

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: PIDA6516

Project Name	Integrated Environmental Monitoring Project (P143159)
Region	EUROPE AND CENTRAL ASIA
Country	Russian Federation
Sector(s)	Public administration- Information and communications (40%), Solid waste management (40%), General water, sanitation and flood protection sector (20%)
Theme(s)	Environmental policies and institutions (35%), Pollution management and environmental health (30%), Other environment and natural resources management (20%), Climate change (15%)
Lending Instrument	Investment Project Financing
Project ID	P143159
Borrower(s)	Russian Federation
Implementing Agency	Ministry of Natural Resources and Environment
Environmental Category	C-Not Required
Date PID Prepared/Updated	28-Apr-2014
Date PID Approved/Disclosed	16-Apr-2014, 28-Apr-2014
Estimated Date of Appraisal Completion	30-Apr-2014
Estimated Date of Board Approval	25-Sep-2014
Decision	The review authorized the task team to proceed with the appraisal of the project.

I. Project Context

Country Context

Past economic performance had significant implications on Russia's environment. Following the onset of economic reforms in early 90-ies, the outputs of the Russian economy declined, leading to a sharp decline of total emissions from 67.0 to 35.3 million tons per year which is 53 percent of their 1991 level. Across the vast territory of the Russian Federation, environmental quality varies widely. It is believed that about 65 percent of the total Russian territory of 17 million sq. km is pristine and almost unaffected by economic activities and well preserved ecosystems. This represents about 22 percent of the world's undisturbed ecosystems that has global value and significance for preservation of critically important environmental functions. However, environmental quality remains unsatisfactory for 60 percent of Russian citizens who live in about 15 percent of the country territory. Particular concerns are industrial sectors with high emission and waste generation intensity, where production continues to grow in the absence of significant technological modernization.

Russia's economic liberalization and exposure to international competition would be an opportunity for increased economic outputs. It, however, could lead to more environmental disruption if national environmental policies remain ineffective. Trade liberalization could give a boost to some pollution-intensive sectors and hence increased emissions into the atmosphere and discharges of water pollutants into surface waters. This applies particularly to the power, resource extraction and heavy industry sectors and particularly around large urban areas, centers of economic growth, where effective regulatory instruments could be expected to have the biggest effect.

Pursuant to the UN Millennium Forum Declaration 2002, the political leadership of Russia has recognized that improvement of environmental management is not only an inevitable necessity but also an urgent need, given the cumulative effects of inherited environmental legacy on human health. Recently, the Government of the Russian Federation (GORF) has embarked on a strategy for modernizing the national environmental management system aimed at improving regulatory effectiveness and environmental quality by adopting an economic development model which balances industrial growth with environmental sustainability objectives. These strategic goals have been formulated by President Dmitri Medvedev in a message to the Federal Assembly in November 2010 and in a Decision of the State Council on the Concept on long-term socio-economic development of the Russian Federation (RF) for the period until 2020, and the Principles of the state policy of ecological development of Russia until 2030. These two strategic documents envisage establishment of the Unified System of State Ecological Monitoring (USSEM) as one of the crucial components of the environmental management system.

Russia aspires to become a member of The Organization for Economic Co-operation and Development (OECD). To that effect the Government of the Russian Federation expressed its willingness to follow the environmental principles set out in the OECD Recommendations in respect to committing to sustainable economic development. The OECD and Russia reached an agreement on accelerated action towards Russia's accession to the OECD on the basis of the Roadmap for the accession of the Russian Federation to the OECD Convention, adopted by the OECD Council at its 1163-rd session on 30 November 2007. The Roadmap includes actions for improving environmental protection. Specifically, Russia plans introduction of new market based mechanisms of which the most important are:

- Apply the principles and mechanisms of Integrated Pollution Prevention Control (IPPC);
- Develop regulations based on Best Available Techniques (BAT);
- Introduce information systems and new technologies for environmental protection.

These actions are supported by provisions in the environmental legislation which is currently being considered by the State Duma and specified in the Action Plan for incorporating decisions and recommendations of the OECD into the Russian legislation. A key action is the establishment of a Unified System of State Ecological Monitoring (USSEM) in compliance with the OECD recommendation in respect to environmental information; ecological indicators; reports on the environment status (for which a transition period of 4 years is provided). By agreeing to all this, Russia made a strategic commitment to improve the environmental management system based on "Pressure—State—Response" framework which needs an effective information management model. Having made such political commitment the GORF requested the World Bank for financial assistance for enhancement of the state environmental monitoring system.

