ACOPS

ADVISORY COMMITTEE ON PROTECTION OF THE SEA

AND

INTER-AGENCY COMMISSION ON ARCTIC AND ANTARCTIC AFFAIRS OF THE RUSSIAN FEDERATION

NATIONAL PLAN OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM ANTHROPOGENIC POLLUTION IN THE ARCTIC REGION OF THE RUSSIAN FEDERATION (NPA – Arctic)

Moscow, May 2000

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1. INTRODUCTION

Pollution of the marine environment from land-based sources is one of the oldest forms of contamination affecting the marine environment. Since man settled in the coastal zones and along rivers, the marine environment has been his natural repository for all type of wastes. Although the oceans are vast and can accept large quantities of waste, their ability to assimilate it without significant degradation is not limitless.

The major sources of land-based pollution vary from country to country and from region to region, depending on the nature and intensity of specific activities in the coastal strip and the associated drainage area. Activities associated with human settlements, agriculture, industry and tourism are generally the major contributors to the pollution load of the marine environment, and the relative importance of the load's various components shows a significantly different pattern in different parts of the globe.

Control of pollution from land-based sources was for very long, too long, neglected by the political establishment. The prevailing view of policymakers was that the sea is there to be used as a limitless waste repository and that curbing marine discharges may put an unjustifiable burden on the economy. The knowledge accumulated during past decades about the magnitude and main causes of degradation of the marine environment is considerable, and managerial, technical and technological solutions to reduce or eliminate pollution are available at reasonable cost to those who can afford them. However, opportunities to apply this knowledge are frequently missed, as demonstrated by mismanagement of national development plans and economies, inappropriate coastal zone development resulting from a lack of adequate integrated planning and management, and inadequate national and international legislation and monitoring of plan implementation.

The weak institutional structures and manpower capabilities in many countries represent a further technical obstacle, particularly in developing countries, to more effective protection of the marine environment. These weaknesses are frequently compounded by the prevailing approach by the authorities to environmental management, and by the lack of meaningful co-operation between the public and private sectors, including non-governmental environmental pressure groups, in planning and implementing environmental protection measures.

2. GLOBAL PERSPECTIVE

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and the associated Washington Declaration were adopted at an international conference in Washington, D.C. in November 1995 following thirteen years of effort by the international community. The Global Programme of Action aims at preventing degradation of the marine environment from land-based activities by helping States honour their duty to preserve and protect the marine environment. It is designed to assist States in taking actions, individually or jointly, within their respective policies, priorities and resources, which will lead to the prevention, reduction, control and/or elimination of the degradation of the marine environment and to its recovery from the impacts of land-based activities. Achievement of the aims of the Global Programme of Action will contribute to maintaining and, where appropriate, restoring the productive capacity and biodiversity of the marine environment, ensuring the protection of public health, and promoting the conservation and sustainable use of marine living resources.

The Global Programme of Action, therefore, is designed to be a source of conceptual and practical guidance to be drawn upon by national and/or regional authorities in devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation from land-based activities. Effective implementation of the Global Programme of Action is an important and essential

step forward in the protection of the marine environment and will promote the objectives and goals of sustainable development.

The Global Programme of Action reflects the fact that States face a growing number of commitments flowing from Agenda 21 and related conventions. Its implementation will require new approaches by, and new forms of collaboration among, Governments, organisations and institutions with responsibilities and expertise relevant to marine and coastal areas, at all levels - national, regional and global. These include the promotion of innovative financial mechanisms to generate needed resources.

In Chapter 17 of Agenda 21, signatory states commit themselves "in accordance with their policies, priorities and resources, to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life-support and productive capacities. To this end it is necessary to:

- apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it;
- ensure prior assessment of activities that may have significant adverse impacts upon the marine environment;
- integrate protection of the marine environment into relevant general environmental, social and economic development policies;
- develop economic incentives, where appropriate, to apply clean technologies and other means consistent with the internalisation of environmental costs, such as the "polluter pays" principle, so as to avoid degradation of the marine environment; and
- improve the living standards of coastal populations, particularly in developing countries, so as to contribute to reducing the degradation of the coastal and marine environment."

Furthermore, in adopting Chapter 17, the states agreed "that provision of additional financial resources, through appropriate international mechanisms, as well as access to cleaner technologies and relevant research, would be necessary to support action by developing countries to implement this commitment." The Global Programme of Action reconfirmed this position.

The Global Programme of Action called for development or reconsideration of National Programmes of Action (NPA) within a short time on the basis of national priorities and strategies. Comprehensive, continuing and adaptive NPA should be integrated with a coastal zone management.

The Global Programme of Action envisaged strengthening and, where necessary, creating new regional co-operative arrangements and joint actions to support effective action, strategies and programmes for:

- identification and assessment of problems;
- establishment of priorities;
- setting management objectives for priority problems;
- identification, evaluation and selection of strategies and measures, including management approaches;
- development of criteria for evaluating the effectiveness of strategies and programmes; and
- establishment of programme support elements.

