mandatory for the project or activities mentioned in the General Law on Ecological Balance and Environmental Protection likely to have a significant impact on the environment. • Responsibility for EIA at the regional level belongs to the corresponding Environmental authorities. • The distribution of competencies for EIA as well as consultation procedure for the federal or regional authorities, if so required, is established by law. • General Law requires municipalities to participate in EIAs • An EIA must include a public consultation process. • No agreement yet on transboundary EIA. 	<ul style="list-style-type: none"> • Polluters pay fees for discharging pollutants into national water bodies: revenues must be used for water infrastructure expenditures • No charges for air pollution, solid waste and environmentally hazardous activities • Few environment-related taxes used • Accelerated depreciation allowed for investments in clean technology • Zero tariffs on imports of pollution control equipment in the absence of domestically produced equipment. • Subsidies for sustainable forest management and timber certification. • Strong political opposition to the removal of environmentally-harmful subsidies. 	<ul style="list-style-type: none"> • Public sector: 0.5% of GDP (not including regional level, expected to be small) • Level steady since 2000 (1990s levels were lower) • Mexico has access to international development banks, including North American Development Bank, set up jointly by the US and Mexico specifically to finance environmental investments, in particular in border areas

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	EIA/SEA	Economic instruments	Environmental expenditures
China	<ul style="list-style-type: none"> The 2003 EIA Law introduced mandatory impact assessment that applies to projects and also to policies and plans (and thus provides SEA). However, the law still needs to be fully implemented. 	<ul style="list-style-type: none"> Pollution charges for air, noise, water and waste are based on the concentration and volume of the pollutant (but are not linked to emissions/discharge standards) Overall, pollution charges are low and can be further reduced by the local authorities Revenue goes mainly distributed to local authorities, which must use it for environmental protection, though not for expenses of the inspection agency (thus hindering better enforcement). Households and industry pay user charges for water supply, waste water treatment, municipal solid waste Extent of fee collection varies from region to region. Pilot emissions trading projects have been organised in a few provinces to test conditions for a possible national system Ecological compensation programme for farmers 	<ul style="list-style-type: none"> In 2004, environmental investment expenditure in China reached 1.2% of GDP Investments related to urban environmental infrastructure (e.g. wastewater treatment, waste management) accounted for about 60% of environmental investment
India	<ul style="list-style-type: none"> EIA linked to the "Prior Environmental Clearance" require for major new industrial facilities New EIA rules (introduced in 2006) require public consultation for nearly all large projects: process include open public hearings as well as period for written comments EIA documents must be available on Internet and in paper copies to those who request it 	<ul style="list-style-type: none"> 25% reduction of wastewater charges for facilities complying with effluent rules Some national and state subsidies for pollution control by SMEs in highly polluted zones (e.g. for conversion to natural gas from coal fuel) The National Environmental Plan (2006) suggests a review of economic instruments with a view to introducing them and creating a National Environmental Restoration Fund with the proceeds 	<ul style="list-style-type: none"> No data found on overall level of expenditure Some large industrial facilities have spent considerable resources for pollution control Small enterprises spend little; some state governments provide subsidies for pollution control
Kazakhstan	<ul style="list-style-type: none"> All planned environmental activities are carried out in accordance with the Environmental Code and the Concept of Transition of Kazakhstan to Sustainable Development. 	<ul style="list-style-type: none"> Introduction of new economic mechanisms: <ul style="list-style-type: none"> The provisions to introduce tax relief for enterprises certified as per ISO:9000 and ISO:14000 were introduced into the Tax Code. The transfer from environmental payments to environmental taxes is underway. Environmental requirements are becoming more rigid, the size of penalties has increased (up to the extent of damage). Starting from 2008 the competition for state certificates "Green Oil" will be carried out (the certificates will be granted for best achievements of oil companies in the field of environment protection). 	<ul style="list-style-type: none"> The Kazakh Government allocates 0.6% of total budget expenditures for environment protection. The current level of financing does not make it possible to ensure resolution of many environmental problems of Kazakhstan. Environmental expenditures in Kazakhstan shall be doubled. Bigger investments of industrial enterprises into environment protection shall play a significant role; in accordance with the Environmental Code the Environment Protection Ministry currently approves mandatory environment protection plans of natural resource users.