Sectoral and institutional Context

The first attempt to create an effective system of environmental monitoring and providing authorities with appropriate ecological information dates back to November 1993. The system used the existing and largely inherited approach from the Union of Soviet Socialist Republics (USSR) departmental and sectoral systems of monitoring of environmental components, biological and natural resources, ecosystems, and anthropogenic impacts. State Committee for Environmental Protection (SCEP) was the responsible authority. The governmental reorganization in 2000 abolished the SCEP and hampered the formation of comprehensive monitoring system. Nonetheless, the acute need of reliable environmental information to support decision-making remained. The Ministry of Natural Resources (MNR), responsible for environmental regulation attempted to find effective solutions of this problem through unification of various departmental resources into a single information space. However, primarily due to methodological fragmentation of observation, collection and processing of ecological data, significant differences in the levels of technical and technological outfitting of the monitoring systems, insufficient interdepartmental interaction, and a lack of effective correspondence between state ecological monitoring and environmental management, the system did not succeed to support effective decision making.

Generally, Russia follows a decentralized environmental management model. At present the ecological expertise, environmental monitoring, pollution control, and environmental impact assessment are carried out by various bodies (four federal agencies, four federal services and one state corporation) under the Ministry of Natural Resources and Ecology (MNRE). Regional authorities function independently and operate independent information systems that perform systematic observations and assessment of the status of individual components of the environment and natural resources. The decentralized layers of the monitoring system function in the absence of holistic methodological framework often producing incompatible monitoring data reflecting subjectivity of departmental evaluations of anthropogenic impacts on the natural environment. The inability to synthesize and analyze all types of environmental data and information impedes the effectiveness of national environmental policy and decision making. At local level, this led to ineffective regulation and enforcement to address environmental problems.

These constraints are coupled by highly fragmented system of control and supervision, poorly equipped with instruments that do not meet the modern requirements in respect of scope and quality of environmental data. Although in 2004 the GORF adopted official guiding principles for addressing air pollution, existing infrastructure for air quality monitoring remains inadequate in densely populated cities to perform comprehensive analysis (e.g., for fine particulate matter PM 2.5 and PM10) related to airborne respiratory diseases) and to support effective response function of the authorities. Vesting environmental monitoring responsibility under a single agency which has a network of monitoring organizations functioning under a unified system, offers opportunities to rationalize and better integrate the existing potential and build a state ecological monitoring system capable to produce timely, complete and accurate information critical for effective environmental protection through public involvement. Analysis of the Roshydromet's sub-systems which produce major part of the environmental information (air and water quality) reveals the following gaps affecting the effectiveness of Russia's environmental monitoring:

- **Fragmentation:** Currently, 13 sub-systems comprise the departmental monitoring systems, located in the federal executive bodies. They operate in isolation and perform narrow departmental tasks. There is no methodology to identify causal links and design appropriate response measures,

nor a single point for collection and processing of data from the sub-systems. Current system has limitations to generate information with temporal and spatial scale and to analyze changes that manifest themselves over longer periods and cannot support environmental policy and regulatory development, and the needs of various users of environmental data;

- **Methodological gaps:** Observations and data processing performed by various organizations and institutions are based on their own methodologies (e.g., data acquisition, storage/archiving, processing and obtaining information products etc.) that serve primarily departmental information needs. This causes significant difficulties to compare and interconnect departmental information flows and produce a comprehensive picture of environmental quality reflecting dynamics and assessment of impacts and risks. Obvious variations often lead to (a) different information content and failure to support environmental performance indicators using international benchmarks, and (b) a higher cost of data collection;
- **Technology gaps:** Currently departmental monitoring systems (sub-systems) differ considerably in terms of technological and technical support, varying from units with well-developed modern technical means to system units completely lacking modern infrastructure.