3. REGIONAL PERSPECTIVE

The Global Programme of Action recognises that regional and subregional co-operation and agreements are crucial for successful action to protect the marine environment from land-based activities. This is particularly so where a number of countries have coastlines in the same marine and coastal area, most notably in enclosed or semi-enclosed seas. Such co-operation allows for more accurate identification and assessment of the problems in particular geographic areas and more appropriate establishment of priorities for action in these areas. It also strengthens regional and national capacity building and offers an important avenue for harmonising and adjusting circumstances. Moreover, it supports a more efficient and cost-effective implementation of the programmes of action.

For an effective Regional Programme of Action, it is important to have adequate regional organisation which will co-ordinate the preparation of the programme and implementation of its activities, as well as to provide assistance for the formulation and implementation of national programmes of action. Such regional organisation should also serve as a link with the Global Programme of Action and with the international financial institutions, which might assist in the implementation of the programme.

The Global Programme of Action envisages strengthening and, where necessary, creating new regional co-operative agreements and joint actions to support effective actions, strategies and programmes for the protection of the marine environment from the consequences of land-based activities.

Although regional programmes of action should be designed at regional level, their implementation will be mainly carried out at the national level. Their implementation should be conducted simultaneously at national and regional levels, within the framework of a single timetable and with clearly defined responsibilities for the results and outputs.

The Global Programme of Action in its Chapter III on Regional Co-operation notes that regional co-operation:

- allows more accurate identification and assessment of problems;
- allows more appropriate establishment of priorities for action;
- strengthens regional and national capacity building; and
- offers an important avenue for harmonising and adjusting measures to fit the particular environmental and socio-economic circumstances.

As regards the Arctic Ocean, there was an increasing awareness in recent years of the fragility of the Arctic environment and its vulnerability to pollution from both local and global sources. This has been brought to public attention as a result of dramatic oil spills in Alaska and Siberia and by disturbing evidence of harmful accumulation in Arctic food chains of chlorinated pesticides and PCBs transported from lower latitudes.

It was recognised some time ago that circumpolar countries have much to gain from co-ordinated international, regional and national efforts. In June 1991, in Rovaniemi, Finland, the Environment Ministers of the eight Arctic countries signed the Declaration on the Protection of the Arctic Environment, in which they formulated the Arctic Environment Protection Strategy (AEPS). In September 1993, in Nuuk, Greenland, the ministers reaffirmed their commitment to collective action by signing the Declaration on Environment and Development in the Arctic.

Continuing efforts to protect the Arctic marine environment, the Working Group of the Programme for Protection of the Arctic Marine Environment (PAME), reported to the Inuvik Ministerial Conference

(March 1996) that "land-based sources of pollution located both outside and within the Arctic, represent the major sources of input of pollutants to the Arctic Marine Environment, and there is a need for action on land-based sources at international, regional and national levels."

Ministers meeting in Inuvik, Canada agreed that "the National Programmes of Action should be supported by an Arctic Regional Programme of Action consistent with the priority issues of concern for the Arctic marine environment and related public health issues". The Ministers noted the initiative of Canada, assisted by the United States to conduct a government designated experts meeting to initiate the development of an Arctic Regional Programme of Action. The freshwater marine, terrestrial, atmospheric and pollutant source identification activities of AMAP should contribute to the Arctic Regional Programme of Action, together with such components as pollution prevention measures and policy guidelines for technical assistance.

In June 1997, the Ministerial Meeting in Alta, Norway, requested the PAME working group:

- to complete the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land –Based Activities (RPA);
- to report on the application of the Arctic Offshore Oil and Gas Guidelines;
- to continue activities to identify means for preventing or reducing pollution of the Arctic environment through co-ordinated action programmes and guidelines complementing existing international agreements; and
- to develop a co-ordinated information system for data collection and analysis of current and potential shipping activities.

In September 1998, at the First Ministerial Meeting of the Arctic Council in Iqualuit, Canada, the PAME working group presented for approval its final draft of the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-Based Activities. The RPA was approved and recommended for implementation in a manner consistent with the associated international agreements and arrangements. A phased approach to programme implementation was chosen. The initial phase of RPA should focus on persistent organic pollutants (POPs) and heavy metals (HM), which were considered as a major pollution threat to the Arctic marine environment. Other contaminants and activities dangerous for Arctic marine and coastal environment should be addressed in subsequent phases of the RPA. The Ministerial Meeting recommended also promoting application of the Arctic Offshore Oil and Gas Guidelines and reviewing it again in the year 2000. The meeting recommended evaluating current and potential shipping practices to assist in determining what, if any, additional regulatory measures are required, including work on an International Code of Safety for Ships Operating in Polar Waters (Polar Code) and in general to assess the adequacy of existing international agreements and arrangements related to protection of the Arctic marine environment.

Evidently, National Programmes of Action of circumpolar countries should take into account these recommendations and guidelines on the RPA. The Ministerial Meeting specifically emphasised in its Iqualuit Declaration the need to: "Support the efforts of the Russian Federation to develop and implement a Russian Programme of Action for the Protection of the Arctic Marine Environment from Land-Based Activities (Russian NPA-Arctic), including seeking appropriate support to help Russia finalise the Russian NPA-Arctic and host a Partnership Conference to be organised with the assistance of the Advisory Committee on Protection of the Sea (ACOPS) which would seek funds to remedial regional priority pollution sources and activities identified in the RPA and Russian NPA-Arctic".

