

**ASSESSMENT OF ASSESSMENTS
FOR THE RUSSIAN FEDERATION**

RUSSIAN REGIONAL ENVIRONMENTAL CENTRE

MOSCOW 2011

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List of Abbreviations

AoA	Assessment of Assessments
AWMT	Federal Agency on Water and Marine Transport
BREF	Best Available Techniques Reference Document
BRIC	Brazil, India, Russia and China
CDM	Clean Development Mechanism
CSR	Corporate social responsibility
DPSIR	Driving forces – Pressures – State – Impacts – Responses
EEA	European Environmental Agency
EE AoA	Europe’s Environmental Assessment of Assessments
EfE	Environment for Europe process
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental Impact Assessment
EPR	Environmental Performance Review
ER	Environmental reporting
EU	European Union
FA	Federal Fishery Agency
GDP	Gross Domestic Product
GE	Green economy
GHG	Green house gases
GG	Green growth
Hydromet	National Hydrometeorological Service
IFC	International Finance Corporation
IFI	International financial institutions
IPPC	EU Directive on Integrated Pollution Prevention and Control
FAO	Food and Agriculture Organization
LDP	Russia’s Long-term Social and Economic Development Policy (2008)
MDGs	Millennium Development Goals
MDG-7	Millennium Development Goal № 7: Ensure environmental sustainability
MEA	Multilateral environmental agreements
MES	Ministry for Emergency Situations
MoE	Ministry of Environment
MNRE	Ministry of Natural Resources and the Environment of the Russian Federation
NGO	Non-governmental organization
OECD	Organization for Economic Cooperation and Development

PFR	Program of Fundamental Research till 2015 of the Russian Academy of Sciences
PPP	Purchasing power parity
RAS	Russian Academy of Sciences
RE	Resource Efficiency
Rosstat	Russian Statistical Service
Roshydromet	Federal Service on Hydrometeorology and Environmental Monitoring
Rosnedra	Federal Subsoil Resources Management Agency
Rospoterbnadzor	Federal Service on Customers' Rights Protection and Human Well-Being Surveillance
Rosprirodnadzor	Federal Supervisory Natural Resources Management Service
Rostekhnadzor	Federal Service on Environmental, Technological and Nuclear Supervision
Rosvodresursi	Federal Water Resources Agency
SCP	Sustainable consumption and production
SD	Sustainable development
SIA	Strategic Impact Assessment
SEIS	Shared Environmental Information System
SoE	State of Environment Report
SUWR	National Report on the State and Use of Water Resources
UN	United Nations
UNCED	UN Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WB	World Bank
WFD	EU Water Framework Directive
WHO	World Health Organization

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1. Introduction and Background

The European Environmental Agency (EEA) is an agency of the European Union. The EEA's task is to provide sound, independent information on the environment. It is a major information source for those involved in developing, adopting, implementing and evaluating environmental policy, and also for the general public.

The EEA has a great capacity and rich experience, dating from 1994, in collecting background information on the state of the environment and transferring the data to reports and assessments demanded by policymakers and the general public. *Europe's Environment: An Assessment of Assessments (EE-AoA)* takes stock of the existing European environmental assessments, particularly in the fields of water and related ecosystems and the green economy, and asks whether these are appropriate to support the policy process given the complex interconnected nature of the environmental challenges faced today.

The EEA shares its experience with the regional environmental centres of Moldova, Russia, Central Asia and the Caucasus. Transfer of AoA knowledge using learning-by-doing methods enriches the capacity of the regional environmental centres (REC) to develop further AoAs and use the knowledge on a regular basis in their regions and countries.

This report is the part of the Assessment of Assessments (AoA) exercise that is aimed at providing an overview of the existing assessments of the state of the environment in Pan-European region and the main information sources used for providing a relevant picture to be considered at the 2011 Environment for Europe Ministerial Conference in Astana, Kazakhstan.

The report reflects on the status of environmental assessments within the Russian Federation and is based on a series of elements, such as country fiches, review templates of the major reports and assessments, and part of the virtual library that includes all major reviews and assessments covering the Russian Federation.

The report helps to lay the foundation for the whole AoA exercise – see, for example, the discussion at <http://aoa.ew.eea.europa.eu/>

2. Water resources and water-related ecosystems

This report has been prepared by the Russian Regional Environmental Centre as part of the preparation by the EEA of an EE-AoA report for the 2011 Astana Ministerial Conference, Environment for Europe. It is an assessment of the existing assessments related to water in the Russian Federation, paints a picture of what exists, how the assessments were developed, what they cover and the main issues identified by them.

It provides a comprehensive picture of the types of water assessment available and presents a list of the various organisations producing them: international organisations, national and sub-national governmental authorities, academia, think tanks and NGOs. The report distinguishes regular and occasional assessments. Special attention is given to general water assessments contained in reports at the national level and produced regularly (annually).

In addition to general water assessments, thematic water assessments have also been produced focusing on specific thematic areas, including drinking-water supply, surface-water quality, groundwater resources and surface-water quantity.

Different types of analysis are covered by the water assessments in Russia, including environmental-performance reviews, which are not widespread; SoEs that are increasing the priority given to water at the local level; national communications provided under a set of international conventions; statistical reports, and regular periodic reports on water.

Water assessments contain different sets and types of indicators including social and economic, hydro-morphological, chemical quality, biological quality, bacteriological quality, water infrastructure, water monitoring, water use and discharge, water consumption, and water recycling indicators.

It is worth mentioning that more water assessments are produced by networks of governmental bodies and expert organisations or governmental bodies and academia than by networks of academia and think tanks or governmental and nongovernmental institutions.

The territory of the Russian Federation is so large and its river basins so diverse in terms of water content, background pollution, climate, geographic and landscape conditions that no single common assessing characteristic could be given. This fact speaks for itself in terms of the mass development of sub-national and river basin water assessments.

2.1 Setting the scene

The 7th Environment for Europe Ministerial Conference (Astana, 21-23 September 2011) will address the sustainable management of water and water-related ecosystems.

The conference will provide a framework for the discussion and exchange of experience on the most important problems facing water resources in the Pan- European region and the existing barriers that prevent smooth progress to sustainable development of water resources.

The following issues are considered as critical and need to be on the Agenda:

- 1) Which policies have proved effective in valuing and protecting water-related ecosystems, including payment for ecosystem services? What are the main obstacles and gaps?
- 2) What policies have proved effective in addressing human-health issues related to water quality and quantity? What are the main obstacles and gaps?
- 3) What are the priorities/challenges in adapting the management of water and water-related ecosystems to extreme weather events and climate change?
- 4) What are the experiences and lessons learned from cooperation in transboundary basins to improve water quality manage water quantity and protect ecosystems?
- 5) What policy mixes and practical tools, such as integrated water-resource management, pricing, standards, and water-user associations, can be most effective in improving water efficiency by different water users, especially in agriculture, households and industrial operations?

All these issues are highly relevant to Russia. Based on information contained in the material placed in the EE-AoA's virtual library and review templates, this report provides brief comments on each of the following five points:

- 1) Only a few countries have started to introduce payments for ecosystem services. Discussions on such payments have started in Russian academic circles, but much more time is needed to develop and collect practical case studies that would pave the way for drafting future legislation. Current monetary valuation of ecosystems is too complex to be used as a regulation tool. The Russian environmental management system in the first ten years of the 21st century focused on self-simplification, replacing the use of economic incentives by command-and-control instruments. However, there are serious doubts whether systems dominated by command-and-control methods are effective in the modern market economy, and improving the effectiveness of environmental regulation is currently a top of priority for government policy in the Russian Federation, as evidenced by the preparation of the relevant draft legislation¹.

Enriching and diversifying regulatory mechanisms and strengthening their impact provides a general direction for regulatory reform and there is a growing understanding that overcoming the negative tendency of simplification of environmental management system creates options for introducing sophisticated tools in future, including ecosystem-service payments that could be effectively used in environmental regulation.

- 2) Among the planning tools that have proved to be effective, the concept of health-risk analysis, originally introduced in Russia at the very beginning of the 1990s by the Harvard Institute for International Development under a USAID² project, has become

¹ Draft Law 'On introducing changes in separate legislative acts of the Russian Federation (in part of developing environmental regulation and economic stimulation tools for adoption of best technologies)' 23 December 2010 (on MNRE website)

² As an instrument of technical analysis of risk, an assessment was developed in the 1980s in the former USSR by nuclear scientists at the famous Kurchatov Institute. In their publications they raised a question of acceptable

attractive and popular for the new generation of Russian specialists and scientists. For about 20 years from 1990, national expert teams qualified in risk analysis have been created based on research centres in many regions of Russia, and a number of examples of the use of risk analysis to address health issues in, for example, the cities of Krasnodar, Chapaevsk, Arkhangelsk and Moscow, including those dealing with drinking water in Russian towns, now exist. As these are influencing environmental policy at the provincial and municipal levels, the time is ripe to generalise this experience and develop an appropriate legislative framework at a federal level.

- 3) In some Russian cities and provinces the threat of extreme events (floods) and the need to deal with the consequences of climate change, especially in permafrost provinces, such as the Murmansk Province, has led to the development of adaptation strategies and relevant action plans³. Examples of adaptation measures include improvements to the quality of monitoring and forecasting of climate change and change in weather conditions in the Arctic seas, establishing efficient local hydro-meteorological safeguard systems, and establishing dedicated services to monitor iceberg and ice-related risks in the Arctic Ocean. A system of regular assessments of potential threats and the development of mitigation and adaptation plans has not yet been created at a local level.
- 4) Cooperation between Russia and other EECCA countries in water-basin sharing is taking routinely place, with information exchange playing a dominant role. Increasing the level of Russia's involvement in international water policy in general is the main means for raising the efficiency of transboundary water policy in particular and developing extra capacity for dealing with the modern challenges of natural disasters and climate change.
- 5) The Russian Federation implements integrated water management through comprehensive (general), basin and territorial schemes, developed for meeting the needs of various stakeholders in water consumption, use and protection.

According to the Water Code, the so-called Basin Agreement on protection and rehabilitation of water bodies should be developed and agreed between federal water authorities and local executive structures. The Basin Agreement relies on water-use balances, comprehensive schemes for the use and protection of water resources, and earmarked federal programmes, insofar as they apply to the particular river basin.

The Federal Water Resources Agency, which relies on multi-stakeholder compliance groups, uses coordination mechanisms for developing a common position among different water users who usually have conflicting interests.

Moving from managing waters according to administrative borders to a basin approach brings Russia's management system closer to the European Union's one.

levels of risk and compensation for loss of human life. It was a different from the fundamental principles of those times based on the concept of zero risk. Accordingly Soviet radiation medicine laid the basis for health-risk analysis. The area of chemical pollution was not covered by risk assessments at that time.

³ UNDP, Russian Regional Environmental Centre. *Integrated Climate Change Strategies for Sustainable Development of Russia's Arctic Regions (Case study for the Murmansk Oblast) Summary*. Moscow 2009 http://www.undp.ru/climatechange/Murmansk_summary_eng.pdf

Convergence with the EU Water Framework Directive (WFD) might yield considerable benefits⁴. Water management at the river-basin level based on an identification of pressures on water resources and the drafting of programmes of measures to address these problems, is a valuable approach for Russia since it allows all the factors that influence the resource to be taken into account, and the coordination of all actions. It helps avoid what is done in one section of a river counteracting efforts undertaken in another.

Water pricing and cost recovery, another central concept of the WFD, could be a way to raise funds and improve the financial bases for water-related services.

A list of the necessary legal steps to be carried out for harmonisation of Russian water legislation with the EU WFD and IPPC exists⁵ and the potential costs have been roughly assessed.

There is an important consideration to be made when assessing assessments related to the Russian Federation: Russia covers a very large area. Consequently, the level at which the assessments are undertaken plays a crucial role. It is noted that there are general assessments for water, such as the UNDP Moscow report, and assessments that focus on specific characteristics of the water resource, such as the World Bank Moscow report and Russian statistical studies on water assessment, complementing general analyses at the national level by sub-national and global dimensions.

There are general assessments that provide evidence that water resources in Russia are performing rather well compared with emissions to the atmosphere, and volumes of waste generated⁶ (see Chart 1).

Chart 1. Comparative environmental impact assessment

⁴Assistance in the implementation and monitoring of the environmental components of the European Neighbourhood Policy Action Plans to cover small capacity building and progress monitoring activities. Policy guide: EU Water Policy. Anna Leijprand, Eleftheria Kampa, Jessica G. Ward. Institute for International and European Environmental Policy. Berlin, March 2007 pp.21-22. Discussed at the meeting of the Convergence Group of the MNRE and the Environmental Directorate of the European Commission under the framework of the Environmental Dialogue.

⁵ It should be noted that the Russian governmental authorities are currently changing the course of environmental regulation by prioritising the concept of technological regulation grounded on the IPPC (EU Directive on Integrated Pollution Prevention and Control) recommendations and BREF information (Best Available Techniques Reference Documents) (see speech of Minister Trutnev at the Prime-Minister's meeting *On the set of activities on improving the state of environment in the RF* 30 March 2011).

⁶ Presentation of Minister Y. Trutnev at the State Council meeting devoted to environmental issues, June 9, 2011 Dzerzhinsk city



Data from the UNDP report on human development in the Russian Federation presented positive trends in Table 1.

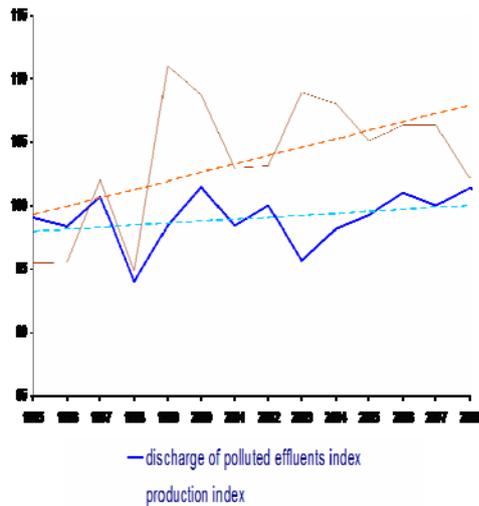
Table 1. Assessment of the state of water resources in the Russian Federation

	1990	1995	2000	2005	2008
Discharge of polluted water, billion m³	27.8	24.5	20.3	17.7	17.1
Water withdrawal from natural water sources, billion m³	106.1	86.6	75.9	69.3	69.5

Source: UNDP. *Russia: National Human Development in the Russian Federation 2010. Millennium Development Goals in Russia: Looking into the Future.* p.95

Macroeconomic assessments that can easily be made by using statistical data from the socio-economic annual reports of the Federal State Statistics Service also provide an optimistic picture. The rapid economic growth in the Russian Federation in the period 2000-2007 was not accompanied by extensive pollution of natural water sources. (see Chart 2).

Chart 2. Growth and Pollution Indexes



Source: calculations of Professor A.Retejum (Institute for Natural Resources Economics and Environmental Policy, National Research University – Higher School of Economics)

When this general information is supported by detailed sub-national analyses, such as the one undertaken within the framework of the World Bank project (in 2009) on environmental management in Russia, the picture changes substantially (Box 1).

BOX 1. Some findings on water resources from the World Bank report *State of the Russian environmental management system: paths of modernisation*

The final report *State of the Russian environmental management system: paths of modernisation*, endorsed by the Russian government, concludes that ‘water quality and aquatic ecosystem status are unsatisfactory in the most populated and industrialised regions. Russia’s largest rivers, the Volga, Don, Kuban, Amur, Northern Dvina, Pechora, Ural, Ob, Yenisei and Amur are considered ‘polluted,’ some of their largest tributaries, the Oka, Kama, Severskiy Donets, Tom, Irtysh, Tobol, Miass, Iset, and Tura Rivers, are classified as ‘very polluted,’ and several as ‘extremely polluted’.

Lake Baikal, a unique ecosystem and the world’s largest freshwater 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 the Peter the Great Bay (Japan Sea), the Terek River estuary, and coastal areas near Derbent and Izberbash (Caspian Sea).

In addition, about 10 million Russians are reported as drinking water that fails to meet federal safety standards for permissible concentrations of one or more harmful substances, such as hazardous chemicals.

This example shows that the use of general and macroeconomic assessment information is limited and that there is a need for a complex national system of dynamic water assessments that covers the huge territories of Russia, reflecting regional specificities and able to select the adequate information to be delivered to the federal level with relevant feedback from the top level to the regions.

The need to get a comprehensive picture of the state of the environment in Russia is explained by the World Bank view that 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 on economic development, and implement effective programmes according to environmental protection priorities.

To provide a comprehensive picture of the state of water resources it is not enough to take a general and/or macroeconomic look; different and more reliable assessments are made at the sub-national level, while those at the global/regional level are needed to complete the final picture.

The comparative analysis done by the Russian statistician A. Dumnov demonstrates the difference in the value of an indicator of water abstraction per thousand dollars of GDP (adjusted to PPP, US\$ billion, 2005) between Russia and other countries. The comparative assessment presented proves the need to develop and implement special measures aimed at the saving and efficient use of water resources in the Russian Federation.

