

Policy options

This section aims to identify feasible policy options that target key components identified in the Causal chain analysis in order to minimise future impacts on the transboundary aquatic environment. Recommended policy options were identified through a pragmatic process that evaluated a wide range of potential policy options proposed by regional experts and key political actors according to a number of criteria that were appropriate for the institutional context, such as political and social acceptability, costs and benefits and capacity for implementation. The policy options presented in the report require additional detailed analysis that is beyond the scope of the GIWA and, as a consequence, they are not formal recommendations to governments but rather contributions to broader policy processes in the region.

Definition of the problem

The previous causal chain analysis identified the most significant immediate causes, sectors and root causes of problems in the region. According to the results of the Assessment and Causal chain analysis, the following priority issues have been chosen for the Policy option analysis:

- Chemical pollution
- Oil spills
- Modification of ecosystems

The Causal chain analysis showed that the root causes of the three issues are quite similar. Therefore a single Policy option analysis can be carried out for all three issues combined. The completed analysis showed that the threats from these issues are evident in: (i) the rapid degradation of fragile Arctic ecosystems; (ii) the increase in the scale

of exploitive consumption of natural capital; (iii) changes in the way of life and culture of indigenous peoples; and (iv) decrease in social safety nets, standards of education and life spans. At the same time, corruption, crime rates and other social problems have increased. During the 1990s, the total pollution load to the water bodies decreased in Russia as a result of economic slowdowns and production setbacks. In spite of this, ecological systems have tended to continue to degrade, partly as a result of the accumulation of pollutants from earlier activities. All of these facts are evidence of unsustainable development in the Russian Arctic region and demonstrate that socio-economic and ecological problems in the northern Russia are interrelated. These problems cannot be solved using the principle of "patching holes". Solving these problems will require a comprehensive approach at the national level, as well international cooperation for the control of transboundary atmospheric and water pollution.

In Russia, a long-term federal programme for sustainable development of the Arctic region is still not accepted, although the concepts for this approach has been worked out and used for the substantiation of Russian Arctic policy (Andreev 2001). There is a huge threat to the region's economic and environmental stability by powerful monopolies. These monopolies, as Russian President Vladimir Putin has said "have become a hostile enclave that doesn't follow common rules and laws" (Putin 2004). The monopolies evade taxes, exploit and undervalue natural capital and thereby undermine the financial basis of the nature conservation efforts (Barsegov et al. 2000, Gaffney et al. 2000, Lvov 2002).

The concept of sustainable development has not taken shape as concrete international programmes and projects in the Arctic region. There is an absence of indicators of sustainable development that can be used in common in all Arctic countries. These indicators should be aimed at limiting human impact.

Political and organisational framework

The design of solutions for these problems has as its underlying principle the protection of the rights of the small indigenous populations and strengthening their role in achieving sustainable development, as has been identified as an international priority (for example, Agenda 21, part III, §26). One of the principal aims of the national and international policies of the Arctic region's governments should be the harmonisation of the relationship between people and nature by matching the scopes of industrial development with the capacity of natural ecosystems and improving of the quality of life of the indigenous population. To achieve this, local policy should not be administratively isolated, but should draw on the transboundary consolidation of efforts and cooperation between the ethnically-related native populations.

The legal basis for the various policy options should be the declarations of the World Summits on Sustainable Development held in Rio de Janeiro 1992 and in Johannesburg 2002. The main principles from other International conventions and Russian environmental protection legislation and sustainable development should also be used. One of the main legislative reasons behind the effort to improve the environmental situation in the Russian sector of the Arctic is the Russian Federation Constitution, which guarantees a right to a healthy environment and access to reliable information about its condition (asset 42). A list of international conventions, Russian federal laws and other federal acts is provided in Annexes III and IV.