4. NATIONAL PLAN OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT FROM ANTHROPOGENIC POLLUTION IN THE ARCTIC REGION OF THE RUSSIAN FEDERATION (NPA-Arctic)

The Russian Federation is the largest stakeholder in the Arctic Sea, both as a user of its resources and as source of local pollution. Its people and government have recently expressed considerable concern regarding the need to take measures to ensure the sustainable development of the Arctic region. One of the necessary measures must be monitoring of land-based sources of pollution, an action that will only be successful if it is conducted in harmony with its circumpolar neighbours. The objective of the proposed NPA-Arctic is to provide a policy framework and information base for such measures, taking into account the existing co-operation between Russia and the other seven circumpolar countries within the Arctic Council.

Despite the relatively small area and volume of the Arctic Ocean (5 % of the area and 1.5 % of the volume of the World Ocean) and the adjacent seas, they have a pronounced effect on the state of the Earth's climate and play a decisive role in many global processes. The Arctic shelf accounts for more than 25 % of the entire World Ocean shelf and almost all shelf ecosystems in the Arctic are characterised by high biological productivity. In Russia, the "World Ocean" Federal Target Oriented Programme (FTOP) was approved by the Decree of the President on 7 January 1997. It was stressed that sustainable and rational use of the World Ocean resources was impossible without an Arctic component within the FTOP. Such a component, under the title "Exploration and Use of the Arctic," was included as a sub-programme in the "World Ocean" FTOP. The sub-programme envisages, amongst other tasks:

- the creation of a system to monitor the cultural and natural heritage of the northern region;
- measures ensuring the security of the nature and cultural values of the North;
- protection of the life and health of the small indigenous peoples of the North from the destructive impact of economic activities in the region;
- protection of the Arctic Ocean coastal zone and the interests of the indigenous people in the coastal areas;
- assessment of the permissible environmental impact of economic activities in the Arctic region;
- preservation of the ethnic characteristics of the small indigenous peoples of the North, taking into account the special features of their livelihoods; and
- maintenance of an optimum level of tourism and recreational activities in the Arctic region.

Sustainable and rational development of energy, mineral and biological natural resources of the Arctic should be combined with preservation and restoration of the environment within the framework of the "Exploration and Use of the Arctic" sub-programme. Thus, the elaboration and implementation of the NPA-Arctic may be closely connected with the elaboration and implementation of the "World Ocean" FTOP.

4.1 Strategic considerations and key principles of the NPA-Arctic

The National Plan of Action for the Protection of the Marine Environment from Anthropogenic Pollution in the Arctic Region of the Russian Federation (NPA-Arctic), should meet the shared need to protect and restore the quality of the marine environment, including its biological resources and biodiversity, which is also the aim of global and regional programmes of action. On the other hand, the NPA-Arctic should take into account national priorities and strategies. It will require a long-term

commitment by the country authorities at all levels of power including federal and regional levels. The NPA-Arctic should support the development of adequate environmental policies and legislation, promote the use of economic instruments to encourage environmentally sound actions, strengthen institutional capacities and human resources, and increase regional and local capacities to finance environmental measures.

The following strategy is proposed for the development of the NPA-Arctic:

- formulation of a targeted NPA-Arctic with its principles, approaches, measures and timetable for implementation fully co-ordinated with the Regional Programme of Action and within the frame of reference of the Global Programme of Action;
- long-term federal and regional political commitments, at the highest level, with broad social acceptance of such commitments, to the protection of the Arctic marine environment from anthropogenic pollution and to the implementation of the NPA-Arctic;
- nomination of a national organisation to co-ordinate the preparation and implementation of the NPA-Arctic (currently the Inter-Agency Commission on Affairs of Arctic and Antarctic of the Russian Federation;
- analysis and identification of existing capacity for environmental management at the level of the Russian Federation and its constituent parts (republics, regions, autonomous districts);
- critical review of the existing federal and regional legislation for the control and prevention of pollution;
- the full commitment of the authorities of the involved constituent parts of the Russian Federation;
- the participation of the Environmental Protection Bodies of the constituent parts of the Russian Federation, which will play the main role in the implementation of the NPA-Arctic;
- preparation of a directory of research and other institutions dealing with the Arctic Region of the Russian Federation; and
- implementation of the NPA-Arctic, through complementary programmes of action at federal and regional levels.

The following key principles should be applied for the development of the NPA Arctic:

- integrated coastal zone management, harmonised, as appropriate, with river basin management and land-use plans;
- integration of marine environmental protection into relevant general environmental, social and economic development policies;
- a precautionary and anticipatory approach;
- the “polluter pays” principle; and
- best available technology and best environmental practice.

The approaches and principles formulated here are incorporated as far as possible into the discussion below.

4.2 Existing national policies and international involvement in the development of the NPA-Arctic

The Inter-Agency Commission on Ecological Safety of the Security Council of the Russian Federation considered Arctic pollution issues in June 1995 and reached the following conclusions:

"The current degree of pollution of the Arctic environment has an extremely harmful effect on public health. The seas bordering the Arctic Ocean on the continental shelf of the Eurasian zone receive pollution runoff from 70% of the territory of the Russian Federation. As a result of the pollution, degradation of plant life extends over an area of some 50,000 sq. km. The extent of areas where the ecological situation is deteriorating continues to increase.