Table 2. Comparison of specific volume of water abstraction per unit of GDP (adjusted to PPP, US\$ billion, 2005) for a sample of countries at regional and global levels

Country	GDP (adjusted to PPP, US\$ billion, 2005)	Abstraction of freshwater from water bodies – total billionm ³ (2005, or assessment of the closest year)	Specific volume of water consumption per unit of GDP (m ³ abstracted water per US\$1 000 GDP).	Ratio of specific volume of water consumption per unit of GDP for Russia to the same indicator of a corresponding country (times or %)
Russia	1698	74.4	44	–
Europe (without EECCA)				
Belgium	336	6.6	20	2.2 times
Bulgaria	72.2	6.0	83	53%
Great Britain	1 902	9.5	5.0	8.8 times
Estonia	22.4	0.4	18	2.4 times
EECCA countries				
Azerbaijan	38.4	11	286	15%
Belarus	83.5	1.7	20	2.2 times
BRIC countries				
Brazil	1 583	59	37	1.2 times
India	2 341	645	276	16%

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It can be concluded that all the reviewed types of assessments –general, national, sub-national, regional and global – complement each other and it would be a great mistake for

policy-makers or the general public to rely exclusively on one single type. All types of assessment should be balanced in number and quality, and special efforts should be taken by the government and society to sustain each type and avoid large gaps among them.

As stated in the WB report and in many publications by Russian experts, the normative levels of water quality – maximum allowable concentrations of harmful substances in water bodies – are exceeded many times over. However, the fact of exceeding the sanitary-epidemiological, or fishery protection, standards many times over does not answer the question: what are the consequences? The fact of non-compliance *per se* does not provide enough information for policy-makers and the general public for practical actions and recommendations. Making assessments of the consequences of non-compliance is a necessary procedure that results in a new information product, and new knowledge, demanded by policy-makers and the general public.

In a country where command-and-control methods aimed at compliance with very rigid rules and standards dominate and make environmental management systems too simple, a rich variety of assessments could provide a picture of a complex world of water with numerous interrelations and connections between living organisms. Assessments that demonstrate the wealth and complexity of the internal life of a water body can motivate people to create, with respect, adequate complex systems of support and protection.

Water assessments play an indispensable role in enriching the vision of the Russian public and policy-makers of the current state and future role of water resources.

2.2 National organisations involved in water assessments

2.2.1 Federal level

The main governmental body authorized for environmental protection is the Ministry of Natural Resources and the Environment of the Russian Federation (MNRE). The department dealing with water sector regulation policy and the safety of hydro-technical objects – dams, water reservoirs, hydropower stations, etc. – is within MNRE. The Ministry's involves policy development concerning each component and responsibility to provide policy guidelines for dealing with each emerging issue.

The Federal Supervisory Natural Resources Management Service (Rosprirodnadzor), under the authority of the MNRE, is:

- unauthorised state body for environmental impact assessment within the specified scope of activity;
- a federal executive body exercising state environmental control (state ecological monitoring) in the specified scope of activity.

Rosprirodnadzor performs the functions of a federal executive body specially authorised to exercise state control of Lake Baikal's conservation. It exercises control and supervision of the use and protection of water bodies, and the safety of hydraulic engineering structures,

ensuring their compliance with the safety norms and regulations⁷, as well as navigation hydraulic engineering facilities.

The Federal Subsoil Resources Management Agency (Rosnedra) is a federal executive authority performing the functions related to rendering state services and federal property management in the sphere of subsoil and operating under the authority of the MNRE.

Underground waters, if not used as a source for drinking purposes, constitute an integrated part of subsoil and are placed under the authority of Rosnedra. This resource is regulated by the law on subsoil resources.

Within its competence, the Federal Service on Hydrometeorology and Environmental Monitoring (Roshydromet) observes the stock of water resources, provides monitoring of surface water bodies – rivers, lakes, streams and reservoirs – and Lake Baikal as a unique natural heritage. Roshydromet is responsible for presenting immediate information on natural disasters, substantial weather changes and fluctuations in pollution levels that might cause damage to human health and the environment. Roshydromet is authorised for developing national climate policy.

The Federal Water Resources Agency (Rosvodresursi), under the authority of the MNRE:

- organises the redistribution of water resources of federally-owned water bodies;
- organises the development, finalisation, and realisation of basin agreements on the restoration and conservation of water bodies;
- organises, in accordance with the established procedure, the preparation and implementation of flood-control measures, measures concerning the design and establishment of water protection zones of water bodies and their littoral protective zones, and measures to prevent and eliminate the harmful effects of water;
- organises state examination of the integrated use and conservation of water resources in accordance with established procedures, as well as of the project preparation and documentation for construction and reconstruction of utilities and other facilities that have an impact on the conditions of water bodies;
- acts as the owner of the federal property required for performing the functions of federal state power bodies, including property transferred to federal state unitary enterprises, federal state institutions, and state enterprises within the jurisdiction of the agency, in accordance with the procedure and within the limits specified in federal laws, acts of the president and government of the Russian Federation;
- performs the functions of the state customer in making orders for developing interstate, federal target-oriented, scientific and technical, and innovation programmes and projects within the scope of activity of the agency.

The state register of water bodies, which include artificial and natural flows, reservoirs, water storage, etc., has been developed following the state cadastre of water bodies of the Russian Federation. It is regularly updated by the Federal Water Resources Agency and forms the

⁷ except industrial and power hydraulic engineering structures

basis for assessment of water resources, including some 149 530 records of bodies and their characteristics, 87 per cent of which are water flows – rivers, channels, streams, and the rest water reservoirs including lakes, ponds and water storage pools. Public access to detailed information contained in the register and cadastre is restricted.

Independent of MNRE, the Federal Service on Customers' Rights Protection and Human Well-Being Surveillance (Rospotrebnadzor) takes care of the sanitary-epidemiological (quarantine) situation in the country. Fourteen water check points operate for the implementation of this function and the control of quality in water bodies.

The Federal Agency on Water and Marine Transport (AWMT), which reports to the Ministry of Transport, is responsible for the environmentally safe operation of inland water transport, including prevention of accidents and discharges of polluted substances into water flows. AWMT prepared the Concept of Reforming the System of Management of Inland Waters approved by the Ministry of Transport in July 2009. This provides assessments of the state of navigation facilities and options for public-private partnership and other mechanisms for increasing traffic flow by 2015.

The Federal Fishery Agency (FA), which implements the federal policy aimed at sustainable regulation of fishery reserves, is interested in maintaining water quality within the boundaries of maximum allowable concentrations of harmful substances in water bodies used for fishery purposes.

The Federal Service on Environmental, Technological and Nuclear Supervision (Rostekhnadzor) is responsible for safe functioning of hydropower instalments and observance of technical requirements on other water-economy facilities, such as channels.

The role of the Ministry for Emergency Situations (MES) is to prevent or mitigate the consequences of natural and human-made disasters and catastrophes.

Rosvodresursi provides practical arrangements through the implementation of water-management activities and programmes. The demarcation line between the responsibilities of the two control authorities, Rosprirodnadzor and Rostekhnadzor, is on the border between natural bodies and technological systems.

Monitoring of pollution of inland surface waters in terms of hydro chemical parameters is implemented by Roshydromet and Rosvodresursi. The monitoring cover 1 190 water bodies and the concentrations of 116 ingredients are measured. Rosvodresursi's territorial bodies also perform monitoring of ground waters.

Monitoring of pollution of inland surface waters by hydro biological parameters is performed by Roshydromet in five hydro graphic regions in 74 water bodies. The monitoring programme covers from two to six parameters.

In relevant forms water assessments are used by the ten authorities described above in their routine activities. There are certain mechanisms for coordinating their efforts and sharing the results of water assessments, including joint development of public reports on environmental protection, water use and water protection, the influence of water quality on public health, and so on. Other governmental bodies contribute to water assessments according to their aims and functions.

Table 3 shows the contribution to water assessments by each of the ten governmental bodies.

Table 3. Contribution of governmental bodies to water assessment components

Components Bodies	Water quantity	Water quality	Water infrastructure	Water ecosystems	Natural and man- made accidents
MNRE	+	+	+	+	+
Rosprirodnadzor	+	+		+	+
Rosnedra	+	+			+
Roshydromet		+		+	+
Rosvodresursi	+	+	+	+	+
Rospotrebnadzor		+			+
AWMT	+		+		
FA	+	+		+	+
Rostekhnadzor			+		+
MES	+	+	+		+

2.2.2 Water assessment at the sub-national level

Whereas water assessments integrated in relevant reports at the federal level are rather regular, and well-defined instruments and procedures are in place for their production, assessments at the sub-national level are not so well specified or supplied by relevant resources. The sub-national – ‘subject of federation’ –level covers the following administrative territorial classifications: provinces, autonomous republics: okrugs, krai, and the cities of Moscow and St. Petersburg.

However, some progress in the practical use of assessments of water management at the sub-national level is evident. The indicator *share of water sites with improved water quality characteristics (pollution index) in the total number of water sites located on the territory of the province* (subject of federation) was included in the list of indicators used for official assessment of the effectiveness of the management activities of local executive bodies in 2011.

Two types of document include water assessments at the sub-national level. The first of these reports on the development of a scheme for the integrated use and protection of water resources. This normative document is based on a set of assessment tools and models helping to achieve a balance of interests among different parties that use the water resources in a river basin. In practice, the scheme is associated with tremendous difficulties, explained mostly by its complexity and lack of adequate capacity of water management authorities.

Such schemes usually provide:

- zoning for different types of water use and for water protection;

- limits and quotas on water use and water discharge not only for individual water users/consumers, but also to achieve a balance of the water use of different organisations that does not undermine the state of the river flow and its quality;
- normative documents and technical recommendations, especially in extreme situations.

The second type of assessment, a report on the state of environment at the sub-national level, has recently changed its status. Originally voluntary, the production of such assessments have become obligatory and now each member of the Russian Federation has, by 1st March each year, to present a state of the environment report of which water resources are an important part. Till now 71 have produced such reports, of which 21 are in hard copy and electronic version and 50 only electronic. Between 100 and 300 paper copies are usually distributed while electronic versions are presented on the websites of the environmental departments of the local administration. Twelve federal members have not provided information about the existence of such a report.

The reports are published in Russian and sometimes in the federal state's local language. They all have a common structure similar to the national SoE report. Environmental issues specific to the sub-national level are presented either in the main body of the text, or in a separate section. The specific environmental problems in different Russian provinces depend on the geographic location of these territories. Thus, desertification and water deficit are the focus topics for the steppe zone – Volgograd Province and the Republic of Kalmykia –while climate change and permafrost are the priority issues for the polar Murmansk Oblast.

An example of the first type of regional assessment is the scheme of the Northern Dvina (Severnaya Dvina) basin⁸. This is a tool that provides an integrated assessment of water use by different sectors, considering water protection as a separate type of activity (protection and conservation), and helps to determine a balance between different demands and needs for the use of water resources.

In the specific case of the Northern Dvina River, the following uses compete for limited water resources:

- drinking water supply and domestic water use;
- discharge of industrial and drainage effluents (which need extra water volumes for dilution);
- fishing and hunting;
- recreation.

The Northern Dvina River and its tributaries are the major source of water for such big cities as Arkhangelsk, Rochege, Vologda and Sokol. Large enterprises in the pulp and paper, agriculture and timber industries, amongst others, significantly and directly affect the quantity and quality of water resources.

⁸ 'Scheme for Integrated Use and Protection of Water Objects of Severnaya Dvina Basin' 2008

Table 4 shows projections of future changes from the basic indicators for the Northern Dvina basin within the boundaries of Vologda Province, coordinated with the targets of the Federal Water Strategy.

The second type of assessment is illustrated by the *Report on the State of Environment and Environmental Protection in Vologda Province* in 2009.

The structure of the regional SoE reports follow the national format. However, they have some original elements and content. The regional report of Vologda Province, for example, has maps and graphics which help achieve a better understanding of the regional dimension and specificities.

The report also provides a general assessment of the health threat from chemical pollution of drinking water in some cities of the province, drawing on the studies, however, rather than indicators. The report re-evaluates the existing official assessments on the use of underground water for drinking purposes with the help of the results of recent studies.

Table 4. Aggregate target indicators on water use in the Northern Dvina water basin within Vologda Province, adjusted to the target parameters of the Federal Water Strategy

Target indicator	Change in a value of an indicator in 2020 in the Water Strategy of the Russian Federation	unit	Value of indicator		Ratio of indicator in 2007 to the level of 2020
			in 2007	in 2020	
water consumption per unit of GDP	Decrease by 42%	Million m ³ /th.rb.	3.0	1.74	Decrease by 42%
water losses in processes of removing	Decrease losses by a factor of two	Million m ³	3.96	1.93	Decrease losses by a factor of two
Share of polluted discharges of effluents in the whole volume of discharge	Decrease by a factor of 2.5	%	97	38.8	Decrease by a factor of 2.5
Mass of polluted substances discharged in water objects in effluents	Decrease by a factor of 1.7	'000 tonnes	15.7	9.2	Decrease by a factor of 1.7
The level of protection of territories from floods and other types of negative impact of water flow	reaching 50%	%	16	50	Increase by a factor of 3

Source: Project 'Scheme for Integrated Use and Protection of Water Objects of Severnaya Dvina Basin' <http://vologda-oblast.ru/periodic/FILE%20RUS/7655.zip>

2.3 Other organisations/institutions involved in water thematic assessments

In addition to governmental organisations operating at the federal and sub-national levels, there are other types of organisation working at the same levels. Provisionally these can be grouped into three categories:

- academic and research institutes;
- think tanks;
- NGOs.

The programme of fundamental research to 2025 (PFR) of the Russian Academy of Sciences (RAS) contains, as one of its top priorities, the sustainability of water-resource development as well as other aspects such as climate change and natural disasters, and gives priority to the topics of flood control and the minimisation of social and economic negative consequences. There are several institutions within the RAS (Box 2).

BOX 2. Inter-territorial aspects of water-resource management

The Institute of Water Problems, located in Moscow, is the lead institution in the system of RAS providing water assessments. Similar independent research institutes operate within the territorial divisions of the Russian Academy of Sciences, including the Far East and Siberia. They enrich fundamental research at the national level by contributing to sub-national and water ecosystem specificity. The issue of correct assessment of the water resources of the Far East and Siberia and exploring reasonable options for their economic exploitation, taking into account the deficit of water resources in some industrialised European parts of Russia, is considered as a priority issue for the strategic development of the water resource economy in the Russian Federation.

Research institutes working under contracts with governmental regulating authorities mostly orient on meeting the urgent practical problems related to their tasks. For example, the Institute for Applied Ecology, one of the major executing structures in water-resource management and assessment, during the last several years has implemented a set of projects in line with the priority requests of the Federal Water Agency and the Ministry of Natural Resources and the Environment. These include:

- Increasing the capacity of the Volga-Don and Volga-Baltic transport channels;
- Ensuring the safety of hydro installations;
- Improving information exchange between water basin authorities and federal bodies.

The assessments that present results on project implementation are usually fragmented and very closely connected with a particular topic, because of the detailed specification of the original tasks of the projects. For the above three cases they are more concerned within formation technology (IT) and engineering.

Dozens of RAS institutes carry out research studies in different areas of water resources. As can be seen from proposals of the academic community at various conferences, there is a need for better coordination of the various directions of water studies, especially between different territories. According to the assessments of water scientists published in the magazine *Water Resources* and the work of scientific societies such as the Russian Hydro Biology Society or the Russian Geographic Society, there is currently insufficient coordination and a lack of

modern tools such as a special water portal on the Internet, and water data bases with free access are needed for public and independent researchers.

Think tanks have more choice in selecting the type of a project, and their assessments are usually broader.

Currently there are two acknowledged think tanks, which do not undermine all the other think tanks professionally implementing their duties, working under the Russian government resolution on updating the State Strategy on Social and Economic Development to 2020. These are the Russian Presidential Academy of National Economy and Public Administration and the National Research University Higher School of Economics. Water assessments in their studies are provided in the context of alternative development scenarios: business-as-usual, and modernisation of the economy as a whole. As these institutions specialise in the sphere of innovation, water assessments are considered in this context (Box 3).

BOX 3. Assessment of innovation priorities and public preferences in the water sector

Foresight analysis, using the Delphi method, implemented by the National Research University Higher School of Economics in 2010 concerning the future of environmental innovations, and in particular innovations in the water sector, determined the issues of the highest importance. These were:

- 1) integrated monitoring of water consumption from rivers, lakes, subsoil, man-made water reservoirs, etc., and pollutants contained in water;
- 2) prediction of floods based on satellite information which was regarded as the most important for research and development.

The same organisation provided an assessment study on public preferences in the area of personal services. People from urban and rural sectors would agree to lose their telephone communication, gas supply and sewer system in order to keep their water supply. On the other hand electricity and heating are considered more important than water supply. The study showed that despite a well-developed market for bottled water, 66.8 per cent of the Russian population still uses drinking water from taps drawing from untreated water sources. In Russia water from taps connected to untreated sources is considered unsafe and not recommended for drinking without previous purification.