After enduring a setback in industrial production in the Russian Arctic in the 1990s, there has now been a resumption of industrial production since 2000. Future forecasts predict an increase in the production of hydrocarbon and other mineral resources for the period to 2020 (Andreev 2001). In this context, clean-up and control efforts should be aimed at the gradual reduction of existing pollution levels as well as the gradual rehabilitation of natural ecosystems, along with an increase in the quality of life of the native populations. During the reforms some decrease in the anthropogenic load on sea and freshwater ecosystems in the Russian Arctic region has been observed. It is necessary not only to preserve this improvement but also to make certain the trend continues.

Current Russian legislation contains the legal basis for the ownership, use and administration of lands and other natural resources by minority indigenous populations, and also forms the basis for future socio-economic development and environmental preservation. Since 2000, the Russian economy is becoming more stable and federal programmes

for the socio-economic development of the Russian Arctic are being better enforced. In 2002, the Russian government approved "The general requirements for the development of plans on prevention and elimination of oil-spill accidents" for the prevention of oil spills and passed "Urgent measures to minimise the risk of oil-spill accidents", Nr. 240 from 15.02.2002) as a resolution (see Annex VI).

Arctic people have seen an increase in incomes and industry is being restored, and with this, additional tax revenue and growth of spending on environmental protection can be expected. In July-August 2004 (for the first time since the beginning of 1990s) the Russian government has declared its intention to support Arctic research expeditions, to rebuild the hydrometeorological network for monitoring the state of the Arctic environment, and to assist in the development of the northern shipping route. The government projects are to shift from annual planning to short-term (3-5 years) to long-range (10-20 years) forecasting. Long-range industrial development planning for the Arctic is now being carried out in the context of the Russian World Ocean Programme. Since 2004, the government has indirectly begun to support different patterns of business ownership businessmen. These measures emphasise the need to modernise the transport infrastructure in respect to ecological safety (ports, water routes, hydrographs, ice-breakers, navigational aids, qualified personnel, and scientific study of the Arctic region) and the need for enhanced control of environmental conditions.

Targets and measures aimed at reducing the negative impacts of chemical pollution, oil spills and the modification of ecosystems in Russian Arctic seas have been crafted according to the document entitled "Major directions of transition of Russian Arctic Zone to sustainable development". This document was prepared by the Council for Industrial Forces Relocation under the Russian Federation's Ministry of Economic Development and Trade and the Russian Academy of Sciences (Andreev 2001). Its practical realisation will help eliminate the root causes of chemical pollution, oil spills and the modification of ecosystems in Russian Arctic region.

The main goal of the Russian Arctic region's stated environmental improvement policy is the creation of proper conditions for preserving the critical functions of the biosphere and sustainable development based on the balance between socio-economic growth and the capacity of natural ecosystems. Other goals of this policy are:

- That all administrative decisions in the Russian Arctic region be made according to the environmental capacity of natural systems;
- The refinement of federal and regional environmental protection legislation, ecological criteria and standards;

- The strict legislative enforcement of the mutual responsibility of federal, regional and local governments to protect the environment in the region;
- The combination of administrative and economic methods to prevent environmental degradation and pollution;
- The creation of a scientific basis for the sustainable development of Arctic ecosystems;
- Effective participation in international cooperative efforts to incorporate principles of sustainable development in the Arctic zone, regional, transboundary and global.

Construction of policy options

The following policy options are based on previously described root causes and existing conditions. The policy measures that can eliminate the threats to Arctic waters are listed below. The measures are presented from the perspective of fundamental causes: economic, technological, governance, public control, education and knowledge, and legal or political improvements. At the same time it is necessary to note that elimination of economic and legislative deficiencies is a priority because implementing sustainable development in the region depends on them. To finance the elimination of the technological and other fundamental causes of chemical pollution, oil spills and modification of ecosystems, to solve the social problems of the indigenous population and to increase their role in decision-making for environmental management, to extirpate corruption, to improve the supply of information, and to finance nature conservation measures, the following policy options are recommended.