"In view of the absence of funding, the components of the federal programmes relating to the improvement of the socio-ecological situation in the Arctic are not being implemented."

The Inter-Agency Commission made recommendations aimed at improving the ecological situation and the health of the Arctic population. The recommendations address the Government of the Russian Federation and various ministries and departments and cover, amongst others:

- the preparation of a Federal Target-Oriented Programme for the sustainable and ecologically sound development of the Arctic;
- Russian participation in the international programmes of circumpolar countries;
- support, development and modernisation of systems for the complex monitoring of the Arctic environment and provision of a geo-informative system for the region within the national ecological monitoring system;
- State support for federal programmes on Arctic nuclear safety of the Arctic and the monitoring of objects which raise radioactivity levels;
- the preparation and approval of amendments to the Law of the Russian Federation on the Composition and Structure of the Budget Classification of the Russian Federation which relate to the Ministry of Defence (envisaging a separate budgetary line on environmental protection and rational use of natural resources);
- specific measures for the rapid development of a system of specially protected areas, reserves and national parks in the Arctic;
- proposals on division of territories between traditional indigenous nature use and other economic activities;
- an inventory and ecological-economic assessment of natural resources in the Arctic;
- the development of regional standards and limits for economic activities impacting harmfully on the Arctic;
- the development of recommendations on protection of the indigenous population of the Arctic in emergencies;
- an assessment of the recreational capacities of the region;
- the development of a monitoring programme for the improvement of health of indigenous and other populations of the Arctic (funded by the federal and regional budgets); and
- a policy to ensure the financing of the Arctic programmes as a matter of priority, above all in the regions inhabited by indigenous peoples.

These recommendations fit in well with the aims of the NPA-Arctic. They also pinpoint the most urgent problems to be dealt with by the NPA-Arctic.

The elaboration of the Russian NPA-Arctic was also catalysed by the CIS activities of ACOPS. ACOPS' work on protection of the Arctic marine environment in the Russian Federation began in 1993 at the organisation's conference in Arkhangelsk and was continued at its conferences in Moscow, 1994, and St. Petersburg, 1996 and 1997. In Stockholm, on 15 November 1997, an

International Task Team for the preparation of the National Programme of Action for Protection of the Marine Environment from Land-Based Activities in the Arctic Region of the Russian Federation (NPA-Arctic) was formed. Its members are Ms. K. Arakchaa, Dr. M. Bewers, Dr. A. Budagov, Mr. R. Edson, Dr. L. Jeftic, Dr. V. Kuzmich, Dr. B. Lesnikov, Prof. V. Lystsov, Dr. V. Makeev, Dr. L. Mee, Dr. V. Sebek, Dr. V. Shelest, Colonel V. Sheremetyev, Dr. V. Smorchkova, Ms. E. Sumina, Mr. P. Tatarinov and Dr. A. Terekhov. The framework of the NPA-Arctic was discussed at the second meeting of the Task Team on 2 February 1998 in Stockholm. In June 1998, under the aegis of the State Committee on the North of the Russian Federation (Goskomsever), an Inter-Agency Task Team with the task of developing the NPA-Arctic was created by decree of the Goskomsever Chairman, Mr. V.V. Goman. Mr. Y. Lyashko, Deputy Chairman of Goskomsever, was designated Chairman of the Inter-Agency Task Team and Prof. V. Lystsov and Dr. V. Shelest appointed as his deputies. ACOPS and Goskomsever agreed to unite the efforts of two Task Teams in developing the NPA-Arctic.

The third meeting of the International Task Team, with full participation of the Inter-Agency Task Team of Goskomsever, took place 30th September – 1st October 1998 in Moscow and its results are incorporated in the proposed NPA-Arctic.

The meeting summed up the results of the work done between February 1998 and October 1998, in terms of defining the key topics and content of the National Programme of Action for the Protection of the Marine Environment from Land-Based Activities in the Arctic Region of the Russian Federation (NPA-Arctic), heard reports on 10 priority topics and adopted a resolution of the Task Team for the Conference of Official Representatives of the State Duma and the Government of the Russian Federation Dedicated to Adoption of the National Plan of Action for the Protection of the Marine Environment from Anthropogenic Pollution in the Arctic Region of the Russian Federation (NPA-Arctic, 2 October 1998). The proposal to broaden the scope of the NPA-Arctic and call it "National Plan of Action for the Protection of the Marine environment from Anthropogenic Pollution in the Arctic Region of the Russian Federation" was made. It was stressed that in the near future offshore oil and gas production might become the main threat to the Arctic marine environment. Another point was that "plan," rather than "programme," would be more appropriate to designate activities in very different sectors over the medium term. The implementation of the NPA-Arctic was discussed for the period to 2002.

