

# PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC1046

<b>Project Name</b>	Integrated Environmental Monitoring Project (P143159)
<b>Region</b>	EUROPE AND CENTRAL ASIA
<b>Country</b>	Russian Federation
<b>Sector(s)</b>	Public administration- Information and communications (40%), Solid waste management (40%), General water, sanitation and flood protection sector (20%)
<b>Theme(s)</b>	Environmental policies and institutions (30%), Pollution management and environmental health (30%), Climate change (20%), Other environment and natural resources management (20%)
<b>Lending Instrument</b>	Specific Investment Loan
<b>Project ID</b>	P143159
<b>Borrower(s)</b>	Ministry of Finance of the Russian Federation
<b>Implementing Agency</b>	Ministry of Natural Resources and Ecology
<b>Environmental Category</b>	C-Not Required
<b>Date PID Prepared/ Updated</b>	30-Jul-2013
<b>Date PID Approved/ Disclosed</b>	30-Jul-2013
<b>Estimated Date of Appraisal Completion</b>	18-Dec-2013
<b>Estimated Date of Board Approval</b>	27-Mar-2014
<b>Concept Review Decision</b>	Track II - The review did authorize the preparation to continue

## I. Introduction and Context

### Country Context

1. Past economic performance had significant implications for 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% 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, with 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. Of particular concern are industrial sectors with high emission and waste generation intensity, where production continues to grow in the absence of significant technological modernization.

2. 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.

3. 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.

4. 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.

5. Russia aspires to become a member of 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. 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.

6. 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 OECD into the Russian legislation. A key action is the establishment of the Unified System of State Ecological Monitoring (USSEM) in compliance with OECD recommendation in respect to environmental information, ecological indicators, and reports on the environment status (for which a transition period of 4 years is provided). By agreeing to all this, Russia has 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 World Bank financial assistance for enhancement of the state environmental monitoring system.

### **Sectoral and Institutional Context**

7. 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 from the USSR departmental and sectoral systems of monitoring of environmental components, biological and natural resources, ecosystems, and anthropogenic impacts. The State Committee for Environmental Protection (SCEP) was the responsible authority. The governmental reorganization from 2000 abolished the SCEP and hampered the formation of a comprehensive monitoring system.

8. Nonetheless, the acute need for reliable environmental information to support decision-making remained. The Ministry of Natural Resources (MNR), responsible for environmental regulation, attempted to find effective solutions to 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.

9. 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.

10. 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.

11. Analysis of the Roshydromet’s sub-systems that 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. The current system has limitations in generating information with temporal and spatial scale and analyzing changes that manifest themselves over longer periods and cannot support environmental policy, 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 in comparing and interconnecting departmental information flows and producing 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:** Current 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 up to date infrastructure.

12. 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.

13. 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 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 adverse negative environmental impact.

14. In developed countries like Sweden, Netherlands, and USA, a main component of environmental policy is information delivering 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 yet signed the Convention. 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.

### **Relationship to CAS**

15. The World Bank Group (WBG) 2012-2016 Country Partnership Strategy (CPS) for the Russian Federation supports increased growth and diversification through better management of public finances, improved investment climate and innovation, stronger financial sector, better infrastructure, and more effective protection of the environment. The proposed project directly supports the implementation of the WBG CPS. Specifically, it will contribute to Russia's objective to achieve sustainable development and effective protection of the environment through better management of environmental risks and natural resources. The proposed project is expected to contribute to the achievement of the CPS objectives through:

- Increased public access to quality environmental information;
- Improved quality of public services through improved observation/monitoring infrastructure producing reliable and timely environment quality information;
- Improved management of environmental risks and natural resources by facilitating data-informed decision-making.

## **II. Proposed Development Objective(s)**

### **Proposed Development Objective(s) (From PCN)**

16. The Project Development Objective is to improve the national capacity to produce environmental monitoring data and provide accessible, quality and regular environmental monitoring information to various users from the public and private sectors.

17. Specifically, the project will support methodological and technological enhancement of the environmental monitoring network. 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 loading; 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 also support targeted regional programs for environmental monitoring in selected pilot regions, with significant environmental problems, including support to monitoring infrastructure and capacity of regional authorities for region-sector specific environmental monitoring.

Key Development Indicators include:

- a) Accessible federal data acquisition platform providing comprehensive datasets of quality monitoring information to users from the public and private sectors established and operational at the SFD SEM;
- b) Improving on-line access of end-users to environmental information  $\leq 5$  minutes (to date, the information on individual components of the environment is available upon request  $\leq 15$  days);
- c) Spatial inventory of emissions of large point sources with geo-reference in line with EMEP\* reporting requirements established in two regions.

\*European Monitoring and Evaluation Program for emission reporting under the LRTAP Convention.