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	EIA/SEA	Economic instruments	Environmental expenditures
Ukraine: 2007 UN ECE Environmental Performance Review	<ul style="list-style-type: none"> • Law on Ecological Expertise (LEE) of 1995 is still the basis for the state ecological expertise (SEE), a procedure that includes the environmental impact assessment (EIA) • SEE is compulsory for 22 different types of activities causing high environmental risks • Ecological expertise could be also applied to draft programmes and projects of sectoral and territorial development but it never happened • Opportunities for the public to participate in the SEE process have improved, Aarhus and Espoo Conventions are ratified (while non-compliance takes place) , • Protocol on Strategic Environmental Assessment (SEA) to the Espoo Convention signed, but it has not yet ratified • About 6000 ecological expertises done annually (Denmark – 100, UK-500) 	<ul style="list-style-type: none"> • Overall framework for economic instruments has remained basically unchanged • State Tax Administration was entrusted with the control over the timely collection of pollution charges payments, which improved collection performance • The revenues of the environmental funds grew quickly during last years, increasing 4.3 times in 1999–2004 in dollar terms. • Revenues also rose significantly in relative terms, in total while as a percentage of GDP it was flat (around 0.1% in 2001-2004) • Most of environmental funds do not follow St-Petersburg Guidelines 	<ul style="list-style-type: none"> • Environmental funds finance only a part of public environmental expenditure, average 29.1 per cent of total expenditures in the period 2001–2004 • During the more recent period, there was a noticeable increase in environmental expenditures, which doubled from US\$ 650 million in 2002 to US\$ 1.1 billion in 2004. • The share of expenditures by companies has been growing and now represents about 80 per cent of total expenditures. • Environment money spent by government bodies other than MEP cannot be disaggregated from the bulk of expenditures reported by the Ministry of Finance, which makes analysis difficult.

Public Participation

	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Russia: 1999 OECD Environmental Performance Review	<ul style="list-style-type: none"> • Annual State of the Environment Reports published at national level; all regions publish similar reports • Legislation establishes a citizen's right to access to information that has a public significance and/or affect human rights • Nonetheless, much environmental information is not easily accessible (e.g. fees required) • Little effort to inform citizens of local pollution (e.g. air pollution levels) 	<ul style="list-style-type: none"> • NGO representatives participated in development of National Environmental Action Programme • Overall, public participation stronger at regional level 	<ul style="list-style-type: none"> • Russian legislation has established a right of access to the courts • NGOs have used this in a number of cases, in particular to challenge environmental assessments of new projects 	<ul style="list-style-type: none"> • Several all-national NGOs performing activities on federal and regional levels • Many NGOs, in particular at local and regional levels, though most are small • Some important national campaigns for nature protection • Larger groups connected to international NGO networks
Russia: 2008 Current Environmental Performance Overview	<ul style="list-style-type: none"> • Annual State of the Environment Reports published at the national level, some regions publish similar reports; • State Ministries and Agencies have on-line information resources; • Changes in legislation on information (2007) do not affect citizen's rights to access to information 	<ul style="list-style-type: none"> • Opportunity for public participation in EIA established by Regulation on EIA (2000); • Less opportunities for public participation in the process of the State Environmental Review according to the City Planning Code; • Increase of activity of NGOs in public participation. 	<ul style="list-style-type: none"> • Citizen's and NGOs have and access to justice for protection of environmental rights, of access to information; • Number of cases on federal, regional and local levels. 	<ul style="list-style-type: none"> • NGOs and their coalitions have increased the influence on development⁵ the state environmental policy; • Several important national campaigns have achieved substantial results, i.e. moving the route of the East Siberian Pipeline from the Baikal Lake. •
USA	<ul style="list-style-type: none"> • US EPA publishes regular state of the environment reports • Under US Freedom of Information Act, almost all government records are available to the public upon request (exceptions include national defence, trade secrets and personal private) • The national Toxic Release Inventory provides pollution information reported by over 60,000 facilities 	<ul style="list-style-type: none"> • Broad range of mechanisms for public participation in decision-making, from advisory committees for policy priorities to open consultation for regulatory proposals • A public comment period of at least 30 days is required for all federal rules • Some state allows referendums to approve new legislation or abrogate existing legislation 	<ul style="list-style-type: none"> • Environmental NGOs and individuals have legal standing in national and state courts: this right is set in several environmental laws, including those for air, water and hazardous waste disposal • Citizens can petition federal agencies for action: e.g. law on toxic substances specifically allows citizens to petition EPA to set new rules • Some state laws also allow citizens to bring a court action to directly enforce environmental laws (e.g. Michigan) 	<ul style="list-style-type: none"> • Vibrant sector, with high levels of public membership (groups with >1 million members) and large resources from both members and independent foundations • Activities include: <ul style="list-style-type: none"> ○ Lobbying ○ Legal action ○ Public education ○ Purchase and management of natural areas ○ Support for environmental action in third countries (esp. development countries)