The Conference of Official Representatives of the State Duma and the Government of the Russian Federation Dedicated to Adoption of the National Plan of Action for the Protection of the Marine Environment from Anthropogenic Pollution in the Arctic Region of the Russian Federation (2 October 1998), considered all the materials presented by the International Task Team Meeting and the Inter-Agency Task Team and adopted the following:

1. to support efforts by Goskomsever and other relevant ministries and government departments and the executive authorities of the Arctic regions to develop the NPA-Arctic;
2. to endorse the work of the Inter-Agency Task Team under the auspices of the Goskomsever with the assistance of the Advisory Committee on Protection of the Sea (ACOPS) with a view to developing the NPA-Arctic;
3. to note that implementation of the NPA-Arctic would meet the national interests of Russia and the interests of the world community and help accomplish the tasks stipulated under the World Ocean FTOP and other relevant international programmes, and promote the objectives of protecting the natural Arctic environment as reflected in the Declaration of Session 1 of the Arctic Council (September 1998, Canada);
4. to approve the concept, structure, general content and focus of the NPA-Arctic and the associated long-term work plan;
5. to recommend that the NPA-Arctic be forwarded to the Ministry of Economics of the Russian Federation to examine the possibility of incorporating it in the World Ocean FTOP;

6. to take note of statements by State Duma Deputies Prof. V.V. Tetelmin and Mr. V.A. Bayunov in support of the key provisions of the NPA-Arctic, which will help to ensure that the Government of the Russian Federation makes a decision to finance individual sections of the NPA-Arctic and will promote the improvement of legal structures for the protection and conservation of the marine environment in the Arctic region of the Russian Federation;
7. to recommend considering incorporating the NPA-Arctic into the National Plan of Action to Protect the Natural Environment of the Russian Federation (1988-2000);
8. to recommend considering forwarding information on the NPA-Arctic to the Government of the Russian Federation, the Council of the Federation and the State Duma of the Russian Federation;
9. to request the federal executive authorities, the administrations of the Arctic regions, scientific, financial and public organisations and large industrial centres in the Arctic to take part in the development and implementation of the NPA-Arctic; and
10. to invite interested countries, international governmental and public organisations, and business and industrial communities to participate in the development and implementation of the NPA-Arctic.

4.3 Identification and assessment of problems and establishment of priorities

Among the documents aimed at identifying and assessing the problems related to pollution of the Arctic region of the Russian Federation, the following seven were especially prepared to provide necessary input data for elaboration of the NPA-Arctic:

1. identification and Assessment of Land-Based Activities in the Russian Federation that Contribute to the Degradation of the Arctic Marine Environment (Report prepared by the Russian Arctic Group of ACOPS, Editors V.N. Lystsov, V.M. Makeev, V.M. Igamberdiev, Vol.1, Moscow, 1995; Vol.2, Moscow/St. Petersburg, 1996);
2. ACOPS' Fifth CIS Conference on Protection of Russia's Northern and Arctic Environment (Proceedings of the Conference held in St. Petersburg, January 1996);
3. first Draft of the National Programme of Action for the Protection of the Marine Environment from Land-Based Activities in the Arctic Region of the Russian Federation (Prepared by ACOPS' ad hoc working group in Athens, March 1996);
4. ACOPS' Sixth CIS Conference on Protection of Russia's Northern and Arctic Environment, Proceedings of the Conference held in St. Petersburg, February 1997, including also the following two documents:
5. second Draft of the National Programme of Action for the Protection of the Marine Environment from Land-Based Activities in the Arctic Region of the Russian Federation (Prepared by L. Jeftic);
6. report of the Russian Working Group of ACOPS for the preparation of the National Programme of Action for the Protection of the Marine Environment of the Russian Arctic from Land-Based Activities, January 1997, (Editors V.N. Lystsov and A.V. Tsyban'); and
7. ten background papers prepared for ACOPS' International Task Team Meeting in Moscow, 30 September – 1 October 1998 (Editor V.N. Lystsov).

Data and information from the above mentioned documents and other relevant sources were reviewed in order to facilitate analysis and prioritisation of source-related problems in the region, and a pollution management matrix was prepared (Table 1) for eight sources regarded as warranting the most urgent attention. The list is not exhaustive but covers sources or activities, which are relatively

well documented. More detailed information on these sources is given in the Report of the Russian Arctic Working Group of ACOPS (Moscow/St. Petersburg, 1996).

Major sources of pollution (listed in Table 1) are located both north and south of the polar circle. The map also shows major potential source of radionuclides situated outside the Arctic, but capable of influencing the Arctic seas in the case of substantial discharges.

The matrix presented in Table 1 prioritises the top eight pollution sources. It describes the principal pathways for pollutant transfer to the environment and the known or suspected effects (suspected effects are included in accordance with the Precautionary Principle). The status of information and management is summarised, as are the main management actions required for controlling and abating pollution or for mitigation of the associated effects. Finally, the remaining management uncertainties are listed.

From Table 1, it is apparent that the local sources of Arctic pollution are quite well defined. In most cases, there is already a large amount of information, although this is often classified and is not necessarily readily available for environmental management. In virtually all cases, urgent actions are required to reduce environmental discharges. It should be noted that the absence of formally adopted Environmental Quality Objectives makes it difficult to establish a rational basis for setting emission standards or environmental standards. Furthermore, there is no system for establishing discharge permits, nor for linking this, to economic instruments which would help to pay for clean-up and provide a disincentive to pollute. This problem is compounded by a deficient infrastructure for enforcement and there is an urgent need to strengthen the role of pollution inspectorates. There appears to have been an absence of Environmental Impact Assessments (EIA) in many cases. Risk assessments are urgently needed of accidental discharges from waste storage facilities and from oil and gas installations and pipelines. Contingency plans are either deficient or entirely absent.