### **Key Results (From PCN)**

18. Environmental monitoring data is valuable to policy and decision makers as well as for the science and research community focusing on environmental quality and human health, changing weather patterns, and environmental pollution. For instance, availability of monitoring data on spatial distribution of emissions is becoming increasingly important to regulators for accessing atmospheric concentrations, modeling atmospheric dispersion, and identifying impact areas. 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 improve the environmental human health and facilitate public participation in environmental decision making. The use of GIS data content and services describing the environmental conditions would allow Russia to generate reports on the state of the environment which are compatibles with its international obligations.

19. The proposed project will support the development of a unified environmental monitoring system as a pillar of the modernization of Russia's environmental management system and research. Rigorous quality data generated by the environmental monitoring system will be crucial to the transformation of the Russian system for pollution prevention and control. The project aims to (i) help improve the accuracy, efficiency and reliability of the monitoring data through enhancement of tools for data acquisition, analysis/interpretation/visualization, and storage, (ii) provide illustration tools for the state of environment reports based on indicators of pollutant concentrations and spatial visualization of the data, (iii) improve the monitoring of environmental quality and forecasting during severe weather conditions and meteorological inversions and help prevent public health impact during deteriorating climatic conditions, (iv) support more effective public access to monitoring data to public and private users, (v) support the institution and practice of environmental impact assessment (EIA) by improving the accuracy of data on the conditions of the environment (for territories included into the pilot regions), (vi) support the foundations of a modern environmental permitting system in two regions and (vii) improve the technical proficiency of staff through training of national and regional personnel of environmental agencies.

20. The project outcomes would aid the implementation of the Russia's Action Plan for membership to OECD by investing in the modernization of Russia's environmental monitoring system, facilitating the integration of departmental databases into a single information-analytical system of ecological monitoring, and through establishment of the Federal Information System of

Ecological Monitoring (FISEM), which is accessible to the public. The FISEM will provide the federal governmental authorities, local governments, legal entities, entrepreneurs and citizens with credible information on the environmental status pursuant to the Constitution of the Russian Federation. The project will support development of a national emissions inventory with elaboration on sector specific issues which is consistent with the requirement for nationally –reported inventories under the obligations of UNECE Convention on Long-range Transboundary Air Pollution (LTRAP). Thus the project will also contribute to a more effective implementation of Russia's obligations under international conventions and agreements.

### III. Preliminary Description

#### Concept Description

21. The Project will take the form of an investment loan, which will finance technical assistance (e.g., studies, knowledge exchange, and training), investments in ICT (system design, software and hardware), monitoring equipment, laboratory equipment etc. The project will have four components: (1) Support to institutional, regulatory and methodological framework for environmental monitoring, (2) Information technologies and systems for ecological monitoring, (3) Public access to environmental information, and (4) Project management.

22. Component 1: Support to institutional, regulatory and methodological framework for environmental monitoring (estimated cost US\$15.0 million). This Component will address functional gaps in the current environmental monitoring system. The activities will specifically include: (i) improvement of regulatory tools for comprehensive ecological monitoring based on good international practice, (ii) development of comprehensive environmental quality monitoring system and requirements for homogeneity and representativeness of information in line with recommendations of international organizations (e.g., WHO, WMO, OECD, UNECE) and good international practice (EU, USA, Canada etc.), (iii) development of guidelines for the anthropogenic load impact assessment and analysis of limiting and critical ecological factors, (iv) analysis of operational costs of regional segments of existing and perspective USSEM subsystems in pilot regions, using management accounting model for calculating the cost of environmental information products and economic valuation of environmental performance, (v) development of methodology for collection and processing of observation data, quality controls, formats and protocols for representativeness and accuracy of data, as well as the creation and testing an interactive information model for specific users and areas of application, and (vi) staff training on new methodologies and use of new equipment for:

- MENR, agencies headquarters, regional offices and branches of the sub-systems of ecological monitoring;
- Research and information centers (e.g., Main Geophysical Observatory Voejkov, Scientific-Research Institute of Atmospheric Air, (SRI," NPO “Typhoon”, Fedorov Institute of Applied Geophysics, Federal Center for Geographic Information Systems, and the Russian Academy of Science;
- Territorial environmental and geo-information centers responsible for collection and processing of environmental data.

23. During project preparation, an analysis of existing departmental facilities for processing and storage of environmental data, observation and data collection points will be carried out in order to substantiate the subsequent system optimization and modernization, including observation

equipment, ICT and laboratory infrastructure requirements. The methodological framework for operationalizing the monitoring system will be developed under Component 1 early on during project implementation. This includes the methodological guidelines for dataset formats, archiving, spatial visualization (harmonized with the principles of the European Monitoring and Evaluation Program (EMEP)).