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Canada	<p>Federal</p> <ul style="list-style-type: none"> • Regulatory approvals submissions subject to public notice and access specifically those subject to Federal EIA • Pollutant release inventory information by source and pollutant public. • Public registry of Federal EIA process documentation • Environmental Petitions process administered by Auditor General allowing citizen access to information. • Overall application of federal Freedom of Information legislation <p>Provincial</p> <ul style="list-style-type: none"> • Generally access to environmental information available to government considered in the public domain in some cases through formal State of Environment Reporting or registries. • Legislated rights and process in Ontario under an Environmental Bill of Rights. 	<p>Federal</p> <ul style="list-style-type: none"> • Mandatory public review of legislative and regulatory measures under CEPA and other federal environmental legislation. • Open public participation in federal EIA process • Participant funding provided for under CEAA for federal EIA process. <p>Provincial</p> <ul style="list-style-type: none"> • Generally acknowledge public participation in environmental decision making with variable degrees of application and restriction. • General principle of an obligation of proponents to demonstrate public consultation as a permitting/licence application prerequisite. • Participant funding provided for in some jurisdictions but not universal. 	<ul style="list-style-type: none"> ▪ Tradition of third party access courts to force government environmental action with significant impact on improvement of government and proponent sensitivity to environmental process and performance issues. ▪ Citizen “Whistle Blower” protection respecting reporting violations under CEPA ▪ Legislated rights and process in Ontario under an Environmental Bill of Rights. ▪ NGO based legal and financial support organizations 	<ul style="list-style-type: none"> ▪ Large number of national, provincial and local NGO’s active in advocacy, independent research/analysis and in taking legal action on environmental management issues that provide a balance to strong industrial and proponent lobby interests. ▪ They have been effective in forcing court action to force government to apply legislated and regulatory mandates, particularly in bringing federal legislation to bear on provincial development decisions and on global issues. ▪ Active conservancy organizations for financing and stewardship of protected places.
EU	<ul style="list-style-type: none"> • European Environment Agency (EEA) publishes EU State of the Environment report every 5 years • EEA provides extensive data and analysis on environmental issues and conditions • On-line European Pollutant Emission Register provides data on major pollution sources, and will become the more complex “E-PRTR” system in 2009 	<ul style="list-style-type: none"> • European Commission organises stakeholder consultations for all major initiatives (often via the web) • Members of the European Parliament often consult and work with environmental NGOs • Some EU legislation calls for local participation: e.g. in the development of river basin management plans 	<ul style="list-style-type: none"> • NGOs not granted standing in front of European Court of Justice, except where directly affected • NGOs usually inform European Commission of possible violations –the Commission then decides course of action 	<ul style="list-style-type: none"> • Most EU NGOs are coalitions of national (Member State) NGOs • EU NGOs lobby for stronger environmental legislation and policy and for better policy integration
Germany	<ul style="list-style-type: none"> • Aligned to Aarhus Convention and EC legislation 	<ul style="list-style-type: none"> • Aligned to Aarhus Convention and EC legislation 	<ul style="list-style-type: none"> • In matters of access to information and participation aligned to Aarhus Convention and EC legislation. Outside this are, access to justice in environmental matters very restrictive and dependent on the impairment of a subjective right 	<ul style="list-style-type: none"> • Relatively strong NGO activities, in particular as regards biodiversity and nature protection. Supported by a public opinion which is very sensitive to environmental issues.