The analysis according to the type of pollutants, as they are given in the Global Programme of Action, is presented in Table 2 which indicates assessment of their relative importance and effects of their influence on population and ecosystems. For each pollutant, policy recommendations are considered, together with financial and economic implications and suggested actions.

The highest level of importance is given to heavy metals due to their destructive action on ecosystems in close vicinity to the enterprises and very high quantities of their emissions and discharges. Accumulation of toxic heavy metal in food chains and direct inhalation by humans leads to high risks for public health, especially for indigenous peoples. Impact of these metals of Arctic rivers and marine areas has yet to be ascertained.

It is felt that investment to target the “top eight” sources will offer better protection to the Russian Arctic environment and to the Arctic in general. It would, in many cases, also reduce the very high risk of future major environmental accidents. Notwithstanding this situation, technological improvements must be accompanied by improvements in the legislative framework and in enforcement, if sustainable development of the Arctic is to be ensured.

TABLE 1
POLLUTION MANAGEMENT CHART

MAJOR IDENTIFIED SOURCE	PRIORITY POLLUTANTS	PRINCIPLE PATHWAYS	KNOWN/ SUSPECTED EFFECTS	STATUS OF INFORMATION AND MANAGEMENT	MANAGEMENT ACTIONS REQUIRED	UNCERTAINTIES TO BE RESOLVED
1. Norilsk Mining & Metallurgical Plant.	1. Heavy metals: Cu, Ni, Co, Cd. 2. Flue gases (combustion products): SO_2, NO_x, suspended solids (dust), H_2S. 3. Anions (saline discharge), SO_4^{2-} Cl^- and formaldehyde.	1. Air transfer. 2. River transfer. 3. Washout with melted snow.	1. Regional: Impact on Arctic rivers, ecosystems and coastal areas, especially Pyasina Bay and Yenisey Bay. 2. Local: Forest destruction 500,000 ha; 100 x background concentration in moss at 100 km.	Information insufficient. Management inadequate.	Improved emission control. Training of managers and local administration on the implementation of environmental quality standards. Contingency planning. Dam reinforcement. Recultivation of polluted territories and aquatic bodies.	More information on the concentration of pollution in the ecosystems is required. Additional studies of effects on ecosystems. Long-range transfer should be studied in air (origin of Arctic haze?) and rivers.
2. Plants in Nikel and Pechenga.	1. Heavy metals: Cu, Ni, Co, Cd. 2. Flue gases (combustion products): SO_2, NO_x, suspended solids (dust), H_2S. 3. Anions (saline discharge), SO_4^{2--}, Cl^- and formaldehyde.	1. Air transfer. 2. River transfer. 3. 3. Washout with melted snow.	Forest destruction 70,000 ha. Landscape destruction within a radius of 40 km. River ecosystems damaged.	Information is almost sufficient. Management is almost adequate.	Improved treatment of discharges into water. Training of managers and local administration on the implementation of environmental quality standards. Recultivation of polluted territories and water bodies.	Additional studies of effects on ecosystems. Studies of long-range transfer in air and by rivers.
3. Arkhangelsk & Solombalsky pulp & paper mills (PPM).	Methyl mercaptan, CS_2 , formaldehyde, phenols, dioxins, mercury.	1. River transfer. 2. Air transfer.	Ecosystems of N. Dvina and Dvina gulf are destroyed.	Information is insufficient. Management is inadequate.	Improved discharges and emissions control. Improvements in contingency planning. Application of alternative technologies.	Exact information on discharges and emissions in recent years.
4. Oil and gas installations in Timano-Pechorsk Province (TPP) and West Siberia Province (WSP).	Oil hydrocarbons.	River transfer.	Pollution and degradation of river ecosystems, marsh ecosystems, soil and terrestrial ecosystems.	Information sufficient. Management inadequate.	Improvement of pipeline reliability. Improvement in contingency planning. Improved control of operational spillage.	Better monitoring of the condition of pipelines.

5. Severodvinsk nuclear fleet shipyards (SMP) & Zvezdochka) Kola peninsula coastal zone.	Radionuclides.	Water and air transfer.	Damage to public health. Pollution of ecosystems.	Information almost sufficient. Management inadequate.	Improved control of radioactive waste (RW) treatment and storage. Staff training.	Monitoring of existing RW storage sites.
6. (a). Mayak Scientific Production Association (near Chelyabinsk); (b). Siberian Chemical Combine (near Tomsk); (c). Krasnoyarsk Mining and Chemical Combine.	Radionuclides.	Water and air transfer.	Damage to public health. Pollution of ecosystems.	Information almost sufficient. Management inadequate.	Improved control of radioactive waste (RW) treatment and storage. Staff training, monitoring of seepage from open RW storage reservoirs. Improved control of underground RW disposal sites.	State of existing RW storage sites. State of radioactive pollution in rivers Techa-Iset-Tobol-Irtysh-Ob' (a); Tom'-Ob' (b); and Yenisey (c).
7. Large quantities of beached and submerged logs.	Phenols.	Water transfer.	Damage to public health. Pollution of ecosystems.	Information insufficient. Management inadequate.	Removal and recycling of logs.	Monitoring of sites and selection of removal and recycling technologies.
8. Large number of abandoned oil barrels.	Iron and Iron oxides.	Water transfer.	Pollution of ecosystems.	Information insufficient. Management inadequate.	Removal and recycling of barrels.	Monitoring of sites and selection of removal and recycling technologies.