24. Component 2: Information technology and environmental monitoring systems (estimated cost US\$125.0 million). This component will support two levels of monitoring infrastructure improvements: (i) at regional level, through elimination of major technology gaps and modernization of existing observation system in the pilot regions. Candidate regions include the Arkhangelsk, Murmansk, Kaluga, Chelyabinsk and Sverdlovsk oblasts and Krasnoyarski Krai (industrial areas), and Kostroma, Voronezh, Smolensk oblasts (agricultural areas), all of which with high concentration of pollution in densely populated areas, and (ii) at national level, through supporting integration and optimization of the existing system for collection, processing and storage of environmental observation data; and establishment of a single information space which allows for real time data processing, transmission, integration and visualization, access and data sharing by a diverse group of users.

25. In selected pilot regions, the project will support modernization of analytical laboratories directly related to air, water and soil quality monitoring and a demonstration model for accounting of anthropogenic impact and reporting, using spatial datasets for sector groups applicable to specific users. During preparation, the feasibility of including project support to wildlife monitoring sub-systems in the pilot regions by equipping regional authorities with automated infrastructure for monitoring and control will be determined.

26. In addition, this component will include the services of a System Integrator. His services will be key to resolve a number of system integration tasks as follows:

- Conducting a pre-project survey at the federal level and in the pilot regions, including the analysis of information and telecommunication resources created and used by the federal and regional authorities for assessment of negative environmental impacts and ecological monitoring, as well as the analysis of human resource potential;
- Carrying out the engineering design of the FIS of SFD, including federal and territorial segments;
- Providing technical support to the leading implementing agency and Project Implementation Unit (PIU) in implementation of project activities - from formulation of technical requirements up to performing the designer supervision over the execution of contracts for creation of system components;
- Ensuring system integration (format/logical, hardware and software compatibility of individual complexes, subsystems and components of FIS of SFD).

27. Component 3: Public access to environmental information (estimated cost US\$8.0 million). In Russia, the general public had limited capacity to participate in formulation of environmental policies. Current GORF policies call for a shift towards broader involvement of public and a stronger role in local environmental matters through:

- (i) Enhanced public access to environmental information. Specifically, the project will target schools, community organizations to increase the demand for information and public understanding

of the factors affecting the environmental quality (e.g. surface and ground waters; air quality) and health related impacts. Support will be provided to target groups in building awareness on environment related human health risks.

(ii) A website (in each pilot region) with visual maps of the spatial distribution of emission levels and pollutants in selected urban centers. This will demonstrate innovative methods for providing near-time reporting of spatial and temporal distribution of air pollutants in heavily industrialized urban communities atmospheric dispersion models (ADMs) and regional Geographic Information Systems (GIS).

28. The project will also support a series of events (i.e. conferences, workshop, scientific exchanges, knowledge sharing events) on environmental monitoring, policy development, international best practice, in respect of environmental management and conservation with representation from federal and regional executive bodies, academia and non-governmental organizations.

29. Component 4: Project management (estimated cost US\$5.0 million). This component will finance project management cost in relation to PIU management and staff, and operational cost to meet the requirements of the Bank fiduciary policies on procurement, financial management, contract management, reporting and safeguards.

#### Implementation

30. The project activities are designed to facilitate the implementation of the environmental policy of the Russian Federation. While successful implementation of the policies and regulations to a large extent depends on timely and accurate information on environmental conditions, increasing the transparency and access to information will have positive impact and will gradually change public behavior and expand the demand for and possibility of public involvement in local environmental matters. The project will be implemented over a five-year period. The leading Implementing Agency will be the Ministry of Natural Resources and Ecology of Russia (MNRE). Project implementation will be carried out according to the principles of Resolution No. 43 of January 28, 2005, which requires the selection of Project Implementation Unit (PIU) prior to project appraisal. For effective implementation of administrative and technical functions, the PIU will be selected based on agreed Terms of Reference to perform the following functions: (i) organization of competitive selection of consultants and contractors in accordance with the rules of the World Bank, (ii) ensuring a target use of the loan and co-financing funds, (iii) delivery of project and financial reporting under the project, and (iv) coordination of all project activities.

31. Financial provision for counterpart funds for preparation and project implementation are already secured within the budget allocations of the Russian Federation and are linked to the lending pipeline in the CPS. A principle approval of the project concept has been granted by Ministry of Finance and Ministry of Economic Development to the effect that the project financing is provided in the federal budget for the planning period of 2014 - 2015, and also included in the external borrowing program of the Russian Federation for 2013 and the planning period of 2014 - 2015.

#### IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
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	

## V. Financing (in USD Million)

Total Project Cost:	153.00	Total Bank Financing:	50.00
Total Cofinancing:		Financing Gap:	0.00
<b>Financing Source</b>			<b>Amount</b>
Borrower			103.00
International Bank for Reconstruction and Development			50.00
Total			153.00

## VI. Contact point

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