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Sweden	<ul style="list-style-type: none"> Sweden has ratified the Aarhus Convention Every four years the Environmental Objectives Council prepares an in-depth evaluation on actions to achieve national objectives Sweden maintains a national Pollutant Release and Transfer Register (PRTR) which makes emission data available to the public; information is also provided to the European Pollutant Emission Register (EPER) The public is informed of many procedures, such as applications for environmental permits 	<ul style="list-style-type: none"> NGOs participate in the permitting processes NGOs participate in EIA procedures at national as well as county and local levels 	<ul style="list-style-type: none"> Public access to courts 	<ul style="list-style-type: none"> Swedish environmental NGOs work closely with the Ministry of Environment and are supported by project grants Several NGOs have broad memberships, the largest with 170,000 members.
Czech Rep.		<ul style="list-style-type: none"> National and regional governments hold web-based consultations for major policy proposals Public participation in permitting procedures and in EIA/SEA; NGO participation in these procedures is established in law 	<ul style="list-style-type: none"> Citizens can file complaints with the Czech Environmental Inspectorate, which must respond within a fixed period (normally 30 days) NGOs can appeal EIA/SEA and permit decisions in administrative courts 	<ul style="list-style-type: none"> A wide range of NGOs, from broad alliances to small, professional groups NGOs have a strong role in policy – with, for e.g., representation on the Sustainable Development Council; some NGO members work within the Ministry of Environment MoE provides grants for NGO projects NGOs run many environmental education centres in the country
Poland	<ul style="list-style-type: none"> Constitution establishes citizens' right to information on quality of the environment Government obligations and citizen's rights are further specified in the Act on Access to Information on the Environment and its Protection and on Environmental Impact Assessments (November 2000) Aarhus Convention ratified in 2001 National government publishes state of the environment report every 4-5 years MoE has a dedicated Department of Education and Public Communications Environmental Information Centre, established by MoE, oversees the flow of environmental information at the central level and administers the internet website. National Strategy for Environmental Education has been prepared by the MoE in cooperation with the Ministry of Education. 	<ul style="list-style-type: none"> Legislation establishes the right to public participation, including involvement of NGOs, in government decision-making on the environment and in EIA procedures 	<ul style="list-style-type: none"> The Code of Administrative Procedure and the Code of Civil Procedure award NGOs some rights related to participation in judicial and administrative proceedings. Environmental NGOs have the right to act as a party in administrative proceedings requiring public participation and the right to file public interest lawsuits in civil court concerning environmental damage. 	<ul style="list-style-type: none"> A large number and diverse range of NGOs address all major issues Groups range from highly professional, well-resourced, with paid expert staff to local groups based on the efforts of unpaid volunteers. Several large national organizations and networks (e.g. Polish Ecological Club, Green Federation). Most common activities include education and awareness raising, lobbying to influence laws and policy, expert opinions to policy-makers, direct involvement in nature protection activities. NGOs representatives serve on the supervisory boards of national and regional environmental funds, on steering committees for EU funds, as well as advisory bodies, e.g. GMO Commission, EIA commissions and the National Council of Eco-Management.