TABLE 2
POLLUTANT MANAGEMENT CHART

	SITES OF MAIN IMPORTANCE	EFFECTS AND TARGETS	POLICY RECOMMENDATIONS AND OPTIONS	FINANCIAL AND ECONOMIC IMPLICATIONS	SUGGESTED ACTIONS	RELATIVE IMPORTANCE
SEWAGE	Human settlements. Tourism.	Public health/food quality. Biological production. Ecosystem health. Water quality. Fisheries.	Sewage treatment. Water recycling.	User fees. Regional and national funding plans.	Limited investment in the collection and disposal of sewage.	Less important (major cities of Arkhangelsk and Murmansk have existing treatment facilities).
PERSISTENT ORGANIC POLLUTANTS	Industry (see Table 1). Extra regional remote sources.	Public health/food quality. Bioproductivity, ecosystem health. Marine mammals. Fisheries.	Strict application of global, regional and national policies. National programmes.	Cost of new technology.	Substitution of chlorination by ozonation in pulp processing.	Important.

RADIOACTIVE SUBSTANCES	Nuclear infrastructure (see Table 1).	Public health. Pollution of ecosystems.	Improvement of radioactive waste treatment and disposal. Contingency planning.	User fees and fines. Health cares costs.	Construction of regional treatment and disposal facilities. Improvement of monitoring.	Very important.
HEAVY METALS	Industrial infrastructure (see Table 1).	Public health through influence on air, water and food quality. Destruction of ecosystems. Destruction of landscape.	Improvement in emissions and discharges control. Environmental impact assessment. Rehabilitation of polluted territories.	Cost of new technologies introduction. Cost of restoring polluted territories.	Technology transfer. Construction of filters. Restoration of polluted territories.	Most important.
OIL HYDROCARBONS	Spill and leakage sites.	Pollution of ecosystems. Landscape and habitat destruction	Improved control of pipelines and operational spillage. Improved contingency planning. Environmental impact assessment.	Costs of land rehabilitation and replacement of deficient pipelines.	Improvement of pipelines and contingency planning.	Important.
NUTRIENTS	Sewage. Certain industries.	Water quality.			Sewage monitoring.	Less important.
SEDIMENT MOBILISATION	Dredging. Mining.	Ecosystem damage. Water quality.	Dredging and disposal regulations.	User fees.	Integrated coastal zone management.	Less important.
LITTER	Coastal sites as indicated in items 7 and 8, Table 1.	Ecosystem and habitat destruction.	Disposal regulations. Removal and recycling of logs and scrap metal.	Cost of removal and recycling.	Removal and recycling.	Important.
PHYSICAL ALTERATIONS AND DESTRUCTION OF HABITAT	SEE LITTER ABOVE					
AIR POLLUTION	See Table 1.	Public health (respiration). Ecosystem health.	Improvement of emission filtering.	Cost of filtering.	Technology transfer. Reduction of emission.	Very important.

The Report of the Russian Arctic Working Group of ACOPS (ed V.N. Lystsov & A.V. Tsyban, 1997) was aimed mainly at elaboration of the first three points of the objectives for NPA preparation (Identification and Assessment of Problems, Establishment of Priorities, Setting Management Objectives for Priority Problems). The main conclusions of this report are:

- comparative analysis of the state of the Arctic seas ecosystems with those in other regions of the World Ocean shows that the Arctic seas are relatively clean and the state of the pelagic ecosystems is generally stable. However some Arctic Sea shelf regions including many coastal zones are polluted and the state of the ecosystems in some gulfs, bays and estuarine regions could be assessed as critical and even catastrophic. The ecological situation at these sites is aggravated by the whole spectrum of anthropogenic pollutants accumulated over many years in bottom sediments; and
- the character of marine environment pollution is peculiar for each Arctic sea and depends on the degree of anthropogenic stress and the type of contamination sources. Coastal areas with high pollution and a high degree of anthropogenic degradation include the Kola Gulf (catastrophic condition of part of the ecosystem), Bulunkan Bay in the Tixi Gulf, and Buor-Khaya Gulf. The Dvina, Kandalaksha and Onega Gulfs in the White Sea and Neelov, Olenek and Yana Gulfs in the Laptev Sea are in a condition close to critical.

Changes in the state of marine ecosystems under anthropogenic stress are expressed in the following negative effects:

- decrease in biodiversity of marine organisms;
- changes in species structure and size categories of biocommunity;
- decrease in numbers and biomass of organisms (especially for benthic fauna);
- highly prominent dominance of species resistant to pollution; and
- decrease in the speed of biological processes (especially productive-destructive) and increase in their seasonal instability.

The causes of these negative effects are the following processes:

- pollution by petroleum hydrocarbons including polyaromatic compounds (especially benzpyrens);
- pollution by persistent organic pollutants (chlorinated hydrocarbons) of agricultural, industrial and domestic origin;
- pollution by heavy metals, discharged into environment by mining and metallurgical enterprises;
- pollution by other chemical agents including oxides of sulphur, nitrogen and carbon, ammonium, hydrogen sulphide, phenols and enhanced levels of nitrogen and phosphorus leading to eutrophication; and
- the loss of renewable biological resources.