Large and well-known Russian NGOs such as WWF-Russia and Russian branch of Greenpeace do not carry out inland water assessment projects on a regular basis although they provide independent assessments and actively defend the interests of water conservation and protection when, in their view, economic activities threaten the safety of water ecosystems. In particular, these organisations request more detailed, responsible and careful assessments for dam construction, or the hydropower stations.

There are also smaller NGOs that deal directly with maintaining water quality in their local habitat.

2.4 Overview of water assessments

This chapter builds on the overview of the references provided in the Russian country fiche on inland water. Most of these references are available through the EE-AoA portal in the virtual library and the review template.

The UNDP *Human Development Report* is classic material that provides an overarching frame for water assessment. Coordination of results achieved in the water resources sector with Millennium Development Goals is the focus of water assessment.

Title of the assessment: National Human Development Report in the Russian Federation			
Institution	Geographical coverage	Year published	Regular (Occasional)
UNDP Moscow	Russia	2010	R

Important international initiatives with significant official status such as the MDGs and/or obligatory for the implementation of international conventions can be considered as powerful officially recognised directives in EECCA countries and in Russia in particular, as success or failure of their implementation create a relevant international image of a country.

UNECE assessment reports on the implementation of an international convention identify progress and barriers at the national level for achievement of the tasks of the convention.

Title of the assessment: Regional report on the status of implementation of the Protocol. The Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.			
Institution	Geographical coverage	Year published	Regular (Occasional)
UNECE	UNECE region, including Russia	2010	R

The *Water Strategy of the Russian Federation for the period until 2020* is one of the important documents in the water sector providing the orientation for future development. It is coordinated with the overall *Strategy for Social and Economic Development of the Russian Federation for the period until 2020*.

Title of the assessment: Water Strategy of the Russian Federation for the period until 2020			
Institution	Geographical coverage	Year published	Regular (Occasional)
Federal Water Resources Agency, Ministry of Natural Resources and the Environment of the Russian Federation	Russia	2009	O
Target indicators:			
<ul style="list-style-type: none"> ▪ reducing the value of an indicator to zero: share of hydro constructions in dangerous and shabby state; ▪ protecting 50 per cent of territories from flood by development of relevant hydro constructions; ▪ share of water areas located in the economically developed zone of the Russian Federation characterised as conditionally pure, or low polluted in 2020 should reach 40 per cent of the total water area; ▪ share of polluted effluent waters should decrease by a factor of 2.5 by 2020. It is now 			

89 per cent and should reach 36 per cent;

- current volume of **overall polluted effluent waters** is 11 million tonnes per year and should be cut to 6.6 million tonnes by 2020

2.4.1 Water assessments as part of wider SoE reports

The most popular and well-known is the national report on the state of environmental quality and environmental protection SoE reports in Russia has become a success story.

The resolution of the Council of Ministers – Government of the Russian Federation from 1993 № 53 On the Order of Development and Dissemination of the Annual National Report on the State of Environment presents the legislative ground for preparing SoE reports in Russia (Box 4).

Box 4 Legislative origins of state of environment reports in Russia

According to the main statements of this resolution: *The SoE report is an official document developed for the purpose of providing the state regulating bodies and population with the objective, systematised and analytical information on environmental quality, state of natural resources and tendencies of changes under the influence of economic activity; contains information on activities undertaken in the territory of the Russian Federation of legal, technical, institutional and economic character aimed on environmental protection, saving and restoring natural resources. The Report should act as ground for more precise definition of priority areas of environmental protection activities and programs directed to improvement of environmental situation in the Russian Federation.*

Thus, as it stems from the resolution, originally the function of the SoE report was not limited to the task of raising public awareness and deepening knowledge on environmental issues, but also was designated to play an important role in environmental policy-making by providing necessary corrections.

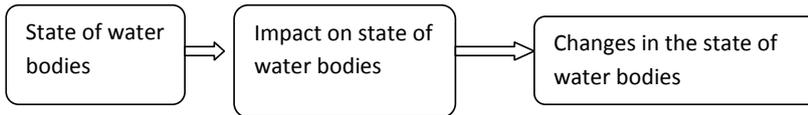
The MNRE is responsible for coordinating a set of bodies and institutions for preparing regular (annual) SoE reports following the resolution of the Russian government. The latest report in Russian on the MNRE website dates back to 2009 and consists of 496 pages.

Table 5: Overview of water issues coverage in State of Environment report 2009 (SoE)

Water resources 28 pages
Water use and water consumption 2 pages
State of water resources by water basins, including Lake Baikal 15 pages
Transboundary water pollution 2 pages
Underground water 4 pages
Marine waters 5 pages
Water pollution in subjects of federation (territorial dimension) approx.51 pages
Water balance of extraction, transportation, losses, water turnover and recycling volume, freshwater saved, water discharged, including polluted volumes)

Health risk analysis of drinking water use in a number of federal provinces and cities
Influence of economic activities including military forces (upon official classification of sectors in the Russian economy) on state of water resources approx. 16 pages
Water discharge by economic sectors
Water extraction and discharge by large mining companies (esp. Gazprom, Norilskiy Nickel) and the Russian railway company
Investments in water protection activities

In general, the State of Environment Report is structured following the conceptual scheme below:



The scheme, having only three elements presented in a linear form, reflects a lack of information about dynamics – usually the data of a current year is compared with the previous one to three year period –and absence of economic and policy analyses able to transform a model into an efficient tool applied to environmental regulation.

There are no references or evidence that water assessments from the SoE have been requested and used in the Water Strategy or that target indicators in the Water Strategy (see above) rely on information from the SoE.

Some fragmented elements of policy analysis, namely listing major polluters in river basins, are presented in the SoE report, but the document does not provide an assessment of what is happening and could happen in a business-as-usual scenario or what practical actions should be taken to prevent a bad-future scenario.

To a large extent this is because the structure of the State of Environment Report is strictly linked to the aforementioned Resolution of the Government on its preparation and publishing, which has not been revisited for over 17 years as far as the required procedures and methods of information collection and assessment are concerned.

The impact analysis provides general information on the most polluted sectors of Russian river basins. Statistical data, from water-monitoring stations located in major river basins, on dynamic changes (2000-2009) in the state of water bodies of four to five pollutants provides information for policymakers on the levels of contamination of water bodies. The report also contains a separate paragraph devoted to climate conditions in 2009 compared with 2008, and to natural disasters. It confirms the general warming trend in Russia; however, taking into account the significant difference among various natural and climatic zones in the Russian Federation, it diversifies the general trend according to spatial and seasonal characteristics of

different zones. Thus, as an exception, the tendency for growing colder is evident for the winter season in the territory of Chukotka, Magadan Province and eastern parts of Yakutia.

The significance of regular national reports on the state of the environment is in their power to raise public awareness and serve as an inventory and store of knowledge for experts. The shortcomings relate to their modest influence on determining and correcting national environmental policy.

As stated above, development of SoE reports at a provincial level has only now become a regular obligatory process. Study of individual cases is therefore valuable.

Above the Vologda Province located in the heart of ‘old Russia’ Murmansk Province located in the Polar region has different priority issues in its SoE.

Title of the assessment: <i>On the State of Environment and Environmental Quality in Murmansk province in 2009</i>			
Institution	Geographical coverage	Year published	Regular (Occasional)
Committee on Ecology and Natural Resources Use of the government of Murmansk Province	Murmansk Province (Arctic region)	2010	R
<p>Priority topics</p> <ul style="list-style-type: none"> ▪ climate change, extreme natural phenomena and need for adaptation; ▪ increasing the effectiveness of water management and adaptation; ▪ access to drinking water; ▪ vulnerability in extreme scenarios; ▪ safety of natural water ecosystems; ▪ diseases caused by water use/consumption; ▪ fish reserves; ▪ biodiversity protection; ▪ protected species: endogenous and migrating species; ▪ characteristics (indicators) of water ecosystems. 			

2.4.2 State of water reports

There are few other national reports concerning water resources or the state of water bodies worth mentioning in this analysis.

The most detailed and professionally done water assessment is the *National Report on the State and Use of Water Resources* (SUWR). The latest version, dating from 2009, is available in Russian on the MNRE website.

SUWR presents the most detailed information on the state of water resources. It provides information and data on:

- the influence of natural processes in the atmosphere (precipitation, evaporation) on the general characteristics of water resources;
- water reserves, including the characteristics of a blanket of snow, water storage in reservoirs, water flow in rivers;
- the current state of glaciers and protected swamps, stocks of underground water and its quality, especially in mining regions.

SUWR provides data on past water consumption volumes and predictions for the future. It presents international comparative studies of water use in Russia with other countries. A special chapter is devoted to natural threats and catastrophes that are considered in a broader interpretation as a part of the overall negative influence of water resources on human well-being. It also considers water pollution, and erosion of the banks of rivers from flooding. The report provides very detailed information on water-protection activities, financial flows to the water economy, and water-saving measures grouped by sectors of the economy. There is complete information on water governance, control of the security of hydropower installations, monitoring of surface waters and research and development activities. The last chapter is devoted to international cooperation and analyses Russia's implementation of international conventions dealing with water issues.

The MNRE and Rospirodnadzor produce regular (annual) reports on the state of Lake Baikal and environmental protection activities; the latest report available on the MNRE website dates back to 2008. It provides information on Lake Baikal, its surroundings and World Heritage status, connected water bodies, subsoil resources, soil, forests, fauna, air, evaporation, climate conditions.

The report also provides information on the impact of economic activities on Lake Baikal. These include: Baikal paper and pulp enterprise, zone of Baikal–Amur railroad, industry and energy complexes, municipal sector and agricultural sector, fishery and hunting, and transport – the Baikal fleet, cars, railroads and pipelines. The valuable assessment instrument used in this report is deviation control. Though there are no sophisticated model causal links between the quality of Lake Baikal and external factors, the report notes any significant changes occurring in the surroundings of Lake Baikal.

The report presents information on a set of measures of a different character: scientific programmes, environmental expertise, environmental monitoring and enforcement, public education and international cooperation. A special paragraph is devoted to access to information.

The water and terrestrial ecosystems of Lake Baikal seem to have been explored to the utmost (see Box 5). The Limnology Institute under the Siberian Branch of the Russian Academy of Sciences provides broad information and assessments on the state of water ecosystems and endemic species.

Box 5. Baikal water-ecosystem assessments

The Limnology Institute studies the past and current state of the Lake Baikal ecosystem, providing a scientific background to sustainable development of the Baikal region under the conditions of environmental limitations; studies the diversity of fauna and flora and the evolution of endemic species in the context of geological events.

The last report of the Limnology Institute dates back to 2010.

Deposits of gas hydrates have been discovered in the surface layers of sediments in Southern and Middle Baikal. A rich community of organisms was found to be connected with them. This community is chemotropic and receives its carbon from methane processing rather than photosynthesis.

Large-scale natural phenomena were identified: methane discharge into the lake water column from its bottom in all the basins. Many flames of methane discharge, including those from craters of mud volcanoes, were recorded.

Deposits of methane hydrates in Baikal sediments, as well as in near-bottom layers, were estimated for the first time. The concentrations of carbon dioxide above the lake level were also measured.

The Federal Water Resources Agency produces the statistical compendium *Water resources in the Russian Federation* jointly with the nongovernmental expert national information agency, Natural Resources. The compendium provides detailed factual information on various components of the state of water bodies. The material contains brief methodological explanations of the major terms with which it operates. It provides a large volume of statistical information and data demanded by experts working in specific areas of water research.

Two thousand copies of the most informative and comprehensive statistical publication, *Environmental Protection. Annual Compendium of the Federal Service on Statistics*, have been printed and an electronic version in Russian is available on the website of the Federal Service on Statistics. Several chapters include data on water resources and water bodies – making up between one fifth and one sixth of the whole report.

The Federal State Statistics Service website provides data on the volumes of the sewage water discharges, including by types of economic activity, and inputs to the water bodies of contaminants together with sewage.

The statistical bulletin *Basic indices of environmental protection*, published in Russian in an edition of 65 copies with 121 pages is also available on a website of the FSS. It contains the basic indicators on water resources and water economy in the framework of basin, territorial and sectoral dimensions.

2.4.3 Water thematic assessments

Rospotrebnadzor prepares and publishes in Russian the national report *On sanitary-epidemiological situation in the Russian Federation* annually which is presented on-line. It has specialised sections related to hygiene and the condition of the water bodies where water is used by the population on small rivers and at the coast, drinking-water supply, hygiene of soils, and the sanitary-epidemiological state of communal household materials. It covers issues of vulnerability in extreme scenarios, the safety of natural water ecosystems and diseases caused by water use/consumption.

UNEP, WHO, UNDP have prepared an assessment on *Transboundary water cooperation: trends in the Newly Independent States*.

One of the main conclusions of the report contained in the review template is that the fully integrated management of water resources, which takes account of the interests of different sectors and ecosystems and applies the water basin principle, is gaining ground in NIS. The authors also state, however, that this is generally not yet the basis for national water policies because of lack of coordinated action and cooperation between different national authorities with regard to water management. The lack of a legal and regulatory framework for bilateral or multilateral cooperation is frequently a bottleneck. The authors further point out that the shortage of information, the fact that information is poorly shared between countries and made available to the public are difficult issues at present.

2.5. Highlights of water assessments

This chapter reports the outcomes of the water AoA according to the information gathered through the review templates filled in for a selected number of assessments included in the virtual library of the EE-AoA portal. The analysis was carried out on a national, sub-national and regional basis on 12 assessments, including two by UNECE.

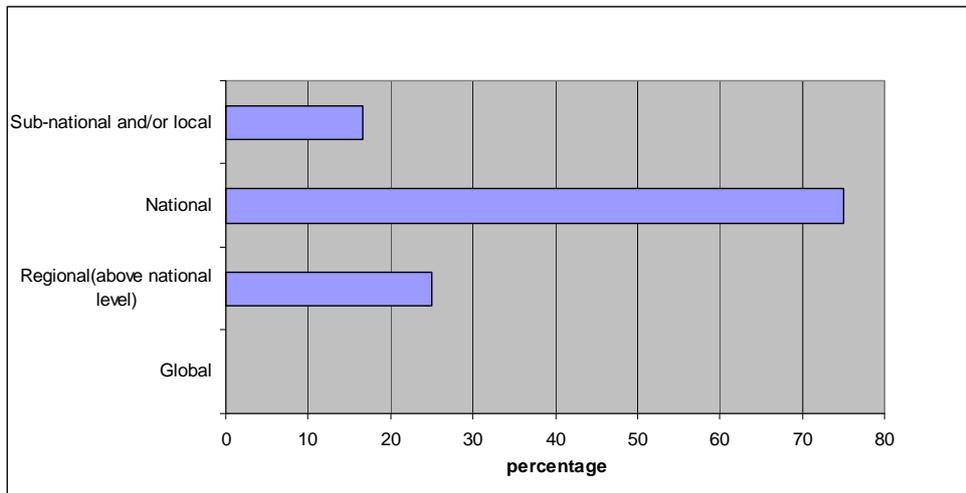
2.5.1 Type of analysis covered by the water assessments

The number of water assessments produced in Russia over the past 20 years has increased markedly. Having become more open, Russia is now more accessible for assessment studies by international and foreign organisations. The number of assessments produced voluntarily by NGOs and non-commercial organisations is also tending to increase.

As shown in Figure 1, the majority of the reports provide water assessment at the national level. The significant difference in the number produced at the sub-national and national levels can be partly explained by the direct involvement of federal authorities, specifically the MNRE, in the preparation of assessments for large river basins, such as the Volga, and unique nature bodies, including Lake Baikal.

Involvement of the federal authorities in water assessments of the most valuable water bodies from a historical, environmental and cultural point of view provides a better understanding of the future directions of national policy in the conservation and protection of these bodies.

Figure 1. Geographical coverage of the assessment

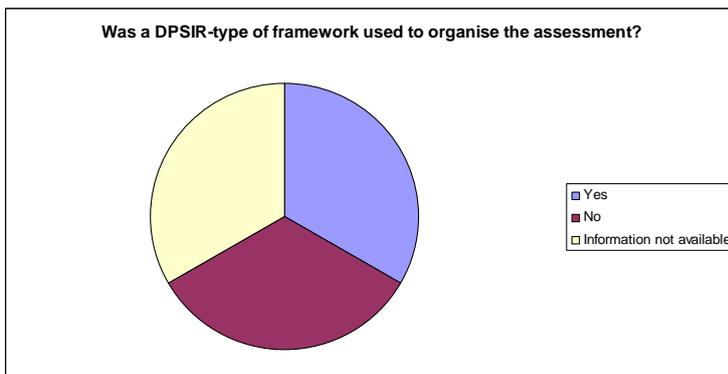


Half the water assessments are produced on a regular (annual) basis. This is a positive indication of the continuity and comparability of the statistical data and results obtained. However, there are fewer regular assessments at the sub-national than at the national level and if this continues it could lead to a problem of continuity of assessments and results at the sub-national level.