Russia is a signatory of twelve global environmental agreements, four regional and three sub-regional conventions. Currently, due to a lack of unified state database, free access to the information that is available under the various types of environmental monitoring, the country can hardly meet the increasing requirements for international reporting. These include monitoring data obtained and based through long term monitoring of concentrations and deposition fluxes of pollution to test the effectiveness of conventions; adequate special coverage; sufficient temporal resolution to allow investigation of atmospheric processes and model improvement as well as analysis of individual pollution events in relation to human health and ecosystem impacts; and monitoring that takes advantage of recent scientific developments.

In order to improve the efficiency of environmental protection, based on the recommendations of a diagnostic preparation study MNRE will undertake the following measures: (i) develop a unified methodology for observations and indicators for measuring environmental status by establishing cause and effect links, including a list of substances and impacts posing the greatest hazard to the environment and human health, (ii) develop a national system of comprehensive indicators (environmental performance indicators) as a single basis for assessment and monitoring of long-term ecological safety of the territories and facilities, (iii) improve the current technological level of monitoring sub-systems and apply spatial approaches to assessment of the environmental status and dynamic changes, (iv) increase the effectiveness of managerial decisions using a pressure-state-response model where the quality of information inputs is critical, and (v) develop an action plan for gradual transition from the old system of environmental management based on ambient concentration levels of hazardous substances to a system of evaluation of impacts and risks.

The establishment of the Unified System of State Ecological Monitoring (USSEM) is legislatively coded in the Federal Law #331, adopted on November 21, 2011. The USSEM aims at integration of information from various monitoring services and implement a model that supports the implementation of “Pressure—State—Response” framework for environmental management. The model aims to link the results of environmental monitoring with impacts caused by natural and anthropogenic factors and response management methodology. It will be supported by a set of measurable indicators of environmental performance to enable comprehensive interpretation of the

observation information and support the effectiveness of state policy and communication to society. The above Law defines the functions and powers of the bodies, engaged in the state environmental monitoring system. It defines both legally and technically the existing types of ecological monitoring performed in Russia (e.g. atmospheric air, water bodies, forests, land, subsoil resources, flora and fauna, aquatic bio-resources, inland marine waters and territorial seas, exclusive economic zones and continental shelf, and radiological situation). The Law also envisages the establishment of a State Fund of Data of the State Ecological Monitoring (SFD SEM) – a federal system for data collection, processing and analysis. It also includes data of industrial pollution control and state ecological supervision, as well as information on the state registration of objects with negative environmental impact. In developed countries like Sweden, Netherlands, and the USA a main component of environmental policy is information delivery to the public. Aarhus Convention, signed by parties to the Convention in 1998, is the first international document which guarantees free public access to environmental information. The Russian Federation (RF) has not signed the Convention, yet. However, the Constitution of The Russian Federation proclaims "citizens' rights to safe environment, dissemination of true information on the environmental conditions, and preventing officials from hiding facts threatening life and public health". Similarly, the Environmental Doctrine of the RF stipulates "open access to environmental information" alongside with other prime principles of the national environmental policy.

II. Proposed Development Objectives

The Project Development Objective (PDO) is to improve the national and selected regions' capacity to generate environmental monitoring data and provide accessible, quality and reliable environmental monitoring information to various users from the public and private sectors.

Specifically, the project will support methodological and technological enhancement of the environmental monitoring network at federal level and selected pilot regions. This will include GIS based and (remote sensing) services; enhancing data system of nationwide environmental information which is used for monitoring, control, planning and assessment of the environment, and research; establishment of compliance monitoring data system which contains data on pollution loads; national GIS -based portal and modern equipment, that will allow expanding decision making capacity of various users and thus strengthen the fundamentals of environmental management. The project will support targeted regional programs for environmental monitoring in selected pilot regions, including support to monitoring infrastructure and capacity of regional authorities for region-sector specific environmental monitoring.

III. Project Description

Component Name

Developing Institutional, Regulatory, and Methodological Framework for Environmental Monitoring

Comments (optional)

The objective of the Component is to support the enabling methodological regulatory, legal, and guidance framework for the operation of the state environmental monitoring system.

Component Name

Information Technologies and Systems of Environmental Monitoring

Comments (optional)

The objective is to design and deploy FIS of SFD infrastructure based on newly developed principles and methodologies of environmental monitoring in pilot regions and at federal level.