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Lithuania	<ul style="list-style-type: none"> • The Law on the Provision of Information to the Public and Law on the Right to Receive Information from State and Municipal Institutions regulate the procedure for the access to any information held by public authorities to the public • The Resolution on the Procedure for the Provision of Information on the Environment to the Public, approved by the Government, regulates the procedure for the provision of information on the environment. • MoE communicates to the public information on the environment and draws up and disseminates periodic SoE reports • Public Information and Public Relations Department of the Ministry of Environment and Environmental Protection Agency provides information to the public • Environmental Protection Agency provides air quality data in main cities via Internet 	<ul style="list-style-type: none"> • Public participation is ensured under law during EIA, SEIA and permitting procedures • Public participation also legally established for land use planning 	<ul style="list-style-type: none"> • Individuals and NGOs have standing in court when their rights and when the public interest is violated • Nonetheless, these rights have not been used extensively in court; main cases related to land use planning decisions 	<ul style="list-style-type: none"> • About one hundred NGOs are active • Membership not extensive: about two-thirds of NGOs have 25 members or less. • Most NGOs are located in the capital or other urban centres • Most of NGOs implement projects for environmental education, public awareness and training, dissemination of information (NGOs support newsletters and internet pages); and for biodiversity protection • NGOs now have access to financial resources via EU programs • Few NGOs try to achieve their goals via protest actions, campaigns, conferences or via lobbying of government officials • Public interest in environmental issues still low though some increase, e.g. related to greener products, defending rights against projects (such as landfills, pig farms, chemical and other industries)
Mexico	<ul style="list-style-type: none"> • Federal law grants public access to environmental information. It requires all government entities to make available information on the regulatory framework, budget, internal audits, subsidies and contracts for public works. • Country-wide PRTR since 1998 describes air pollutant emissions. • Water abstraction rights and permits are recorded in a public register on the internet. • In August 2006, Mexico made information on toxic chemical releases from more than 1,000 industrial facilities publicly available • As few citizens regularly use Internet, update of information is slow (government is promoting Internet access in indigenous and poor rural communities) • Information dissemination through print and audio-visual media continues 	<ul style="list-style-type: none"> • Democratic participation in plans and programmes through representative organisations is established under law, but not direct public consultations. • In practice, public consultation on policy is becoming more common: for the adoption of the National Environment Programme, 125 citizen consultations were held • Public consultations mandatory for environmental auditing and EIA. • Active promotion of stakeholder participation in water management, though establishment of a Water Consulting Council and 26 State Citizen Water Councils for consultation on sustainable water management. 	<ul style="list-style-type: none"> • In principle, any person can have access to the Supreme Court when constitutional rights are violated, including those for environment • Access to the courts for individuals is only granted when they have a legal interest: it requires that their person or his or goods itself are directly affected. • Strong allegations of corruption in the judicial system. 	<ul style="list-style-type: none"> • 1996 Reform to the Income Tax Law made donations to NGOs working on conservation projects in protected natural areas tax deductible. • NGOs represented on national consultation bodies, such as the National Consultative Council for Sustainable Development • NGOs play an Important role in information dissemination and public education.