As already stated, all types of assessment should be balanced in number and quality. Special efforts should be made by the government and society to sustain all types of assessment and avoid large gaps between them. This is also valid for keeping a balance between regular assessments of each type: sub-national, national and regional.

Another important factor in ensuring comparable assessment results is the use of a common methodology– driving forces-pressure-state-impact-response (DPSIR), which also ensures that the assessments are comprehensive.

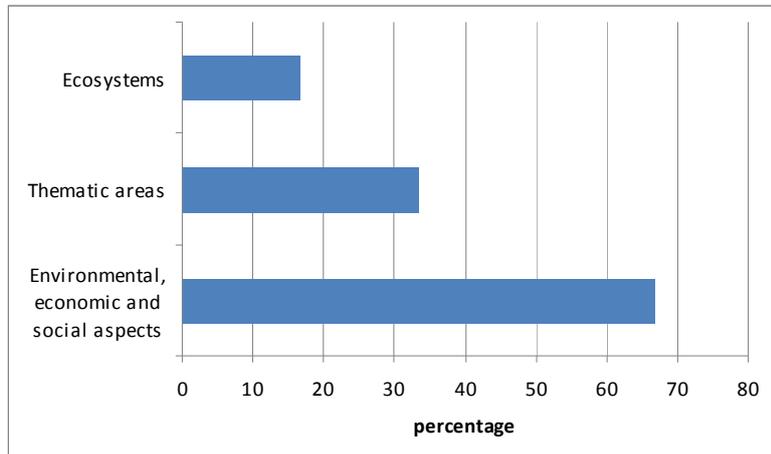
Figure 2. Use of DPSIR framework in assessments



One third of the assessments use the DPSIR framework, one third do not and there is no information on the rest (Figure 2). One assessment report used a truncated DPSIR scheme with state, impact and response characteristics, another used the scheme fully.

Status and trend and thematic assessments of water-resource topics were covered in all the reports. Integrated assessment was mentioned in two thirds of them. Figure 3 shows that integrated assessments of water resources concentrating on environmental, economic and social aspects of water problems are the most prevalent. Minor attention is devoted to ecosystems.

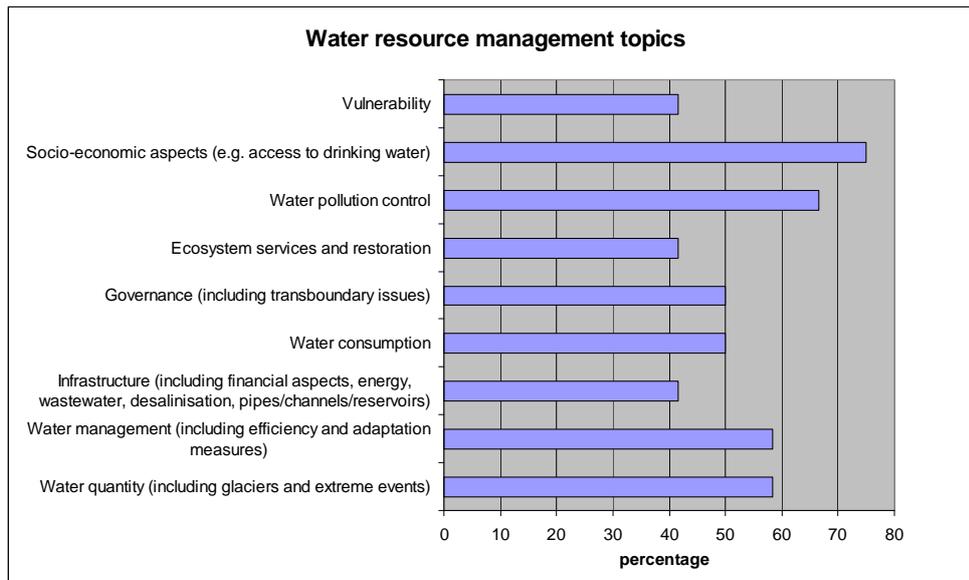
Figure 3 Areas of water-resource assessments



This is an expected result, having its deep roots in the way life is organised, grounded on an anthropocentric outlook.

Environmental, economic and social water resource assessments provide basic information and directions for improving access to drinking water – the most important social problem in water management as shown in Figure 4. The second ranking assessments on water pollution control are well coordinated with assessments dealing with access to drinking water

Figure 4. Water-resource management topics

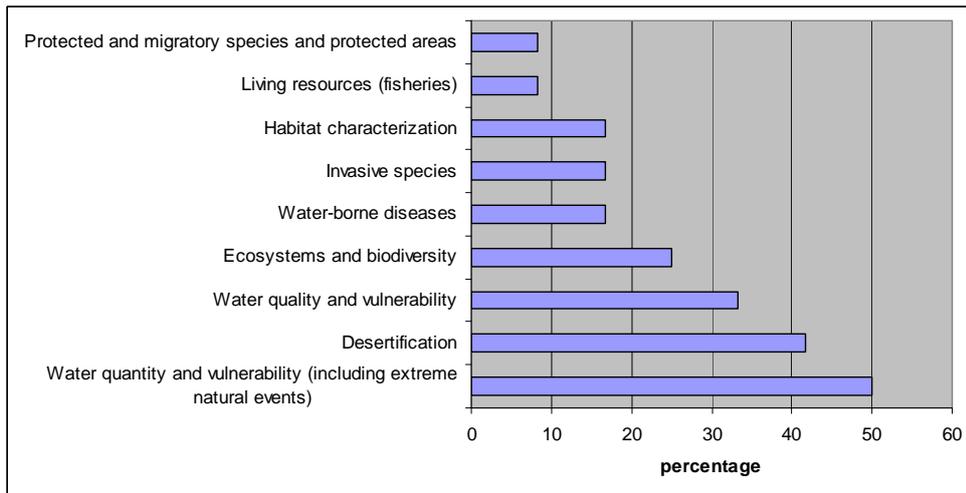


Attention is also paid to water quantity and water consumption topics and vulnerability issues.

The high rank of desertification (see Figure 5) in a country in which this problem only affects a limited set of territories can probably be explained by the inclusion of soil erosion and salinity, typical land problems in the category of desertification.

Water quantity and quality including pollution-control topics and vulnerability issues are widely presented in assessments of water-resource management topics, maintaining a leading position in the policy component of water resource topics. As all assessments reviewed in this report were provided within a narrow time frame – not exceeding 4 years: 2008-2011 –it can be concluded that there is rather close coordination and interaction between assessments of water-resource, management and policy topics.

Figure 5. Assessment of policy component of water-resource topics



As stated above, detailed ecosystem and biodiversity assessments are not regularly carried out; those that exist being mostly for selected water bodies like Lake Baikal. Protected and migratory species and protected areas, as well as living resources (fisheries), are the least assessed topics.

Figure 6 shows the allocation of DPSIR framework characteristics for each topic.

Rather poor information exists on water-borne diseases, used as a source for only a limited number of health assessments, mainly at the local level. Existing assessments only cover impact characteristics, highlighting the need for response assessments.

It appears that assessments covering invasive species concentrate mostly on state and pressure. More pressure assessments are needed for ecosystems and biodiversity to create a basis for improved policy. The same recommendation applies to habitat characterisation.

Drivers and response are less covered by assessments than state and impact.

Figure 6. Allocation of DPSIR framework characteristics

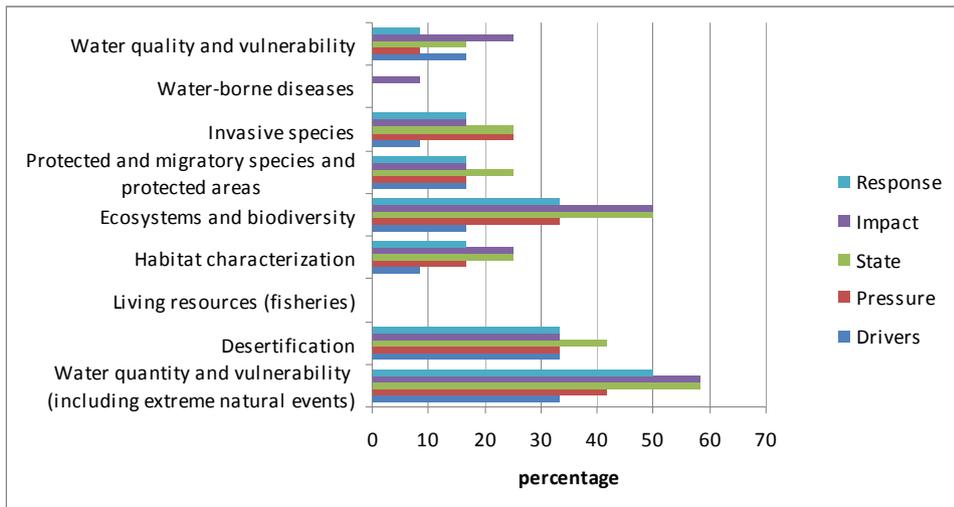
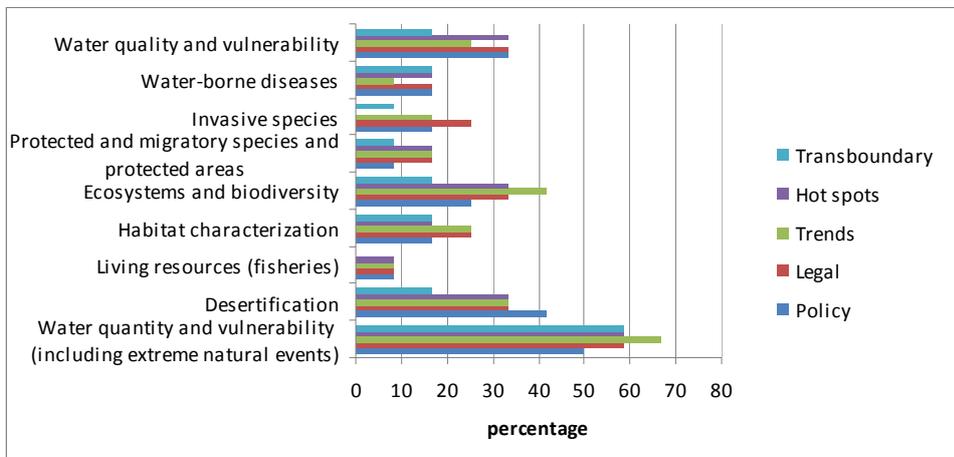


Figure 7 provides information on the assessments related to the same set of topics: water quality, water quantity, etc. concerning the following characteristics: transboundary, hot spots, trends, legal, and policy.

Legal assessments cover all the topics well, reflecting the existence of legislative regulation. Transboundary assessments are mostly carried out on the topics that cover water quantity and transboundary river flows. A rather small proportion of transboundary assessments covers protected and migratory species.

Figure 7. Allocation of other characteristics

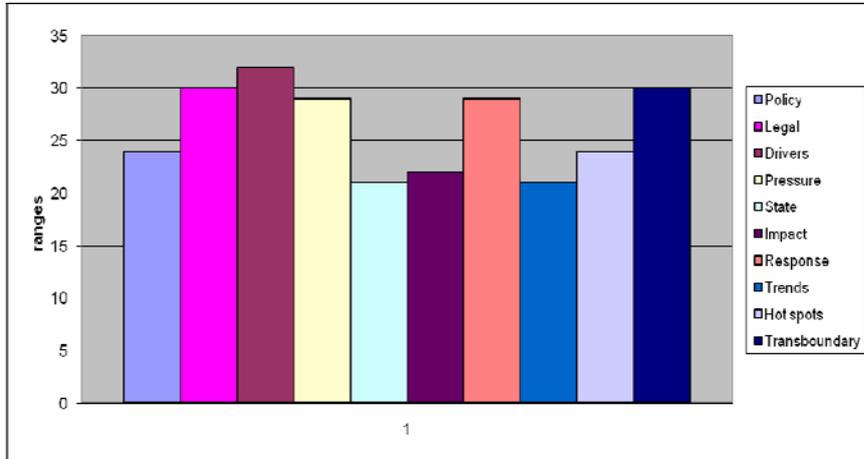


An ordinal scale has been created in order to get an overall picture and systematise the information on the distribution of assessments over the ten characteristics.

Each of the ten characteristics is graded from 1 (most covered by assessments) to 10 (least covered) for each water topic (Figures 6 and 7) and sum up the grades for each characteristic. Figure 8 presents the overall picture of the grade allocation of each characteristic for all water topics.

So, a lower sum means more that characteristic is well covered in the assessments.

Figure 8. Ranks of 10 characteristics on water resource topics



The analysis shows that state, trends and impact are the most covered of all water topics. All three of them relate to the initial observation of the current situation and might be considered as origination of awareness of water problems with relevant threats in the nearest time period. In all assessments trend is characterized as development of “business as usual” scenario (problem has not been solved yet) for a period not exceeding 2-3 years.

The characteristics least covered by water assessments are: Drivers, Response, Legal, Transboundary and Pressures. These are the factors of the “second stage”. As completing analysis of the problem by providing assessment of the state, determining the impact and forming the short-term trend could be viewed as the first stage, the DRLTP factors further deepen the assessment and propose practical actions for problem solving.

2.5.2 Procedures and tools for making assessments

The process of collecting information to produce assessments varied considerably: one quarter of the reports used only data, half made some use of expert opinion, two thirds made some use of local knowledge, and three quarters made some use of data.

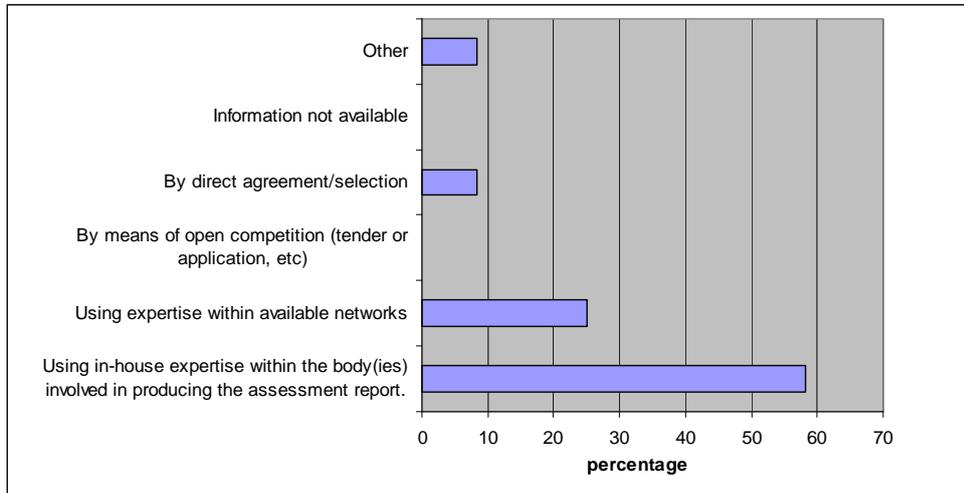
All the assessments identified priority concerns. Three quarters of them addressed specific needs and/or emerging issues and one quarter did not.

The assessments provided options for the future in 58 per cent of the cases but not in 48 per cent. In terms of the policy-making options referred to 58 per cent to implementation, 50 per

cent to framing, 42 per cent to formulation, 33 per cent to adoption and 25 per cent to evaluation.

The Russian institutions making water assessments rely mostly on their own human resources, as shown in Figure 7. The system of assessment making thus seems to be rather a closed one.

Figure 9. Procedures of selection of experts



The institutions that made assessments attracted extra external resources and capacities and provided broad discussions during and by the end of the assessment period. In 75 % of reports was mentioned that specific efforts were undertaken to strengthen the institutional, scientific and/or technical capacities for the assessment. External consultants were used in at least 58 per cent cases. One third of the reports were reviewed by external experts other than those writing them before publication, one third was not reviewed by external experts and the remainder did not provide information on this.

In two thirds of the reports, assessments were coordinated with other ongoing assessment processes, in 16 per cent they were not, and no information was provided for the remaining 18 per cent.

Regular flows of information were reported to be the data source for 83 per cent of the assessments, official statistical publications were used as sources for 75 per cent and *ad hoc* collection exercises for 66 per cent.

In 91 per cent of cases, assessments used indicators according to agreed national, regional or international methodologies. Information gaps were identified in 66 per cent of assessments, while in 34 per cent this problem was neglected.

There is a lack of reliable environmental data and insufficient information on the state of the marine environment. The main gaps found in water-resource reports showed a lack of effective monitoring programmes.

Modelling and scenario tools were only used in 17 per cent of the assessment reports.

A summary of the assessment report was not produced as a separate output in 83 per cent of cases.

Assessments are presented in PDF files in 75 per cent and in paper form in 58 per cent of cases.