Component Name

Public Access to Environmental Information

Comments (optional)

The objective is to facilitate access of the public to more accurate and up-to-date information on the state and quality of the environment, and thus contribute to public engagement in policy matters

Component Name

Project Management

Comments (optional)

The objective is to finance project management and monitoring costs

IV. Financing (in USD Million)

Total Project Cost:	153.00	Total Bank Financing:	50.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
Borrower			103.00
International Bank for Reconstruction and Development			50.00
Total			153.00

V. Implementation

Federal Level: Pursuant to Resolution 43, an Inter-Agency Commission (IAC) for preparation and implementation of the Project was established by the MNRE's Order #947 of December 08, 2011 as the Project oversight body. The IAC includes representatives of MNRE, the Ministry of Economic Development (MOED), and the Ministry of Finance (MOF). The main function of IAC is to take management decisions for project implementation, including approval of designs, annual reports, activities representing key implementation milestones etc. The MNRE will be the key implementing agency representing the Government of the Russian Federation for the purpose of the Project.

The MOF is in the process of establishing an ANO "Center of Environmental Projects" with the purpose to serve as a Project Implementation Unit (PIU) for Bank funded projects. Once the necessary administrative and legal procedures for the proposed PIU are finalized, and the selection procedures are completed, a letter will be send to the Bank confirming the selection of the PIU. On that basis, the Bank will undertake a fiduciary assessment of the PIU. Eventually, this PIU would be responsible for the day-to-day Project management and coordination of all the parties, including organizational and procedural matters, financial management and reporting in accordance with Resolution 43, and agreed procedures of the World Bank.

A Project Expert Council will serve as the technical advisory body during project implementation. It will include leading experts in the subject area and representatives of expert community from the three pilot regions. A System Integrator (SI) will be selected through international competitive bidding to ensure technical and functional system compatibility of all components, sub-components, modules and subsystems, and advise the implementing agencies and PIU on technical matters.

Regional Level: A Working Group comprising representatives appointed by a decision of the regional government will function in each of the three pilot regions to support implementation of

project activities, including initiation of the necessary adjustments of relevant legislation at regional level. An Authorized Organization is an entity in the pilot region responsible for operating the regional environmental monitoring systems. It is appointed by a decision of the Regional Governor and tasked with the operational support and coordination of project activities in each pilot region. An Expert Group is formed at the level of the region to support and provide inputs to Project Expert Council. It comprises experts in the subject areas of the project and is responsible for expert inputs and endorsement of design decisions, including methodological, scientific and technical support from the regions. Its members would participate in the meetings of the Expert Council, as required.

The project will be implemented in the course of five years, i.e. 2014-2019, and will consist of the following components:

Component A – Developing Institutional, Regulatory, and Methodological Framework for Environmental Monitoring (estimated cost US\$15 million).

The objective of the Component is to support the enabling methodological regulatory, legal, and guidance framework for the operation of the state environmental monitoring system through (i) updating the regulatory framework for integrating various monitoring data in the state environmental monitoring system, (ii) developing and testing a unified state methodology for comprehensive monitoring of the state of the environment and applications for estimating, reporting monitoring and modeling effects of pollution on health and environment, (iii) developing key principles to assess anthropogenic loads, analyze limiting and critical environmental factors to establish scientific basis for dose-effect relationships, (iv) carrying out financial and economic analysis of regional segments of the existing and prospective USSEM subsystems in pilot regions, (v) developing methodologies and principles for collecting and processing observation data in the integrated framework for coordination of specialized monitoring segments (e.g. air, water, soil, forests, biodiversity, noise, waste), (vi) developing and testing an interactive information model as applied to specific users and application areas, and (vii) developing and implementing a comprehensive training program. The services provided under this component are the backbone of the data unification and for setting the step wise system integration process in motion.

Certain air pollutants (e.g. PM, ground level ozone) and GHG are generated by the same anthropogenic activities and have considerable effect on climate. The integrated approach supported by the project to data generation, quality assessment and management approach would promote models where co-benefits of pollution management and GHG mitigation will apply. Regions that will develop inventories of large point sources will pilot assessment of ecological risks of anthropogenic loads with these co-benefits in mind and demonstrating air quality monitoring and management techniques based on the principle of “one measure-two effects”.

Component B – Information Technologies and Systems of Environmental Monitoring (estimated cost US\$125 million).