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
China	<ul style="list-style-type: none"> • Government Online project launched in 1998 provides environmental reports via Internet • Information on pollution discharges from industries is not systematically made available to the public 	<ul style="list-style-type: none"> • Environmental laws include provisions for public participation • In practice, actual participation varies greatly from one policy decision to another • A few cities have set up telephone hotlines to report environmental problems • Informal consultations and hearings with public are occasionally used 	<ul style="list-style-type: none"> • China's law provide the public with some access to justice for environmental disputes, and legislative proposals would broaden this right • Citizens can take legal action against polluters through civil law actions • Class action suits are possible. However, only the public prosecutor can bring a case to court in the public interest. • Non-compliance actions can be brought against local governments for failure to act on the basis of administrative law • Informal negotiations between enterprises, authorities and public are an important instrument in the Chinese legal system • Long-standing tradition of citizens sending letters of complaint to the 'complaint divisions' of public bodies at all levels 	<ul style="list-style-type: none"> • Increasing number of environmental NGOs active in China: current estimate of about 3000 NGOs dealing with environmental protection • NGOs are required to have a government body as 'sponsor', to which they report membership, funding sources and activities. • Only one NGO allowed to operate for any specific theme of work in any administrative area; NGOs not allowed to have branches in other regions. In practice, the enforcement of these requirement depends of the government 'sponsor' • Close cooperation with SEPA, both formally and informally, with environmental NGOs • NGOs often have difficulty cooperating with provincial and local authorities • Strong presence of international environmental NGOs • Most NGOs focus on environmental education, nature conservation activities, as well as on large-scale infrastructure projects, enforcement and use of funds. • Many small local NGOs are supported by larger national and international NGOs • Growing number of informally organised local protests
India	<ul style="list-style-type: none"> • National Right to Information Act (2005) requires all government offices to provide the public with documents and information on request (http://righttoinformation.gov.in) • Pollution Control Boards must inform public about pollution issues • Government bodies frequently hold informational meetings to discuss development plans 	<ul style="list-style-type: none"> • In some local areas, NGOs and community groups involved as stakeholders in overseeing polluter compliance • Government bodies frequently hold public hearings for stakeholders and public to discuss development proposals; some NGOs reportedly distrust hearings as staged events • Citizen advisory committees are also used to provide input into policy process 	<ul style="list-style-type: none"> • Citizens can file complaints to pollution control boards: these often trigger inspections • NGOs and citizens can file suits before the courts, and have done so vigorously: e.g. NGOs obtained a 1998 Supreme Court ruling that required the government to implement neglected air pollution laws • The courts organise "green benches" (judges that hear environmental cases); the establishment of permanent environmental tribunals has been proposed 	<ul style="list-style-type: none"> • Very active sector: by one estimate, about 100 000 environmental groups are active • Groups range from well-financed independent "think tanks" (e.g. Centre for Science and Environment, http://www.cseindia.org) to local village groups defending traditional rights • Rising public demand for better environmental quality, in particular for reducing urban air pollution

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Kazakhstan	<ul style="list-style-type: none"> • State authorities (in accordance with their competence) disseminate (through Internet and with the use of other publicly accessible information communication media) the following types of environmental information: <ol style="list-style-type: none"> 1) reports on the environment condition; 2) drafts and texts of regulatory legal acts and international agreements related to environment protection; 3) drafts and texts of documents related to the government policy, programs and plans in the field of environment protection; 4) reports on results of monitoring, inspection and law enforcement activities in the field of environment protection; 5) information included in the list of basic services of the e-government in the field of environment protection. • The National Environmental Atlas was published in 2007. 	<ul style="list-style-type: none"> • The Public Environmental Committee was established under the Environment Protection Ministry; deputies of the Parliament, representatives of non-government organizations, lead scientists and community leaders were included in the Committee. This event brings new opportunities for taking into account the public opinion within decision-making and development of recommendations, as well as facilitates the feedback. • The public environmental committees function under the Territorial Environment Protection Divisions. • The Kazakh Association of Natural Resource Users for Sustainable Development (KAPUR) was established in February 2003. It unites 20 industrial majors of Kazakhstan (the number of personnel at the above enterprises is 154,000). The objective of the Association is to facilitate the increased role of the industry as a locomotive of environmentally efficient projects, technical innovations and the social corporate responsibility principle. The Association members represent the mining and metals, power, machine-building, chemical and crude oil production sectors as well as environmental consulting and services. The Association is a member of the Regional Network of the World Business Council for Sustainable Development, the Sustainable Development Committee under the Prime Minister of the Republic of Kazakhstan, the Public Committee under the Environment Protection Ministry of the Republic of Kazakhstan, the Working Group under the Parliament. 	<ul style="list-style-type: none"> • In accordance with Aarhus Convention (2002) citizens of Kazakhstan and NGOs have access to justice. 	<ul style="list-style-type: none"> • The most active environmental NGOs have signed the Memorandum for Interaction and Cooperation in the Field of Environment Protection with the Environment Protection Ministry. • Non-government organizations work actively on dissemination of environmental information. The Kazakhstan Eco-Pravda electronic newspaper as well as electronic bulletins of the Regional Environmental Center and the Ecological Forum of Kazakh NGOs are issued. • The tree planting event (Zhasyl el – Green Country) is carried out on an annual basis.