2.5.3 Major findings from the assessment process

- 1) Regular assessment reports at the national level predominate. Federal governmental authorities prefer to lead the preparation of the reports concerned with the state of the most valuable water bodies at a sub-national level such as Lake Baikal. The rate of regional (global) assessment-making specifically for Russia is decreasing, while the rate of assessments in which Russia is considered as part of the EECCA and UNECE region is increasing.
- 2) The DPSIR framework is used in approximately one third of cases.
- 3) State, impact and trends are the most used elements of the framework, while drivers, response, transboundary, pressure and legal the least used.
- 4) Water-resource management concentrates on the most urgent and important issue of getting access to drinking water, while policy analysis refers to the issue of securing water supply, paying particular attention to water quantity and quality topics and vulnerability issues.
- 5) Water assessments pay significant attention to processes of land degradation and desertification.
- 6) Information on water-borne diseases issues as a source for a limited number of health assessments, mainly at the local level.
- 7) The issues of vulnerability, ecosystem services and restoration, and infrastructure are of lower priority, while access to drinking water, water pollution control and water quantity are the most-covered topics in water-resource management.
- 8) In general, analysis of assessment coverage demonstrates rather close coordination and interaction between assessments of water resources, water management and water policy.
- 9) The Russian institutions making water assessments mostly rely on their own human resources and expand the capacity through the organization of consultations and attracting extra institutional, scientific and technical resources
- 10) In 91 per cent of cases, assessments use indicators and regular statistical data. Only in 17 per cent of cases are modelling and scenario tools used.

- 11) Presentation in pdf. format is the most popular form of dissemination of water assessment results.

2.6. Conclusions and Recommendations

Conclusions

- There is a rich variety of water assessments at the global, regional, national and sub-national level. They are of general or specific character, may cover certain thematic areas and may use different types of analysis. Assessments use different sets and types of indicators. It is crucial to determine whether these assessments are appropriate to support the policy process in Russia given the complex interconnected nature of the environmental challenges faced today.
- The territory of the Russian Federation is so large and river basins are so diversified by water content, background pollution, climate, and geography and landscape conditions that no single common assessing characteristic could be identified.
- To provide a comprehensive picture of the state of water resources it is not enough to take a general and/or macroeconomic look. Different and more reliable assessments are made at the sub-national level, while the global/regional level makes the final picture look complete.
- In the country where command-and-control methods aimed at imposing rigid standards predominate, making the environmental-management system too simplistic, a rich variety of assessments could draw a picture of a complex world of water with numerous interrelations and connections between living organisms. Assessments demonstrating the wealth and complexity of the internal life of the water bodies could motivate people to create adequate complex systems of support and protection.
- There is evidence of coordination of strategic documents on water resources (Water Strategy to2020) with the socio-economic concepts and strategies approved by the Russian federal government. In their turn, water development programmes and SoE reports at the sub-national level take into consideration and use the target indicators of the water strategy.
- The significance of regular national reports on the state of the environment is in their power to increase public awareness and serve as an inventory and store of knowledge for experts. The shortcomings relate to their modest influence on determining and correcting national environmental policy.
- There are positive signs of strengthening water assessment at the sub-national level. These include, in particular, the introduction of a water-quality indicator as an element of the system of official indicators, assessing the effectiveness of overall management by local authorities at the provincial level, and the request for the production of SoE reports at the provincial level to become mandatory.
- The scheme for integrated use and protection of water objects and the SoE reports can be considered as examples of water assessments at the sub-national level that follow the nation-wide methodology, enriching the content with analysis of specific water problems related to a specific basin or province.
- In addition, governmental bodies, academic and research institutes, think tanks and NGOs are working on water assessments.

- Networking is widespread in the water-assessment process. In Russia's water assessments, governmental bodies and expert organisations as well as networks of governmental bodies and academia are more frequent than networks of academia and think tanks, governmental and nongovernmental institutions.
- Duplication of water assessments by isolated teams of experts and academic institutes happen.
- The analysis shows that state, trends and impact are the most covered elements of the DPSIR framework for all water topics. All three of these relate to observations of the situation and can be considered as evidence for a high level of awareness of water problems. In all the assessments, the trends have been assessed for a business-as-usual scenario for a period not exceeding 2-3 years and should not be seen as a sophisticated method of predicting the future situation

Recommendations

- Support activities should be provided by the Russian government at federal and sub-national levels and businesses to avoid an imbalance in the number and quality of different types of water assessments– national, sub-national, regional and global. Special attention should be paid to stimulating the development of regular assessment reports.
- There is a need for 'incoming traffic' between Russian, foreign and international organisations in exchanging methodologies and best practices and producing common water assessments.
- To place Russian water resources into a regional and global context, Russian strategic water assessments should be developed in a format clear to the major players in the international arena.
- Increasing the level of Russia's involvement in international water policy is the major means for raising the efficiency of transboundary water policies and developing extra capacity for dealing with the modern challenges of natural disasters and climate change.
- By modernising its environmental management and regulation system, Russia is increasingly sharing the basic principles contained in the EU-IPPC and EU Framework Water Directive. Taking into account the very rapid process of updating environmental regulation in Russia, and in order to avoid mistakes and repetitions, there are clear benefits from the convergence of Russian legislation and policy with the EU.
- Modernisation of environmental-management and regulation systems inevitably means a decrease of the dominant role of command-and-control instruments in favour of water-pricing and cost-recovery and other tools that stimulate the efficient use and protection of water resources.
- Ecosystem and biodiversity assessments should be priorities, creating a basis for the development of policy tools such as ecosystem payments and economic reassessment of water resources, appropriate for the ecosystem services and functions that they aim to protect. The role of international institutions in disseminating experience and good practices and international agreements in this area could be strengthened.
- Climate change is projected to influence water bodies in a majority of Russian provinces and flood frequency is likely to increase. If assessments of possible threats

and consequences are not carried out systematically in the most vulnerable places the situation may become difficult to manage in the future. Special arrangements should be made to ensure this.

- Improving river-basin assessments needs special attention from the governmental authorities at federal and local levels. Special efforts need to be made to develop data- and information-production process with a basin dimension, which will require close coordination of various stakeholders at the sub-national level.
- Current assessments depend too much on existing information collected by official regular procedures. Production of new information by academia, think tanks and NGOs is needed, aimed at providing water assessments for meeting practical needs. Networking between academia, think tanks and NGOs should be facilitated.
- There is still too much closed and restricted information on water resources and water bodies in Russia that should be released with free access provided. The government should facilitate strong and long-term contacts with other stakeholders involved in water assessment, specially NGOs. Better coordination and exchange of information between academia, its territorial branches and NGOs could substantially improve the situation and avoid further duplication of assessment making.
- Better coordination should be established between different water assessments at a federal level. The rich material and data contained in SoE reports should be better structured and formatted in a way most appropriate for use by policy-makers and the general public. For this reason certain changes should be introduced into the legal document that regulates the preparation of SoEs.
- It should become a common practice and good style to prepare and publish short practical versions of assessment reports, preferably in Russian and English, as the excessive information that is very often contained in these reports makes it difficult to use them for decision-making and raising public awareness.
- The DPSIR framework could be used as a pattern for developing water assessments of different types.
- Water assessments should be action-oriented, not only reflecting the state of water resources, impact characteristics and short-term trends, but also targeted on implementing practical actions based on the assessment of a variety of options.

3. Green economy / Resource Efficiency

3.1. The concept of green economic growth in the Russian Federation

According to UN classification green economy is a tool “that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”⁹. Due to a wealth of new evidence on the “service provider” role of ecosystems as service providers, the economic significance of natural assets beyond their use as raw materials is now recognised in Russia, as well as in other countries of the Eastern Europe, Caucasus and Central Asia (EECCA) region. This focus was also driven by demands in the country following the recent worldwide interest in, and debates about, adopting a greener model of growth. It is increasingly recognized that greener growth has positive development outcomes such as enhanced productivity and innovation, creation of new markets, fiscal revenue generation and lower risks of economic and social shocks.

It is also recognized in Russia that promoting greener technology can support economic restructuring and diversification, which is a top priority for the country.

Table 6. The greening of economies’ sub-themes and topics of the EfE-AoA for the Russian Federation

Green economy	Resource efficiency
<ul style="list-style-type: none"> - Renewable energy - Energy efficiency - Industry (emissions and waste) - Innovations - Environmental impact assessment (EIA) and strategic impact assessment (SIA) - Governance - Corporate social responsibility (CSR) and environmental reporting 	<ul style="list-style-type: none"> - Use of natural capital (including forestry, agriculture, urbanization linked to the use and degradation of land, soil, water and biodiversity) - Water efficiency in industrial, rural and urban areas - Life-cycle analysis - Environmental accounting - Consumption and production patterns

As it is stated in the 2010 *Human Development Report for Russia* the recent years demonstrated a growing dependence of well-being on the transition to sustainable development. This objective in the context of human development reflects the need to address two major issues – decreasing human impact on the environmental degradation of natural resources; and improving conditions for human development while decreasing environmental risks to human safety and health. In order to address these issues, relevant indicators were

⁹ *Towards a green economy. Pathways to sustainable development and poverty eradication.* UNEP, 2011

developed/adjusted that allow not only the monitoring of implementation of the principles of sustainable development in Russia but also state and public control of the situation in the field of human development, preservation of some of the most significant natural capital in the world and sustaining ecosystem services in the country. In this report, as well as in numerous other assessments, it is stated that Russia is the main environmental donor on Earth and provides the largest input to sustainability of the biosphere. Therefore formation of environmentally sustainable development in Russia is important not only for its citizens but for the whole humankind.

The transition to sustainable development, as laid out by the Russian Government, makes it necessary to include environmental considerations in the main socio-economic indicators of national development. Application of Millennium Development Goal (MDG) ideology at all levels of authority in Russia might provide for increasing the effectiveness and efficiency of natural-resource use and environmental protection while decreasing environmental risks to human health.

The issue of payment for maintaining global ecosystem services is increasingly important both globally and for Russia. The country plays a leading role in preserving global environmental benefits and provides vital ecosystem services to the whole planet. Russia's Long-term Social and Economic Development Policy (LDP, 2008), which sets out the country's development goals to 2020, states that successful implementation of an environmental programme is Russia's critical input to the preservation of the potential of the global biosphere and the maintenance of global environmental balance.

The LDP stresses that capitalisation of Russia's environmental advantages is an important goal for the country. Identification and economic assessment of ecosystem services should move forward from theoretical and scientific studies to the sphere of action, and become profitable for Russia, since the country is a global environmental donor and therefore entitled to economic compensation for maintaining its ecosystems – a position put forward by Russian officials in variety of UN forums.

In essence, the idea of economic compensation for ecosystem services is a further development of the well-known global compensation system for greenhouse gas (GHG) emissions, which was initiated by the Kyoto Protocol. Hence the special importance of Russia's role in maintaining global sustainability, of the country's ecosystem services and of the economic benefits of these services for the whole world. As is stated in the United Nations Development Programme's *Human Development Report* and some other key documents, Russia and the international community have to combine their efforts in financing support for national ecosystem services. In a wider context, this initiative could become an innovative financial mechanism based on reinvestment of incomes received by the country as compensation for environmental services, from selling, for example, permits to emit GHGs, etc., into projects that support ecosystem services, increase the efficiency of energy production and the energy-saving sectors, and develop renewable energy sources.

As also stated in the *Human Development Report*, the use of MDG ideology with regard to environmental sustainability, if carried out by all government institutions in Russia, could increase the efficiency of natural-resource use, help resolve the country's environmental problems and reduce environmental impacts on the country's people.

The global economic crisis of 2008 has changed the scale of the economic impact on the environment due to a decreasing demand for natural resources and falling production of resource-intensive products. However, the latest data from the Russian Statistical Service (Rosstat) shows the beginning of a gradual economic recovery, which will again drive up pollution volumes and natural resource production and utilization. In addition to the positive effect from lower environmental pressure, the past two decades have also seen improvement of environmental conditions for human habitats thanks to better housing conditions – one of the MDG7 targets.

According to UN assessments the Presidential Decree 'On specific measures to increase energy and environmental efficiency of Russia's economy' (2008) is absolutely correct in establishing a close connection between energy and the environment. The energy intensity per unit of gross domestic product (GDP) is, therefore, a highly important indicator.

The most acute problem in developing a green economy in Russia is the low level of energy efficiency and depletion of energy resources. Therefore, the energy capacity of GDP is considered as the most important indicator. This indicator is the top priority not only in terms of provision of environmental sustainability but for the whole national economy. Energy capacity is closely linked to other indicators. In connection with the problem of climate change of special importance are emissions of carbon dioxide (CO₂) as their volume is closely related to the situation in the energy sector.

The energy intensity of Russia's GDP was much lower during the economic rise of the 2000s compared with the early 1990s, and there has been sustained progress towards greater energy efficiency, although the dependence of the national economy and income on energy exports has increased. However, overall energy efficiency in Russia remains low compared not only with developed countries, but also with developing ones. This situation dilutes the relative advantages of the Russian economy in the energy sector, creating obstacles and postponing human development. Low energy efficiency and the dominance of traditional energy carriers also leads to environmental impacts, creating public health hazards.

Reducing the energy intensity of Russia's GDP, which is two to three times higher on average than that of developed countries is, therefore, a priority not only for ensuring environmental sustainability and the transition to a green economy, but also for upgrading the entire national economy.

Admittedly, Russia is a northern country, but results for Scandinavia suggest that there is huge potential for saving energy. Russia's energy intensity has shown positive progress, diminishing significantly in the past decade, reversed the negative trend of the 1990s. Lowering of energy intensity by 3 per cent, largely due to the rapid growth of GDP, is among the best results in the world. But it should be noted that Russia has already taken the benefits of the energy-saving effects of structural change, and the gap between Russia and most developed economies remains large in absolute terms.

Numerous assessments demonstrate that Russia's energy sector is the foundation of the country's economy, but it is also the main cause of pollution and environmental degradation. The consequences for the environment of the development of the fuel and energy sector are still insufficiently studied, both as regards the old energy industries, which have prevailed during four decades of rapid sector growth, and as regards alternative forms of energy provision for the needs of the economy. Energy intensity of Russian housing utilities is particularly high, but the problem is more an attitudinal one rather than because of Russia's severe climate.

When considering the national/regional assessments of the green economy in the Russian Federation, it is necessary to take account of a wide range of assessments and reports that exist.

3.2 National resource efficiency / green economy related assessments

While the issue of a green economy is quite new for the Russian Federation, it is gaining the attention of the government and the Russian business sector.

Table 7. Overview of selected national and sub-national assessments on the “green economy” in Russia

N°	Title of the assessment	Institution	Geographical coverage	Year published
National assessments				
1	<i>National Human Development Report in the Russian Federation 2009. Energy Sector and Sustainable Development</i>	UNDP	National	2009
2	<i>Energy Efficiency in Russia: Untapped Reserves</i>	IFC, World Bank, CENEF	National	2010
3	<i>Energy Efficiency and Sustainable Development”</i>	ISD of Russia	National	2010
4	<i>Fifth National Communication of the Russian Federation under the UN Framework Convention on Climate Change</i>	MNR of Russia, Roshydrom	National	2009

et				
5	<i>State of Environment and Environmental Policy at the Edge of the Centuries in Russia</i>	RREC	National	2009
6	<i>Development of natural resource value accounting in Russia</i>	RDI “Cadastre”	National	2010
7	<i>State Report “On the State and Protection of the Environment in the Russian Federation in 2009”</i>	MNR of Russia	National	2009
8	<i>Pure Profit for Russia: Benefits of Responsible Finance</i>	WWF, EBRD, MNR of Russia	National	2009
9	<i>Energy-efficiency and sustainable development</i>	ISD	National	2010
10	<i>Best available technologies and integrated environmental permits. Perspectives for using in Russia</i>	GTZ	National	2010
11	<i>State of the Russian environmental management system: Paths of modernization</i>	World bank	National	2009

N°	Title of the assessment	Institution	Geographical coverage	Year published
Sub-national assessments				
1	<i>Promoting investments in energy savings projects in Russian Federation Regions. Potential for increased energy efficiency in the Rostov, Sverdlovsk and Tver regions</i>	ICF Internationa l	Sub- national/federation subjects	2009
2	<i>Ecological and economic evaluation of natural resources of the Kaliningrad region</i>	RDI “Cadastre”	Sub-national	2010
3	<i>The Report on the State of the Environment and Environmental Protection in Krasnoyarsk krai of the Russian Federation in 2009</i>	Regional admini- stration	Sub-national	2009
4	<i>Report on the state of the environment and environmental protection in the Murmansk Region in 2008</i>	Regional admini- stration	Sub-national	2008

An overview of some selected assessments in the field of the green economy in Russia is presented in Table 7.

Practically all assessments are up-to-date and cover the period 2008-2010. About 40 per cent of those considered are part of the regular assessments reports produced annually or biannually. About 45 per cent of all the assessments were produced at the initiative of the institution that conducted it and about 80 per cent were produced jointly by several institutions.

Sixty-seven per cent of all assessments on the green economy are national while the remaining 33 per cent have sub-national or local in their coverage.

The results and findings of more than 70 per cent of all assessment on a green economy for Russia were presented at various conferences, meetings, seminars, etc., while the rest were launched through the mass media and press-releases.

More than 80% of the assessments considered identified priority concerns in their respective fields of green economy and provided relevant guidance and recommendations for the government together with options for the future.