Option 1: Economy actions

In order to decrease the pollution and modification of ecosystems the following economic actions are suggested:

- In the sphere of resource exploitation:
 - Reformation and development the regional system of accounting and monetary valuation of natural resources, and the development of a system to limit and license consumptive resource use on the basis of natural resources cadastres,
 - Gradual reformation of the local and regional taxation system with the goal of increasing the share of natural resource payments into appropriate budgets,
 - Improvement of economic and financial mechanisms for sustainable natural resources, economic encouragement for the effective use of natural resources, development of a labour and service market in the sector of resource use,



Figure 21 Gas drilling on the Yamal Peninsula.
(Photo: Arcticphoto)

- Transition from short-term to long-range forecasts for economic development, taking into account the need for natural systems to recover from their current degraded state, and recognising the need to improve the quality of life for indigenous populations.
- In the sphere of environmental protection:
 - Identification of ecological capacity of the Russian Arctic region according to regional ecological and economic realities,
 - Development of methods of the economic assessment of negative ecological impacts according to conditions in the region,

- Improvement of economic and financial mechanisms for environmental protection,
- Creation of the mechanism for insurance, the liquidation of ecologically dangerous industries and requirements for the payment of compensation for environmentally harmful activity,
- Improvement of economic stimulation of activity that protects natural resources,
- Development of a service market for environmental protection.

Option 2: Technology actions

In order to improve existing technology the following actions are suggested:

- Development of new methods and technologies in the sphere of protection, reproduction and rational use of natural resources; the stimulation of use of energy and resource conservative technologies (for example, use of wind power or biomass energy from wood wastes accumulated at timber and lumber companies in Siberia) as well as growth of natural resources reuse and level of waste recycling;
- Modernisation of the Northern Sea Route transport infrastructure (ports, icebreaking and other fleet in recognition of Arctic ice conditions);
- Modernisation of oil and gas production technologies to improve pollution prevention, with a priority on the enterprises that pollute the most in the Russian Arctic Zone as listed in Annex VII;
- Restoration of a local transport infrastructure, including air routes.

Option 3: Governance actions

The following governance actions are suggested:

- In the sphere of improving long-term forecasting using the principles of sustainable development and a gradual transition to economic development that is based on these principles:
 - Elaboration of and acceptance at a governmental level of a strategy and programmes for sustainable development for the Russian Arctic region;
 - Creation of ecological and economical zoning along the coasts of the Arctic seas and strict regulation of industry and commercial activities to protect the environment;
 - Financial and methodical support for local initiatives and programmes based on the principles of sustainable development;
 - Perfection of a system of governance for the administration of natural resource use in the region;
 - Coordination of all the activities in the region based on the demands of environmental protection and sustainability.

- In the sphere of improving monitoring and information:
 - Restoration and modernisation of an observation network in the Russian sector of Arctic based on the principles of sustainable development;
 - Creation of a national information network, integrated into a uniform world information system of oceans;
 - Development and implementation of effective administrative systems to control environmental protection programmes at various industries;
 - Development of systems of territorial ecological control and environmental monitoring including industrial ecological monitoring;
 - Maintenance of ecological information by all interested administrative and public organisations.
- In the sphere of rehabilitation of ecologically damaged territories, the concrete measures in this sphere could be the following:
 - Establish the location of zones of ecological instability and ecological disasters and rehabilitate them;
 - In areas of oil and gas extraction, mining, non-ferrous metallurgy and other dangerous industries, provide site clean-up and aid to affected populations;
 - Restore degraded elements in the sea, biological resources, coastal ecosystems;
 - Tally and safely store environmentally harmful weapons and ammunition;
 - Increase activity designed to protect the biological diversity of Arctic ecosystems and landscapes; develop a network of protected natural territories and areas with unique natural resources and features; and expand zones where resource exploitation is limited.
- In the sphere of protecting human health, measures aimed to prevent or reduce the effects of pollution on the health of the population should provide:
 - Regulation of drinking water quality at standards protective of human health;
 - Regulate air quality at standards protective of human health;
 - Provision of safe healthful food;
 - Reduction of the negative impact of contaminated soils;
 - Provision of environmentally healthful communities;
 - Protection of the population from radiation;
 - Regulation of working conditions at standards protective of human health.