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	Access to Information	Public Participation	Access to Justice	Activities of Environmental NGOs
Ukraine: 2007 UN ECE Environmental Performance Review	<ul style="list-style-type: none"> • Citizens' rights with regard to accessing environmental information was considerably broadened • The creation of a Web portal for the Cabinet of Ministers and websites for government bodies was particularly important • Since 2001 the MEP has maintained a robust website in Ukrainian and English (www.menr.gov.ua), while during last years information is rarely updated, State of Environment reports are not posted 	<ul style="list-style-type: none"> • Ukraine has considerably broadened citizens' rights with regard to participating in environmental decision-making. • Public councils have been established at MEP and at oblast environmental authorities. • There are examples of public participation in policy-making, such as the preparation of draft laws. • Aarhus Convention is ratified in 1999 but there are no procedures in place for organizing public participation in state ecological expertises, sanitary and hygienic expertises 	<ul style="list-style-type: none"> • While there are some sound examples of success of environmental NGOs in courts, Ukraine still has to harmonize its legislation with the Aarhus Convention's requirements regarding access to justice and develop effective mechanisms that enable citizens to appeal to the courts when their own environmental rights and the rights of their associations are violated. 	<ul style="list-style-type: none"> • Today approximately 500 civil environmental organizations are active in Ukraine. • They play a significant role in extracurricular environmental education. Specialized NGOs advise the public on environmental legislation • MEP provides environmental NGOs with financial support; the procedure was modified in 2005. NGOs' meetings and publications are financed through the State Environmental Fund via tenders.

ANNEX 2

Additional background studies and materials

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Commission for Environmental Cooperation, Summary of Environmental Law in Canada

www.cec.org

CEPA http://www.ec.gc.ca/cepaRegistry/gene_info/Overview.cfm

Guide to CEPA

http://www.ec.gc.ca/cepaRegistry/the_act/guide04/toc.cfm

Example Provincial Legislation

BC Environmental Management Act

<http://www.env.gov.bc.ca/epd/main/ema.htm>

Quebec Sustainable Development Act

http://www.menv.gouv.qc.ca/developpement/loi_en.htm#elements

Manitoba Environment Act

<http://web2.gov.mb.ca/laws/statutes/ccsm/e125e.php>

Alberta Environmental Protect and Enhancement Act

http://www.qp.gov.ab.ca/documents/Acts/E12.cfm?frm_isbn=0779727215

Canadian Environmental Law Association

<http://www.cela.ca/coreprograms/detail.shtml?x=2139>

CCME – Harmonization Performance

http://www.ccme.ca/assets/pdf/harm_accrd_5yrrvw_rpt_e.pdf

Auditor General Environment and Sustainable Development Mandate

http://www.oag-bvg.gc.ca/internet/English/esd_fs_e_46.html

Canadian Environmental Assessment Agency

http://www.ceaa-acee.gc.ca/001/index_e.htm

Commissioner of Environment and Sustainable Development

http://www.oag-bvg.gc.ca/internet/English/oag-bvg_e_921.html

NRTEE

<http://www.nrtee-trnee.ca/eng/index-eng.html>

Commission for Environmental Cooperation

http://cec.org/who_we_are/index.cfm?varlan=english

International Joint Commission

http://www.ijc.org/en/background/ijc_cmi_nature.htm#What

Federal/Provincial Harmonization

http://www.ccme.ca/initiatives/environment.html?category_id=25

Policy instruments

<http://www3.gov.ab.ca/env/protenf/documents/cea.pdf>

Monitoring Accreditation

<http://www.mddep.gouv.qc.ca/programmes/index-en.htm>

Federal

<http://www.ec.gc.ca/ele-ale/default.asp?lang=En&n=DF17D4C4-1>

Alberta

<http://www3.gov.ab.ca/env/protenf/compliance/enforcement/index.htm>

Ontario

<http://www.ene.gov.on.ca/en/about/penalties/archive.php>

Canada Wide Standards

<http://www.ene.gov.on.ca/envision/cws/index.htm#benzene>

Canadian Environmental Quality Standards

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Sustainable Development indicators