3.3. Brief overview of institutions involved in resource efficiency/green economy assessments

As the topic of the Green Economy/Green Growth is rather new for Russia, as well as for any other country in the EECCA region, the number of the assessments and their coverage of issues is rather limited. It also explains important role of international organizations in the given field. The majority of the assessments in the field of GE/RE is produced by international organizations, such as UNEP, UNDP, the World Bank, IFC, WWF, ICF International, etc. Their role is also very high in terms of adequate assessment of existing gaps and needs, capacity development, producing recommendations of relevant policies, piloting and adapting green practices.

Among main agencies and organizations involved in compilation of the assessments and reports on the “green economy” in Russia are the Ministry of Natural Resources and Ecology of Russia, Russian Committee for Hydrometeorology and Environmental Monitoring (Roshydromet), Russian Federal Statistical Service, Ministry of Energy of the Russian Federation, Institute for Sustainable Development of Russia, Russian Centre for Energy Efficiency (CENEF), Research and Designing Institute “Cadastre”, the Russian Regional Environmental Centre and other institutions.

The Ministry of Natural Resources and Ecology of the Russian Federation is the leading agency that performs coordination and control of the activity of the Federal Nature Management Supervision Service, the Federal Subsoil Use Agency, the Federal Forestry Agency, and the Federal Water Resources Agency being under its authority. The Ministry is a federal executive body performing the functions related to formulation and implementation of the state environmental policy and normative and legal regulation in the sphere of the study, renewal, and conservation of natural resources, including management of the state subsoil stock, water resources and forestry.

Russian State Service of Hydrometeorology and Environmental Monitoring is the federal executive body performing the functions on providing services related to hydrometeorology,

environmental monitoring, pollution control, supervision of active impact on meteorological processes, etc.

The The Russian state Statistical Service (Rosstat) is a federal body of the executive power providing statistical services, relevant data and coordinating statistics in the country. The **Russian Regional Environmental Centre (RREC)** is a sub-regional professional organization established by the Russian Government and the European Commission as a part of the network of the regional environmental centers working for Eastern Europe, Caucasus and Central Asia (EECCA) in order to support of inter-sectoral environmental cooperation among governments, business community and civil society in Russia.

Active work on collecting and processing of information and data and developing assessments in various fields of activities related to the “green economy” is performed by numerous international organizations, such as the World bank, IFC, UNEP, UNDP, WWF, ICF International and others.

Overview of green economy related assessments

An overview of some selected assessments in the field of the green economy in Russia and their reflection in the state of environment reports is presented in Tables 7 and 8.

Table 8. Overview of green economy-related assessments in SoE assessments

	Energy efficiency/ saving	Renewable energy	Climate change	Resource efficiency	Total	Including Sub-regional
Number of assessments	12	3	3	8	26	4
Prepared as a regular process	3	1	2	2	8	1
Prepared as the initiative of implementing body	3	1	1	2	9	2
Prepared on the commission of state agency	7	2	2	2	13	1

The geographical coverage of the most recent green-economy assessments for Russia is presented in **Figure 10**. It shows that the majority of reports relates to national-level assessments. There are significantly fewer sub-national and local-level assessments and even fewer devoted to the regional (supra-national) level. This can be explained by the fact that the majority of assessments on the green economy and resource efficiency in Russia are prepared by international organizations that focus primarily at the national level while national and sub-national bodies are only beginning to work in these fields.

Figure 11 provides information on the main sources of data that were used for the compilation of the assessment reports. It shows that the majority of information and data for the assessments were obtained from regular data flows and statistical publications while a significant part of the information was produced as a result of various project initiatives and specific exercises devoted to data collection and processing.

Figure 10. Geographical coverage of the assessments on the green economy for Russia (%)

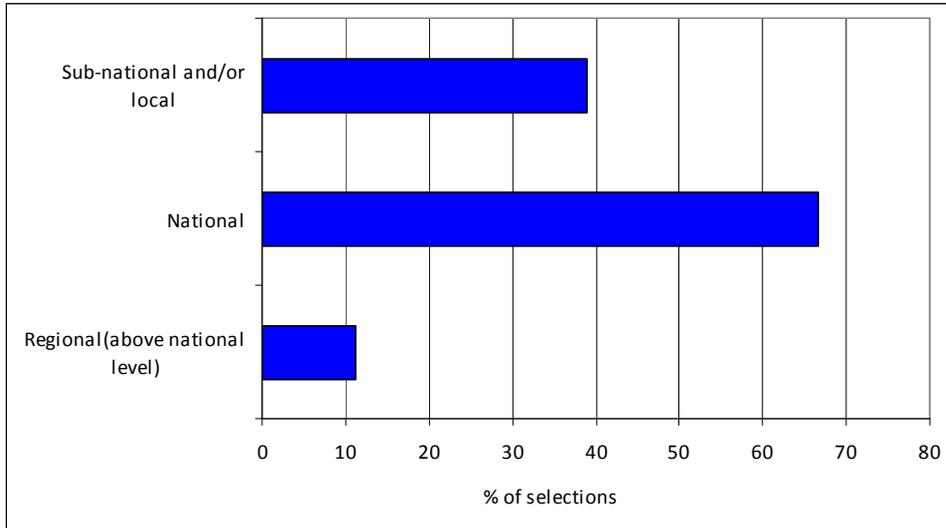
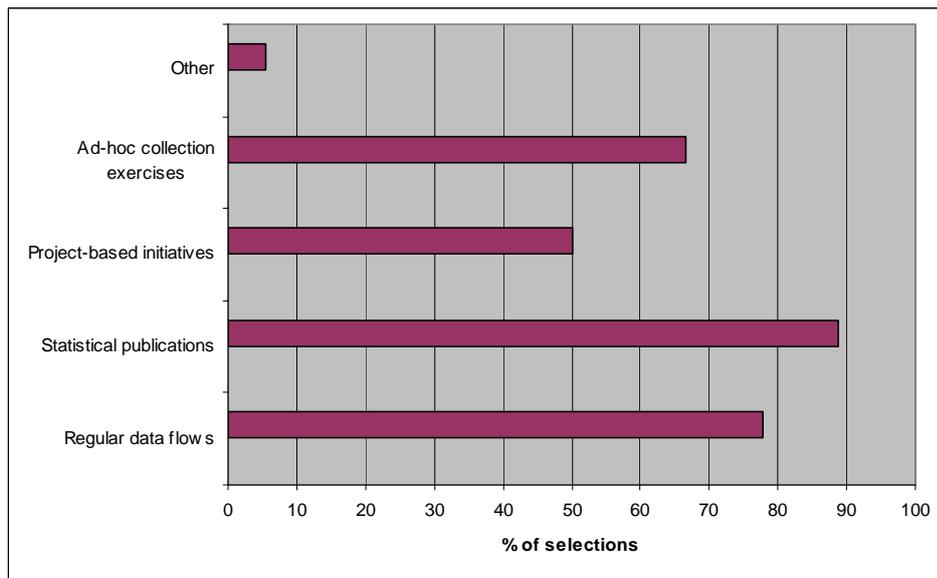
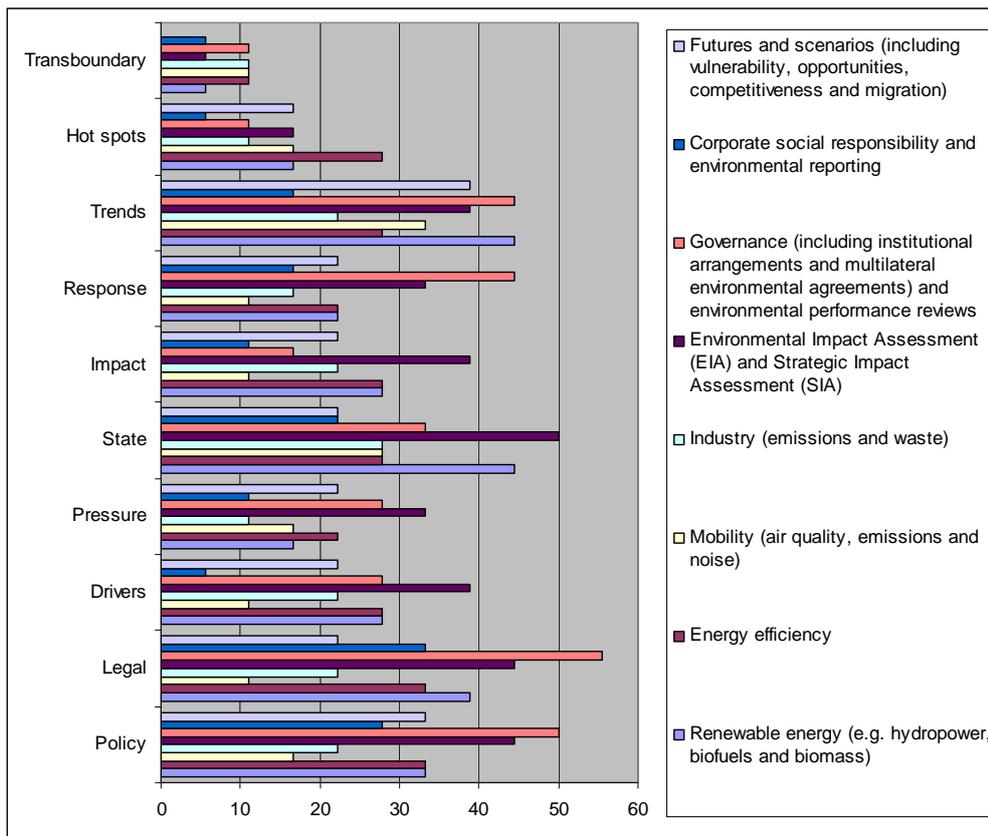


Figure 11. The main sources of data for assessment reports on the green economy for Russia (%)



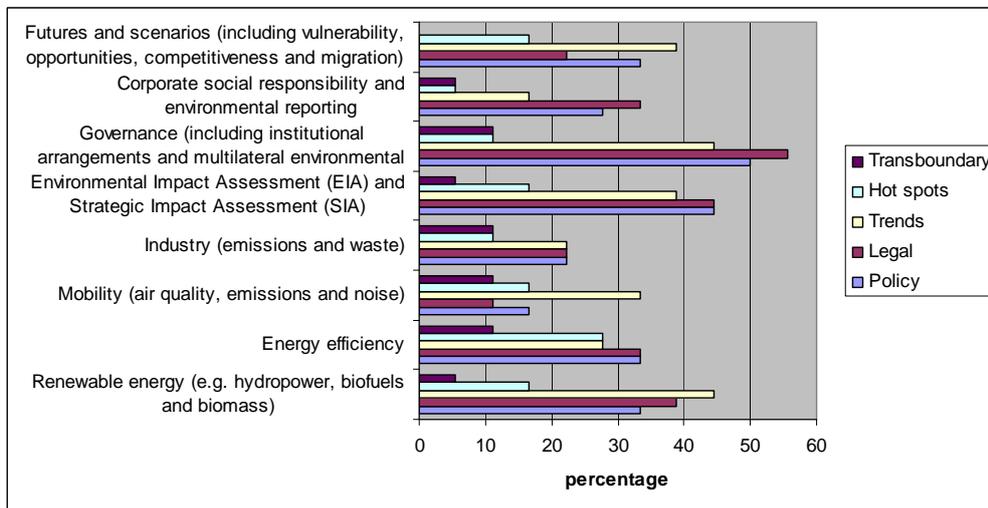
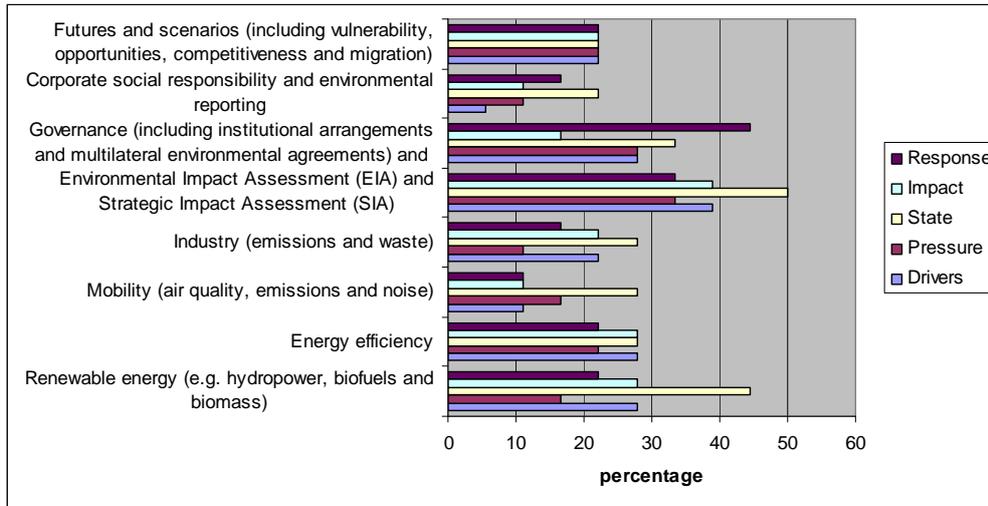
Figures 12 and 13 give an overview of the distribution of topics in assessments devoted to the green economy and resource efficiency in Russia.

Figure 12. Green-economy Topics in the assessments on Russia (%)



As it is seen major attention is paid to such issues as energy efficiency and renewable energy. This can be explained by the fact that these two topics are the main focus of attention of numerous assessments developed by leading international organisations.

Figure 13. Distribution of major green economy topics in the assessment reports on Russia (%).

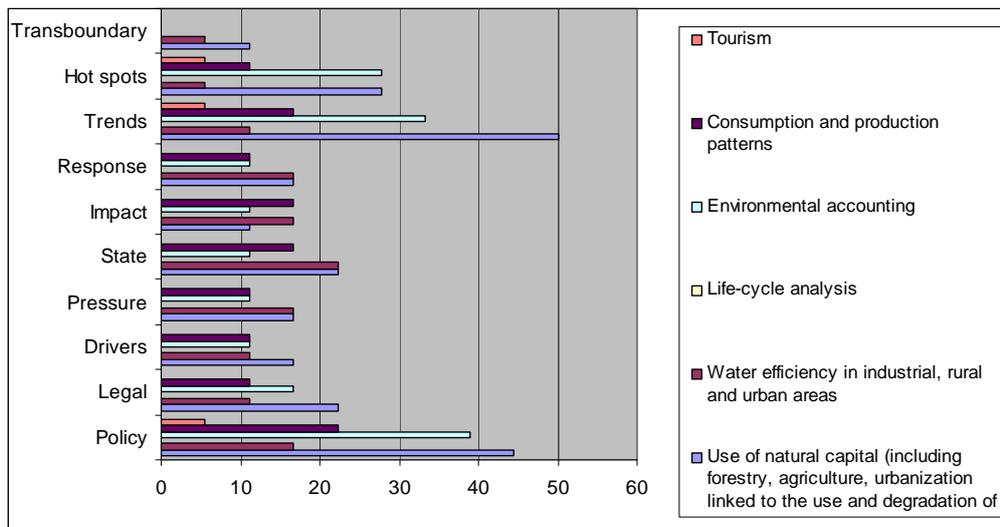


The Figure 13 presents the distribution of major topics related to a green economy in the assessment reports considered.

As it is seen from the Figure 13 the distribution of such components as the drivers, pressure, state, impact and response are quite balanced, as are energy efficiency and environmental impact assessment (EIA). However, for other components such as renewable energy, mobility

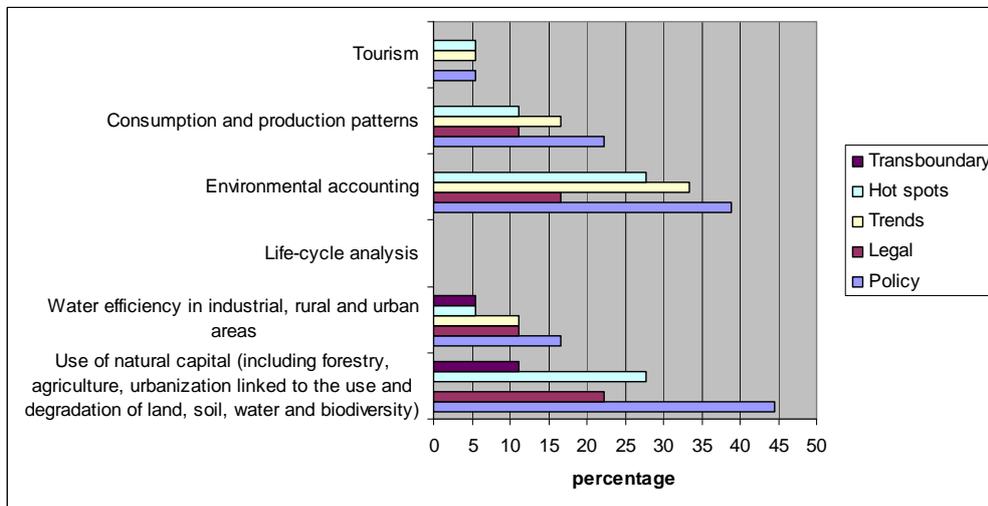
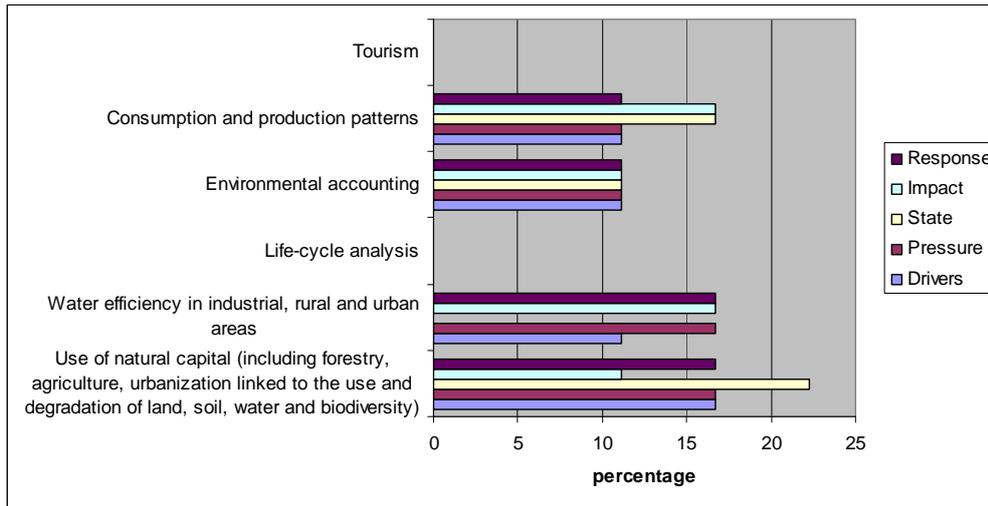
and governance, there are significant fluctuations in coverage, which might be explained by the lack of relevant knowledge and absence of adequate approaches in the respective fields.