The objective of this component is to design and deploy FIS of SFD infrastructure based on newly developed principles and methodologies of environmental monitoring, both in pilot regions and at federal level. Primarily, the investments under this component will help the Government to kick off the modernization and upgrading of the monitoring network, data management and information systems. This component will finance the consulting services of the System Integration (SI) Consultant and for including design and development of the software, procurement of goods for the upgrade of the environmental monitoring observational network (e.g., automated air quality

monitoring stations, surface water quality, soil quality and pollution monitoring equipment); data transfer network and communication equipment; equipment and installation of laboratories (stationary mobile) and calibration equipment; provision of relevant training, etc. Hiring the services of SI Consultant as early as the first implementation year will be critical to ensure that parameters for integration of the FIS and SDF elements are agreed in a timely manner to provide for development of technical specifications and tendering of the equipment according to schedule.

Component C – Public Access to Environmental Information (estimated cost US\$8 million).

The objective of the subcomponent is to facilitate access of general public to more accurate and up-to-date information on the state and quality of the environment, and thus contribute to engagement of population in the formulation of environmental policies. This will be achieved through improving accessibility of environmental information, upgrading the system for risk assessment, and developing information resources for monitoring environmental situation in selected urban centers. It will be crucial that public access to certain air pollutants (mainly PM, ground level ozone, SO₂ and NO_x) whose concentrations may lead to immediate risks to certain groups of population, or even for the population as a whole, to be provided through the integrated environmental information platform for public access. Under the modernized regional segments, in the regions where air quality monitoring systems will be supported by the project it is expected that such situations will not only be detected immediately, but also predicted on the basis of meteorological predictions. In conjunction with the first component the information thresholds for sulfur dioxide, nitrogen oxide and ground level ozone will be introduced based on analysis carried out under Component 1. In locations where air quality monitoring equipment will be supplied alert thresholds for PM₁₀ will be established in coordination with regional environmental authorities.

Component D – Project Management (estimated cost US\$5 million). The Component will finance the work of the Project Implementation Unit (PIU) which will perform relevant technical functions envisaged by the Rules and Procedures of the World Bank and the requirements of the legislation of Russian Federation, including the administrative and technical support to the MNRE in project implementation, organization of procurement in accordance with the Bank procedures, and financial administration.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01		x
Natural Habitats OP/BP 4.04		x
Forests OP/BP 4.36		x
Pest Management OP 4.09		x
Physical Cultural Resources OP/BP 4.11		x
Indigenous Peoples OP/BP 4.10		x
Involuntary Resettlement OP/BP 4.12		x
Safety of Dams OP/BP 4.37		x
Projects on International Waterways OP/BP 7.50		x
Projects in Disputed Areas OP/BP 7.60		x

Comments (optional)

The project is expected to have positive social impacts. It aims to improve public access to quality environmental monitoring data and thus involve the general public in local environmental matters.

This would in turn address the increasing demand for informed decision-making, in both public and private sectors, as well as at the level of households and individuals. Of particular relevance will be the more accurate forecasting of environmental conditions during severe weather conditions, which would ultimately help to prevent public health impact especially in urban areas known for poor environmental conditions such as air quality. A more effective system of registration and monitoring of hazardous waste will reduce the risks of exposure and improve the regulatory effectiveness. The project will not include investments in infrastructure which require land resources nor will it envisage acquisition of private land. Automated monitoring stations will be located in urban areas on public land. There will be no population that would be negatively affected by the project investments.

The project will support the development of a unified environmental monitoring system as a pillar of the modernization of Russian environmental management system and research. It will not generate adverse environmental impacts. Furthermore the project investments will generate positive environmental and social impacts as the result of establishing the enabling infrastructure and methodological framework for improved capacity at national and regional level to produce and supply reliable environmental information to various users. This will include data generation, storage, interpretation, visualization and public access to environmental information. Establishment of functioning unified monitoring system will contribute to prevention and reduction of pollution, sustainable allocation and use of resources, deliver data to inform national and international policies used to reduce impacts to human health and facilitate public participation in environmental decision making. The use of GIS data content and services describing the environmental conditions would also allow Russia and pilot states to generate annual reports on the state of the environment which are compatible with its international obligations. The project was assigned environmental assessment category "C" and therefore no Environmental Assessment (EA) is required.

VII. Contact point

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