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Canadian Environmental Assessment Act

http://www.ceaa-acee.gc.ca/013/intro_e.htm#4

http://www.ceaa-acee.gc.ca/013/act_e.htm

Federal SEA Process

http://www.ceaa-acee.gc.ca/016/index_e.htm

Federal Provincial EA Agreements

http://www.ceaa-acee.gc.ca/013/agreements_e.htm#1

Example Provincial EA Processes

http://www.ene.gov.on.ca/envision/env_reg/ea/english/

http://www.mddep.gouv.qc.ca/evaluations/inter_en.htm

Cumulaltive Impact Assessment

<http://pubs.pembina.org/reports/Integration-report.pdf>

<http://www3.gov.ab.ca/env/protenf/documents/cea.pdf>

Product Stewardship

<http://www.env.gov.bc.ca/epd/recycling/>

<http://www.wdo.ca/>

<http://www.stewardshipontario.ca/who/who.htm>

Carbon Trading

http://www.ec.gc.ca/doc/virage-corner/2008-03/brochure_eng.html

<http://www.climateactionsecretariat.gov.bc.ca/EN/521/>

<http://www.westernclimateinitiative.org/>

http://dsp-psd.pwgsc.gc.ca/collection_2007/statcan/16F0006X/16F0006XIE2004000.pdf

<http://www40.statcan.ca/101/cst01/govt01b.htm>

<http://www40.statcan.ca/101/cst01/govt02b.htm>

Canadian EA Registry

http://www.ceaa-acee.gc.ca/050/index_e.cfm

Pollutant Release Inventory

http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm

Federal Petitions Process

http://www.oag-bvg.gc.ca/internet/English/oag-bvg_e_919.html

State of Environment Reporting – Alberta

<http://www3.gov.ab.ca/env/soe/index.html>

Ontario Environmental Bill of Rights

<http://www.eco.on.ca/english/publicat/usrguide.pdf>

CEPA Public Participation

http://www.oag-bvg.gc.ca/internet/English/oag-bvg_e_919.html

CEAA Public Participation.

http://www.ceaa-acee.gc.ca/011/index_e.htm

CEAA Participant Funding

http://www.ceaa-acee.gc.ca/011/index_e.htm

CEPA Citizen Rights

http://www.oag-bvg.gc.ca/internet/English/oag-bvg_e_919.html

Ontario Environmental Bill of Rights

<http://www.eco.on.ca/english/publicat/usrguide.pdf>

Example of Third Party Court Action

<http://www.pembina.org/media-release/1632>

Legal Support Organizations

<http://www.cela.ca/>

<http://www.ecojustice.ca/about-ecojustice>

<http://www.wcel.org/aboutus/>

<http://www.cielap.org/>

Canadian Environmental Network

<http://www.ene.gov.on.ca/en/about/penalties/archive.php>

Sierra Club of Canada

<http://www.sierraclub.ca/>

Pembina Institute

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Nature Conservancy

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Canadian Parks and Wilderness Association

<http://www.cpaws.org/programs/>

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<http://www.nature.kz/ministerstvo/min1.php>

Lithuania

Arunas Kundrotas: Former minister of environment

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- <http://www.epa.gov/oar/oaqps/monitoring.html> (air pollution monitoring)
- <http://www.epa.gov/ebtpages/waterqualitymonitoring.html> (water quality monitoring)
- <http://www.epa.gov/ocfo/plan/plan.htm> (EPA Strategic Plan)
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<http://www.sweden.gov.se/sb/d/2023/a/20522>

Swedish Environmental Objectives Portal

<http://www.miljomal.nu/english/english.php>

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