Figure 14. Resource-efficiency topics in the assessments on Russia (%)



The **Figure 14** presents major resource-efficiency topics in the assessments. Most attention is paid to such important topics as policy, trends and hot spots.

Figure 15. Distribution of resource efficiency topics in the assessments for Russia (%)



As it is seen from Figure 15, the best balance between the considered components – drivers, pressure, state, impact and response – is observed for environmental accounting and water efficiency, while there are certain disparities in natural-capital use and production and consumption patterns.

A serious lack or even absence of information and data in the assessments was observed in such important fields as tourism and life-cycle analysis – both new for Russia with, therefore, a relative absence relevant experience in these fields.

Numerous international organisations have compiled substantive reports covering various aspects of economic development in the Russian Federation. These cover the main issues and priorities of the green economy and resource efficiency assessments for Russia. The institutions include:

- UNCSO
- UNECE
- UNDP
- OECD
- EEA
- UNEP
- The World bank

Among the major recent assessments it is important to highlight the 13th [Human development report for the Russian Federation, energy sector and sustainable development](#) (2009) prepared by UNDP to provide a detailed analysis of the energy sector of Russia, make forecasts and study the options for overcoming current negative trends in the supply and consumption of energy. The report, prepared as a result of an active dialogue with government authorities and civil society, also contains integrated and sectoral assessments and an analysis of trends in the Russian energy sector. Further, it demonstrates that the world crisis had shown that Russia's economic recovery of the early 2000s was very fragile. The economy still had clear structural imbalances, most obviously the domination of the export-oriented fuel and energy sector. The state budget, investments, and foreign trade remain strongly dependent on the situation on world energy markets. The reliance on the export of energy resources in the national economy not only makes it vulnerable to global shocks but shackles long-term economic growth. Low energy efficiency and the dominance of traditional energy carriers also has environmental impacts, creating public health hazards.

At the same time the conclusions and recommendations of this *Human development report* show that a goal-oriented government programme, together with other changes including some brought on by the international crisis, could change the trajectory of the national economy and open the way for other scenarios, which would prevent the loss of human potential and help to achieve sustainable growth. Increasing global competition and the shrinking scope for development based on raw-material exports make a significant increase in productivity, including energy productivity, vitally important for Russia's aspirations to match the living standards of developed countries.

In order to avoid such a scenario and to accelerate transition to environmentally sustainable development Russia needs to:

- significantly enhance its environmental system, ensuring its independence from the government system of natural-resource management;
 - develop an efficient state environmental policy and vigilantly control its consistent implementation;

- enact regulations on the more efficient use of energy and take steps to combat its squandering. Such regulations should be supported by a system of penalties for non-compliance and failure to take appropriate measures;
- ensure safety and security of all aspects of the energy sector, and of the national economy as a whole, through government initiatives – based on legislation which ensures that outdated equipment is repaired or decommissioned and replaced in a regular and timely fashion;
- take practical action to restructure the economy through increase in the share of processing and high-tech industries
- (<http://europeandcis.undp.org/environment/ecc/show/D0CD6E01-F203-1EE9-BC887D246C7F1F1D>).

A detailed analysis of Russia's energy efficiency and energy saving is provided in the IFC/World Bank report, *Energy efficiency in Russia: untapped reserves, 2010*, in the preparation of which Russia's Centre for Energy Efficiency (CENEf) – the leading national institution in the field – played an active role. The report aimed at providing senior Russian policy makers with a comprehensive and practical analysis of energy efficiency, assessing and describing the potential for and benefits of energy efficiency. It also provided recommendations on improving energy efficiency.

The report showed that energy efficiency is rising to the top of the public-policy agenda and that Russia's current energy inefficiency is equal to the annual primary-energy consumption of France although Russia's energy intensity has decreased by an average of 3.4 per cent per year since 1990. It also underlines that Russia could save 45 per cent of its total primary-energy consumption and that energy efficiency would mitigate the risks and costs of Russia's high energy intensity. It also shows that an adequate energy-efficiency policy could help maintain Russia's competitiveness, increasing oil and gas export earnings, lowering budget expenditures and reducing environmental costs.

The latest description and analysis of Russia's environmental management and its major trends was given in a comprehensive report prepared by the World Bank in consultation and with the participation of the Ministry of Natural Resources and Environment of the Russian Federation, regional administrations of members of the Russian Federation, the Public Chamber of Russia, the Chamber of Industry and Commerce of Russia and the Institute of Energy and Finance.

The report aimed to develop a review of trends in the key spheres of environmental protection, with a focus on pollution abatement. This assessment contains a description of environmental institutions and organizations at national and regional levels, as well as recommendations on improving environmental management in Russia.

This important report identified such priority concerns as:

- an ongoing trend of significant downgrading of environmental policy and institutions during the time period considered;

- weak and poorly coordinated environmental monitoring and limited understanding of environmental issues/priorities;
- ineffective instruments of environmental policy and an absence of a system or process for environmental priority-setting;
- unclear responsibilities among federal, regional, and municipal authorities and institutions;
- limited and ineffective application of economic instruments; and
- weak information disclosure and public participation.

It also identified a number of needs and priority actions required to improve overall situation environmental management in the Russian Federation, such as changing the system of the state regulation of environmental protection; the introduction of modern approaches and management schemes such as environmental insurance, certification and audit; the adoption of economic incentives for enterprises and the introduction of new technologies; the need to develop an action plan for reforming environmental management and more effective public and analytical support.

In this regard the above assessment might be considered as important guidance for an overall improvement of environmental management in Russia ([http://www.ifc.org/ifcext/rsefp.nsf/AttachmentsByTitle/FINAL_EE_report_Engl.pdf/\\$FILE/Final_EE_report_engl.pdf](http://www.ifc.org/ifcext/rsefp.nsf/AttachmentsByTitle/FINAL_EE_report_Engl.pdf/$FILE/Final_EE_report_engl.pdf)).

Another interesting example of an assessment of energy efficiency in Russia is *Energy Efficiency and Sustainable Development* prepared by the Institute for Sustainable Development of Russia – a joint programme of the Centre of Environmental Policy and the Public Chamber of the Russian Federation to stimulate energy efficiency in Russia and a gradual transition to a low-carbon economy within the framework of the green economy and measures on mitigation of and adaptation to climate change.

This assessment, based on the World Bank methodology, revealed a high level of energy consumption in Russia, two to three times more than in developed countries; a worsening of the situation in regard to achieving the MDGs because of the current trend of increasing energy intensity, as well as wrong policy priorities for national development including a lack of basic indicators able to demonstrate the depletion of natural resources and a growth of pollution. The report also revealed a set of dominant political, institutional, economic and technological factors that determine the very inefficient use of energy in Russia.

The assessment report also identified the need for the development of the Russian national "green investment" scheme (financial resources accumulated as a result of sales of national carbon quotas "mix" with loans decreasing interest rate), creation of a national market on emission trade, concrete means of "climate aid" from Russia to other countries in the post-Kyoto period buildings construction and exploitation considered as a perspective and reasonable area for energy saving in Russia with a set of recommendations enlisted in the report, changes in Russian statistics and reporting practice, gradual transfer to technological regulation. (<http://www.sustainabledevelopment.ru/index.php?cnt=60>)

An important assessment of activities undertaken to implement Russia's obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto

Protocol, and the relationship between economic activities and climate change is contained in the 5th *National communication of the Russian Federation under the UN Framework Convention on Climate Change* developed by the Ministry for Natural Resources and Environment and the Federal Service on Hydrometeorology and Environmental Monitoring. This survey considers the most important national normative documents on climate change, in particular: *Climate doctrine, An integrated plan of activities on the implementation of the UNFCCC and the Kyoto Protocol in the framework of the Russian international obligations, Concept for long-term social and economic development in Russia to 2020*, as well as the *Energy strategy of the Russian Federation*.

Among the priority concerns this document emphasises that emissions from the energy sector dominate GHG emissions – 81.5 per cent of all Russia's emissions in 2007. In general, the major task, formulated in and taken from the *Climate Doctrine* of the Russian Federation, is to strengthen national capacity in such fields as research and technology, improve and raise the validity level of information on the current state and future changes in climate and their consequences. It also stresses the importance of such steps as the development of tactical and long-term climate-change mitigation of and adaptation measures (http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/4903.php).

A comprehensive analysis and assessment of green growth and the potential and prospects for developing a green economy in Russia is given in *State of environment and environmental policy at the turn of the century in Russia*. This analyses the preconditions for green growth and the relationship between economic growth, social well-being and addressing environmental issues. It also contains recommendations on increasing the effectiveness and efficiency of environmental policy making.

This report analyses the dynamics of Russian GDP (based on PPP), sectoral economic growth in the country and their connection with environmental considerations. It clearly demonstrates that the macroeconomic situation in Russia, even the most favourable one, has not had a sufficient impact on raising efficiency in state environmental policy that should, in turn, have had a positive impact on environmental quality. Past environmental problems that were not solved at the appropriate time have accumulated and changed. As a result, Russian society is faced with new and urgent environmental challenges. The review also underlines the need to change investment priorities, to green the economy and to make relevant changes in environmental and economic policies. One of the report's main conclusions is the need, in the interests of the public, to change Russia's paradigm of national development at a top political level, to green the country's economy and to harmonise this process with western countries (<http://rusrec.ru/ru/docs/1690>).

Some important and interesting assessments exist relating the development of a green economy at the regional level. *Promoting investments in energy savings projects in Russian Federation regions. The potential for increased energy efficiency in the Rostov, Sverdlovsk and Tver regions* is an important example of regional assessments related to the issue of green economy in the Russian Federation. It was developed by ICF International in order to assess the potential of increased energy efficiency in the principal economic sectors of three Russian regions and to assess the structure of integrated fuel and energy balances (IFEB) of

these regions for 2000-2008. It also aimed to providing guidance on determining energy-saving potential in the Russian regions.

Another regional assessment, the Ecological and economic evaluation of natural resources of the Kaliningrad region was commissioned by the Ministry of Natural Resources and Environment and the Federal State Statistical Service of Russia and prepared by the Research and Design Institute cadastre. This assessment, using OECD methodology, was aimed at providing government bodies, research organizations, the public and other stakeholders with a complete, accurate and scientifically sound analysis of and data about the current ecological and economic value of natural capital in the Kaliningrad region – the most Western part of the country, adjacent to the EU.

The assessment identified several important issues and problems that exist at the regional level in terms of the valuation of natural capital. In particular it revealed the absence of comprehensive systematic information on the environmental and economic valuation of natural capital, and the lack of interconnected data on stocks of natural resources, their use and prospects for their depletion related to economic growth. It also demonstrated that these obstacles do neither allow the comparison of the value of natural assets with the income derived from their use nor an analysis of economic value of natural assets and a prediction of the depletion of economically-significant natural resources.

On the basis of this regional report, another very interesting national assessment was carried out by the RDI cadastre – Development of natural resource value accounting in Russia. Produced at the behest of the Ministry of Natural Resources and the Environment and the Federal State Statistical Service of Russia at the assessment examined the possibilities for harmonizing national and international approaches to valuing natural capital, and providing government authorities with complete, accurate and scientifically substantiated environmental and economic data on the current state of the natural capital of the Russian Federation.

The assessment identified a number of priority needs and actions required to improve the system of valuation of natural resources in Russia. These include the need to establish an integrated information system of environmental and economic valuation of natural capital, and to strengthen inter-agency coordination and cooperation among such government agencies as the Ministry of Natural Resources and Environment, the Federal State Statistical Service, the Ministry of Agriculture, the Ministry for Economic Development of the Russian Federation and other interested agencies. Among other priority needs identified were the need to establish a consistent flow of information on environmental and economic assessments of natural capital; and to introduce standardised methods for collecting and aggregating data on the ecological and economic assessment of minerals and energy, water, uncultivated biological and other natural resources at the regional level for further aggregation of data at the level of the Russian Federation.

The report's recommendations include organising the training of specialists at the Federal State Statistical Service on natural-resource accounting according the system of national accounts methodology; improving methods of collecting and analyzing data, taking into account current changes in the international methodology of the system of national accounts.

A comprehensive analysis of the present state of the environment and numerous related subjects is given in the latest *State report on the state and protection of the environment in the Russian Federation* (2009). This comprehensive assessment, prepared by a group of Russian ministries and agencies under the leadership of the Ministry of Natural Resources and Ecology with participation of leading Russian companies, contains an analysis of and information on environmental quality and natural resources in Russia, as well as environmental trends connected with economic activities in the country.

It is worth noting that materials used in the State report were also used in the development of environmental indicators recommended by the European Environmental Agency and UNECE.

The State report also contains a detailed analysis and information on fresh water consumption, in Russia, water losses, discharges of pollutants in water bodies, emissions of pollutants to the atmosphere, urban air quality, natural reserves, the condition of forests, etc.

The State report identified major problems and concerns including significant losses from water sources; a decrease of water quality in some water sources, including transboundary ones; and pollution of underground waters, including drinking-water reservoirs. The list of priority issues also includes the lack of sanitary protection zones in places of water intake, fish-stock depletion, a lack of funds for environmental protection and the ineffective spending of resources, the lack of legislation dealing with earmarked financing, poor enforcement practices and poor mechanisms for coping with environmental liability and compensation for damage, etc. (<http://www.mnr.gov.ru/part/?act=more&id=6109&pid=1227>).

Several of the above assessments on the green economy were produced by leading international organizations – the World Bank, UNDP, UNEP and others working in Russia.

A good example of an assessment carried out by several international organisations is ***Pure Profit for Russia: Benefits of Responsible Finance***, produced by WWF, EBRD, the Task Force on Equator Principles and some national agencies including the German Federal Ministry for Nuclear Safety and Environment and the Russian Ministry for Natural Resources and Environment. This was developed to facilitate cooperation between financiers and environmentalists working during the post-crisis period in Russia on the development of a greener and more sustainable financial system, as is the case in other BRIC countries.

This assessment revealed several priority problems in Russia – the need for further integration of environmental demands and requirements in corporate policies and investment policy-making, in particular, the development of a unified system of widely recognized recommendations on the regulation of financial operations according to environmental risks; and increasing financing for green projects in support of energy efficiency and the introduction of renewable energy.

It also identified the need for the introduction of voluntary schemes of corporate social responsibility (CSR) in Russia, using investment potential for supporting wind energy and other sources of renewable energy, harmonisation of environmental impact assessment (EIA) procedures between Russia and EU, changing traditional patterns of reviewing and evaluating projects with high ecological risks in financial policy. In terms of the lack of information, this important assessment identified the necessity of developing modern corporate standards of environmental and health protection, the development of social corporate standards and rules

for minimizing risks and avoiding credit problems (<http://www.wwf.ru/resources/publ/book/372>).

Taking into account the size and variability of Russia's economy and environment, it might be expedient to provide an overview and comparison of sub-national aspects with the national situation on the green economy.

The report on the state of the environment and environmental protection in Krasnoyarsk region of the Russian Federation (2009) is a good example of a sub-national assessment containing relevant information on the green economy. This report describes how emissions of atmospheric pollutants correspond to the selection of environmental policy for the power sector. For example, a decrease of emissions by more than 17 per cent in 2009 was connected with a fall in the production of electric power, a decrease in volumes of ash and burnt fuel, and an increase of efficiency of treatment facilities.