To achieve the goals listed above and in accordance with Russia's responsibilities as stated by the Helsinki Declaration on Environment and Health Protection, a regional plan for the Russian Arctic region regarding human health and the environment is needed.

Option 4: Public control actions

Actions to improve public control are financial, methodological and legal support from different levels of authorities, non-governmental and other public organisations in establishing local control over the ecological situation in the region, i.e. help in organising the public oversight groups, and opening ecological information to the public.

Option 5: Education and knowledge actions

Actions to improve access to education and knowledge:

- Creation of a system to educate indigenous and migrant populations about the environment, develop an ecological culture and ideology with priority given to minority indigenous peoples;
- Creation of and support for regional state structures and public institutes that oversee environmental protection;
- Disseminate credible and timely information about environmental conditions via the mass media;
- Secure free access to environmental information for citizens and corporations; provide access to experts from the Russian Naval Fleet about Arctic conditions;
- Provide support for regional and global public environmental movements and attract non-governmental organisations to analyse and formulate solutions for the unique environmental problems of the Russian Arctic;
- State support for scientific research to create the scientific basis for sustainable development of the Arctic, along with the development of sustainable development indicators.

Option 6: Legal and political actions

- Adoption of legislation to implement a strategy for sustainable development in the Arctic;
- Creation of a regulatory and legal basis for making administrative decisions in the Russian Arctic region according to ecological capacity of natural systems;
- Toughening requirements so that industries operate in a clean, responsible manner in the Arctic region and a shut-down of illegal, polluting industries responsibility for faces accepting solution on accommodation industrial production in the Arctic region and supposing unlawful operations in the sphere of nature exploitation;
- Creation (with participation of military experts) of measures to reduce the impact of military activity on the environment;

- State support for social and ecological programmes and projects to protect the health of the population in the Arctic region;
- Legislative support for the traditional use of natural resources by indigenous populations;
- Legislative protection for the rights of the indigenous population, based on the concept of sustainable development, and with help in organising groups for monitoring and the provision of access to ecological information;
- Regulation of transportation in the region;
- State support for local self-sufficiency (territorial self-management, and help for local budgets).
- Evaluation of foreign experience to determine how best to protect the indigenous population.

Moreover, actions on the international level are needed. Policy options at the international level are: development of a single strategic approach for sustainable development, so that Arctic countries can have a common, integrated strategy for management and protection of Arctic resources, and development of a forum or mechanism so that the populations of all Arctic Ocean coastal countries can discuss common actions that will achieve a transition to sustainable development.

Performance of policy options

The performance of the policy options is evaluated as to their effectiveness, efficiency, equity, political feasibility and ability to be implemented.

Effectiveness

The policy options can be highly effective in solving the problems of pollution and modification of water ecosystem in the Arctic region, and will help the region's economies move toward sustainable development.

Efficiency

The likelihood of accomplishing goals depends on following aspects:

- The Russian government's adoption of the strategy and the programme of sustainable development of the Arctic region and the subsequent implementation of the programme measures;
- Survey sources of stable financing for the environmental and socio-economic problems that have been identified in this analysis. This approach is linked with the solution of another highly complex problem, the elimination of corruption and implementation of requirements that the oil and gas industry pay appropriate taxes;

- Raise the level of awareness in the population regarding principles of sustainable development;
- Create a system for the effective public oversight of environmental pollution and industrial activities.

Equity

The responsibility for environmental degradation will be linked to the obligation to pay for the rehabilitation of the environment or to alter production techniques (or cease them).

Political feasibility

Non-polluting producers as well as the population in general will support the proposed policy options. However, it will be necessary to

limit the action of business lobbying groups to carry out this policy. In parallel with this, the influence of the public sector should be strengthened to make this policy feasible. To carry out this measure, governments must be supported by company owners, especially in the oil and gas production.

Implementation capacity

The proposed policy options are required to improve the region's economy and to create a modern monitoring system in the Arctic. Support for or opposition to this approach will entirely depend upon how environmental education is carried out.