This sub-national assessment also demonstrates that the environmental situation in Krasnoyarsk Krai is closely related to the uneven distribution of the population and industrial enterprises. Ninety-three per cent of the area of this the largest member of the federation can be described as environmentally favorable but it is inhabited only by just 19 per cent of the population. In contrast, the most polluted area, covering 7 per cent of the region, is home to more than 80 per cent of population.

In general, this is similar to the overall situation in Russia – the western parts of the country are densely populated with very intensive industrial development while in the vast eastern areas the concentration of people and industries is much less, resulting in a better environmental conditions.

3.4. Highlights of green economy assessments

Priority concerns, specific needs, emerging issues, options for future action

A summary of the main problems and concerns related to adequate environmental management and energy efficiency expressed in the recent assessments, as well as the list of priority needs for action at the national and sub-national levels in the relevant field are given in Table 9.

Table 9. Major problems, concerns and priority needs expressed in national and sub-regional assessments on the “green economy”

Environmental management and energy efficiency priority concerns	National and sub-national needs/emerging issues
<p>1. Energy efficiency is rising to the top of the public policy agenda in Russia. Russia’s current energy inefficiency is equal to the annual primary energy consumption of France. Russia’s energy intensity has decreased by 3.4 percent per year on average since 1990 in Russia.</p> <p>2. Very high level of energy consumption in the country – two to three times corresponding levels in other developed countries.</p> <p>3. The country’s economy still has clear structural imbalances, most obviously the domination of the economy by the export oriented fuel and energy sector. The state budget, investments, and foreign trade are all strongly dependent on the situation on world energy markets.</p> <p>4. Dominance of energy-resource exports in the national economy not only makes it vulnerable to global shocks but shackles its long-term economic growth potential.</p> <p>5. Low energy efficiency and the dominance of traditional energy carriers also leads to environmental impacts, creating public health hazards.</p> <p>6. The ongoing trend of the major downgrading of environmental policy and institutions during the considered period of time.</p> <p>7. Weak and poorly coordinated environmental monitoring and a limited understanding of environmental issues/priorities.</p> <p>8. Ineffective instruments of environmental policy and an absence of a system or process for environmental priority-setting.</p> <p>9. Unclear responsibilities among federal, regional, and municipal authorities and institutions.</p> <p>10. Limited and ineffective application of economic instruments.</p> <p>11. Weak information disclosure and public participation.</p>	<p>Russia could save 45 per cent of its total primary-energy consumption. Energy efficiency would mitigate the risks and costs of Russia’s high energy intensity; maintain competitiveness; increase oil and gas export earnings; lower budget expenditures and reduce environmental costs.</p> <p>Three Russian regions have considerable technical potential to save energy. In all three, technical potential exceeded the growth of primary-energy consumption in 2000-2007. In the future the development of these regions’ economies is technically possible without growth in primary energy consumption over a minimum of 8-12 years.</p> <p>A goal-oriented government programme together with other changes, including some brought on by the international crisis, could change the trajectory of the national economy and open the way for alternative scenarios, which would prevent loss of human potential and help to achieve sustainable growth.</p> <p>Increasing global competition and shrinking scope for development based on raw material exports make dramatic increase in productivity, including energy productivity, vitally important for Russia’s aspirations to match living standards in developed countries.</p> <p>The need to change the system of the state regulation in the sphere of environmental protection.</p> <p>Introduction of modern approaches and management schemes such as environmental insurance, certification and audit.</p> <p>Adoption of economic incentives, mechanisms for enterprises and the introduction of new technologies.</p> <p>The need to develop an Action Plan on reforming environmental management.</p> <p>Public and analytical support for environmental activity.</p> <p>Establish an integrated information system for the ecological and economic valuation of natural capital of the Russian Federation and its regions (Federation members).</p> <p>Improvement and strengthening of the inter-agency coordination and cooperation among national ministries and agencies in order to establish a consistent flow of information on environmental</p>

Environmental management and energy efficiency priority concerns	National and sub-national needs/emerging issues
<p>12. Significant funds needed for environmental protection are ineffectively spent because of legislative loopholes dealing with a lack of earmarked financing.</p> <p>13. Poor enforcement practices and improper mechanisms of environmental liability and damage compensation prevent increasing the efficiency of environmental performance.</p> <p>14. Serious problems related to waste management and air pollution exist in big cities.</p>	<p>and economic assessments of natural capital.</p> <p>Development of a national green investment scheme – financial resources accumulated as a result of sales of national carbon quotas mix with loans decreasing interest rate – and the creation of a national market to trade in emission as a concrete means of providing climate aid from Russia to other countries in the post-Kyoto period.</p> <p>Gradual transition to technological regulations (tools using BAT approach similar to the EU practices) as a beginning of technological modernisation.</p> <p>Introduction of voluntary CSR schemes using investment potential for supporting wind energy and other sources of renewable energy.</p> <p>Harmonization of EIA procedures between Russia and EU, changing traditional patterns of reviewing and evaluating projects with high level of ecological risks in the financial policies.</p>

3.5. Conclusions

National green economy/green growth strategies exist in Russia, but there are several strategies related to sustainable development of the country.

The set of national development, environmental and sectoral indicators and statistical compendiums need to be revised to correspond to the requirements of RE/GE concepts and to cover such sectors of Russian economy as industry, agriculture, mining, energy, construction and housing, transport, social and labour protection.

Several assessments in the field of green economy – developed and carried out jointly by international organizations, Russian agencies and leading institutions – provide for the elaboration of adequate policy measures and contain recommendations on streamlining economic development. They also contain useful guidance on harmonisation of national approaches and regulation with relevant approaches of the EU and OECD member-countries.

Environmental authorities in Russia, in partnership with the Ministry of Economic Development, could catalyse a further shift in development planning by factoring the costs of natural capital depletion into their decision-making. Besides the analysis of costs and benefits of environmental policies and laws, this could include the valuation of ecosystem services, and introducing green (natural capital) accounting more generally.

Promoting greener technology could support economic restructuring and diversification, which is a top priority for Russia, as well as for some other EECCA countries.

Opportunities for Renewable Energy Sources in Russia

Renewable-energy sources, that are now viewed as one of the main vectors for long-term innovative development of the energy sector, are extremely important for Russia. Increased use of renewable technologies in Russia could create more jobs, improve living standards, and reduce migration of rural populations and the outflow of people from northern and eastern territories. Development of renewable energy slows environmental degradation and enhances public health and well-being. It can be said that at present the country is only in the first stages of developing a strong renewable energy industry. The business community has shown growing interest and much has been done in terms of legislation for the development of renewables. Several key assessments show that the increased use of renewables for the production of heat and electricity could promote development of Russia's high-tech machine-building sector and the creation of new jobs in Russian regions.

The radical green restructuring of developed economies to low-carbon, less resource-consuming ones also represents a threat to resource-oriented development, since it entails a lower demand for natural-resource commodities. Declining efficiency of investments in the energy sector has become a trend in Russia. These factors increase the risks of green-field oil and gas developments in frontier territories. Plummeting world prices could have a significant effect on oil and gas extraction in remote northern territories and sea shelves with poor, uneconomic infrastructure, freezing huge investments, which have become ineffective, and leaving huge territories and water surfaces in a state of environmental degradation.

Estimates suggest that Russia could improve its energy efficiency by 45 per cent compared with 2005¹⁰. Technological progress makes increasing energy efficiency renewable. Full use of the potential for electrical-energy savings could reduce consumption by 340 billion KWh, or by 36 per cent from 2005 levels. More efficient use of thermal energy and a reduction of losses in heating networks could save up to 844 million GCal, or 53 per cent of heat use from 2005 levels. Reducing the energy intensity of the Russian economy would also be equivalent to giving the country a natural gas field bigger than any it actually possesses.

The capital investments needed to fully realize Russia's energy efficiency potential are US\$324-357 billion, while the investments needed for the development of the fuel and energy sector are estimated at more than US\$1 trillion. To gain a single unit of energy through the expansion of production requires on average two to six times more capital investment than to gain of the same unit of energy by increasing energy efficiency. In many cases energy efficiency gains do not require any investment at all.

If Russia exported all of the oil, gas and oil products it would save by realising its energy efficiency potential, the country would obtain additional annual revenues of US\$80-90

¹⁰ UNDP National Human Development Report for the Russian Federation 2010 .

billion, as well as keeping GHG emissions well below the threshold level of 1990 until 2050, even assuming strong economic growth.

Energy-saving potential is like oil deposits: they may be huge, but they are of no use until wells are drilled and a field is constructed. The obstacles to energy efficiency in Russia can be divided into four groups:

- 1) lack of motivation;
- 2) lack of information;
- 3) lack of funding and long-term investments;
- 4) lack of organisation and coordination.

Strong government policy is needed to overcome these obstacles, and the time has come to move from words to deeds. Energy efficiency must be made the priority of energy strategy and must be viewed as the main contribution of the energy sector to economic growth¹¹.

The energy sector currently supports all other parts of the Russian economy, consolidates constituent entities of the Russian Federation and has a major impact on the formation of the country's main social and economic indicators. In order for the sector to develop, meet modern challenges and provide sustainable development of the country's economy, the government is conducting a policy that aims to maximise both the efficiency of energy-resource utilisation and potential in the energy segment.

Energy preparedness and environmental safety, as well as energy and budget efficiency, are the cornerstones of the government's long-term energy policy. A key condition for achieving them is the formation of an adequate, modern regulatory system, which could provide stability, as well as a proper legal environment and the dynamic development of both the energy market and the fuel and energy sector¹².

Energy efficiency is one-third the cost of building new energy supply facilities, and can be done more quickly

According to the forecast of the IFC and the World Bank a shortfall of natural gas production in Russia (35-100 bcm by 2010) and the potential gap in additional electrical generation capacity (~20,000 MW) can be compensated by energy resources released through increased efficiency (240 bcm of gas and ~43,000 MW of electricity capacity). Russia would require investments of more than US\$1 trillion to construct energy-supply facilities to generate the

¹¹ UNDP National Human Development Report for the Russian Federation 2010

¹² Message by Sergey I. Shmatko, Minister of Energy of the Russian Federation

same amount of energy while energy efficiency can achieve the same effect at a third of the cost¹³.

Energy efficiency mitigates the risks and costs of Russia's high energy intensity, and will allow Russia to:

- **maintain competitiveness:** as rising tariffs diminish the world's largest energy subsidy (US\$40 billion in 2005), profits of industrial enterprises will decrease by at least 15 percent. Energy efficiency will allow companies to maintain competitiveness;
- **increase oil and gas export earnings:** Russia's energy intensity costs US\$84-112 billion per year in terms of lost export revenues;
- **lower budget expenditures:** US\$3-5 billion can be saved annually from federal and local budgets by eliminating the inefficient use of energy;
- **reduce environmental costs:** by ignoring the consequences of emissions caused by its energy intensity, Russia sacrifices the health and welfare of its citizens and loses roughly US\$10 billion per year in direct economic benefits from selling CO₂ emissions reduction units.

In order to implement regional programmes with ambitious targets to enhance energy efficiency all over the country it is necessary to determine the actions on potential use in all sectors.

As a major part of the Russian economy, the energy sector has large impact, both direct and indirect, on human life and to some extent determines the structure of economic development. The sector is an important source of national income, affecting the health and well-being of people who may not be directly involved in the energy business. In many regions and cities, energy firms determine the environment for self-realisation by local people, professional training, employment and small business development.

Strong leadership required to enable energy efficiency investment

Achieving greater energy efficiency requires many individual decision makers becoming comfortable in investing their capital in projects to use energy more rationally. A strong government role could provide that confidence by removing barriers, establishing clear conditions and standards, and supplying critical information. By creating a favourable energy-efficiency business environment, the government could catalyse significant investment flows.

In order to ensure a proper focus of purpose and resources, the government should designate a ministerial department or dedicated energy efficiency agency with the responsibility, authority and necessary funding to develop and implement a comprehensive energy-efficiency policy for Russia. This body could coordinate work with Rosstat to ensure the availability of reliable

¹³ *Energy Efficiency in Russia. Untapped Reserves.* IFC and the World Bank, 2010

statistical information essential for understanding the current situation and monitoring the effectiveness of policy. Currently, statistical data on a number of sectors, such as buildings, heating, and transport are virtually nonexistent.

Increasing resource efficiency is a core economic objective for Russia that needs to be pursued to allow the country to remain competitive in global markets, and improving efficiency levels create possibilities for competitiveness gains and higher than average returns on investments.

Due to the huge economic and social significance of natural resources in Russia, improving their management is one the most pressing steps towards greening economic growth.

Numerous assessments show that natural-resource abundance in Russia has been and will continue to be, at least in short- and medium-term perspective, the basis for the creation of the country's national wealth. Shifting towards environmentally-oriented growth can enhance the value derived from natural resources.

Implementation options

According to recommendations of the World Bank, the Russian Government should focus on the following categories of measures, each of which is necessary to achieve the full energy-efficiency potential of the country. *Quick wins* will demonstrate some progress and increase political support, *essentials* will stimulate investment that is already financially viable, while *high cost – high return* measures will remove fundamental sources of inefficiency and will make more energy-efficiency investment financially viable¹⁴.

Also in order to avoid the natural resource curse, institutions in Russia need to be further improved, for example, tenure arrangements, monopoly regulation or the regulation of concession contracts. Better enforcement of natural-resource rights and the curbing of illegal activities is crucial.

Well-designed and comprehensive policies can both improve the existing models of production and consumption, and stimulate the emergence of new business opportunities linked to a green economy.

As stated in the latest UNEP report on the green economy, renewable energy presents major economic opportunities. The greening of the energy sector requires substituting investment in carbon-intensive energy sources with investments in clean energy as well as efficiency improvements. This fully corresponds with the present situation in Russia. In this regard government policy has an essential role to play in enhancing incentives for investing in renewable energy.

¹⁴ *Energy Efficiency in Russia. Untapped Reserves*. IFC and the World Bank, 2010

Pursuing green growth goals in Russia requires a clear strategy and adequate progress measurement tools. This could be done by focusing on the reform of specific instruments and sectoral work, as well as on improving policy implementation. In order to increase policy coherence between different sectors of the national economy, mechanisms that permit the unveiling of policy inconsistencies, as well as address the problem of institutional and budget fragmentation, need to be put in place or strengthened.

Promoting greener technology can support economic restructuring and diversification, which is a top priority for Russia. Due to the huge economic and social significance of natural resources in Russia, improving their management is one of the most pressing steps towards greening economic growth.

Several assessments also demonstrate that, as part of its shift to green growth, Russia needs to more adequately price its natural resources and reduce public spending on environmentally harmful subsidies. These assessments also propose that the pricing of both natural resources and pollution must be brought to a level that is sufficient to promote resource efficiency.

The assessments that were considered in this process also show that the government needs to include the green-growth concept in existing policies and institutions and put more effort into its implementation.

In general, assessments in the field of green economy provide overall guidance for the government and specific sectors of the Russian economy on a gradual transition to sounder, environmentally-oriented economic growth.

It should be noted that, as is the case of other countries and sub-regions, assessments in the field of green economy devoted to Russia should be more clearly focused and contain more concrete recommendations. Such an approach might provide for improved communication and policy relevance. More emphasis should also be placed on evaluation and how assessments have led to policy adoption, as well as on informing and helping to implement policy.

The EE-AoA has shown that, in spite of the fact that the concept of the green economy is rather new for Russia, a significant number of assessments already exists, primarily produced by international agencies and organisations including UNDP, UNECE, OECD and the World Bank. Unlike other EECCA countries many of the existing assessments on green economy are not periodic reports but assessments devoted to specific components of the green economy such as energy efficiency, energy saving, renewable-energy resources and resource efficiency. Several assessments produced by UNDP, the World Bank and some other international agencies were prepared in close cooperation and in consultation with leading government agencies of Russia.

One of the most important reports on Russia related to the green economy is the UNDP's annually produced *National human development report*.

Overall for Russia there is a gap in the availability of indicators on the green economy and resource efficiency and this gap should be eliminated in future.

Similar to other EECCA states, in Russia regular SoERs are a crucial element in presenting actual data not only on the state of the environment itself and the use of natural resources but on some other important issues. However, they still lack information and data related to the green economy.

As is the case with other EECCA countries, in Russia almost all assessments on the green economy are available both online and in .pdf format. Unfortunately, accessibility to these assessments and reports by the general public is rather limited and public awareness of their existence is still very low. This can also be explained by a limited number of existing web-portals and sites, as well as by their quality.

In spite of the fact that concept of the green economy is by nature multi-sectoral, there are limited cross-sectoral links and flows of information and data because of a lack of inter-agency cooperation and dissemination of relevant information. This situation needs to be improved in future.

A significant number of Russian green-economy assessments do not contain clear indications of the methodology used in the compilation of the reports, or information on the dissemination the results of the studies. Few of the assessments include descriptions of the involvement of other stakeholders, such as non-governmental organizations, the business community, etc.

More than 80 per cent of the assessments considered identified priority concerns around the green economy in their respective fields and provided relevant guidance and recommendations for the government as well as options for the future.

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