Transfer of contaminants to ecosystems occurs by water as well as atmospheric routes, As is well known, long-distance atmospheric transfer (including transboundary) is under consideration by global and regional programmes. The national programme for the Arctic could reasonably limit itself to local and in some cases regional sources.

One can state that the Arctic seas are polluted mainly through river runoff.

This is true for chlorinated hydrocarbons also. About 90% of them are delivered by the Ob and Enisei.

As for heavy metals contamination, the worst offenders are the enterprises of JSC Norilsky Nikel. These include the Norilsk Mining and Metallurgical Combine on the Taimyr Peninsula, Pechenganikel in Nikel and Zapolyarny and Severonikel in Monchegorsk on the Kola Peninsula.

The other large source of contamination is the wood and pulp-and- paper industry including pulp-and-paper mills (PPM). Two of them – the Arkhangelsk and Solombala PPMs, situated in the North Dvina estuary, should be especially noted. They cause contamination by toxic organic compounds. Dioxin spread is especially dangerous. Dioxin levels here are higher than typical for Central Europe. The timber industry is another source of contamination through microbe decomposition of submerged logs, producing large quantities of phenols.

Sources of marine pollution also include communal sewage and fish processing factories.

Taking into account the ecological situation in the shelf zone of the Russian Arctic seas, one can range pollutants of the marine environment in the following order (by the degree of expected and observed effects):

- petroleum hydrocarbons;
- organic (primarily chlorinated) compounds;
- heavy metals; and
- potential pollution by radionuclides.

4.4 Setting Management Objectives for Priority Problems

The overall management objective is to reduce pollution and physical damage to the Arctic environment in such a manner as to permit the conservation and sustainable development of its natural resources and the removal of threats to the health of its human population from anthropogenic sources of pollution.

In order to achieve these goals, the specific action plans should be developed and implemented. According to the proposal of the Inter-Agency Task Team (made at Moscow meeting 30 Sept. – 1 Oct. 1998), the NPA-Arctic should be subdivided into six sections. Plans of action for all six sections were discussed and approved at the meeting:

- improvement of the government's environmental policy in the Arctic;
- improvement of legal and statutory regulation with respect to environmental protection and the use of natural resources in the Arctic zone of the Russian Federation;
- improving nature management to resolve priority problems of the NPA-Arctic in 1998-2002;
- environmental monitoring;
- public participation in environmental activities and public access to environmental information; and
- building capacities for implementation of the NPA-Arctic.

4.4.1 Improvement of the government's environmental policy in the Arctic

The following objectives for the policy improvement in the next three-year period (1999-2002) can be formulated:

- survey of the current Federal Target Oriented Programmes relating to protection of the Arctic marine environment. Proposals for their updating, modification and enlargement;
- review of the legislative and regulatory infrastructure in the Russian Federation for the protection of the Arctic marine environment. Proposals for its improvement;
- analysis of the structure and efficiency of the governmental system for the monitoring and control of the state of the Arctic marine ecosystems. Proposals for improvement of the system;
- formulation political and economical measures to allow sustainable development of the Russian Arctic and sustainable use of its marine resources in the 21st century; and
- co-ordination of internal policy regarding Arctic marine environment with the international obligations of the Russian Federation and regional political development.

4.4.2 Improvement of legal and statutory regulation with respect to environmental protection and the use of natural resources in the Arctic zone of the Russian Federation

The following objectives for the improvement of legal and statutory regulation in the next three year period (1999-2002) can be formulated:

- analysis and evaluation of legal regulatory acts of the Russian Federation on environmental protection and the use of natural resources in terms of their relevance to the protection of the Arctic marine environment. Proposals helping to increase the protection of the Arctic marine environment;
- assessment of the statutory methodological documents on environmental protection and the use of natural resources issued by federal ministries, governmental departments and executive authorities in the Arctic zone of the Russian Federation, in terms of their relevance to the protection of the Arctic marine environment; and
- drafting and presentation to relevant authorities of the necessary legal regulatory acts and statutory methodological documents on environmental protection and the use of natural resources at federal and regional levels with a view to ensure the protection of the Arctic marine environment.

4.4.3 Improving nature management controls to resolve priority problems of the NPA-Arctic in 1999-2002

The following objectives for the improvement of nature management control in the next three-year period (1999-2002) can be formulated:

- a system and set of Environmental Quality Objectives (EQO) to be adopted at federal and local levels, based on the application of the Precautionary Principle. Due regard should be given to social and economic requirements. A calendar indicating the dates for achieving measurable targets for attaining environmental improvement should be prepared;
- rigorous application of regulations for Environmental Impact Assessment (EIA) to be applied to all sectors of the economy without exception;
- the introduction of a system of permits for releases and discharges linked to site-specific studies of the environmental quality for attaining the approved EQOs and regulation by appropriate economic instruments (including taxes, levies and fines) based upon the “polluter pays” principle;

- the introduction of an improved system of user fees for activities which exploit the renewable natural resources of the Arctic environment;
- the establishment in the Russian Arctic of new specially protected areas including marine and coastal zones;
- urgent review of the current laws and policies regarding liability for environmental damage resulting from pollution as a result of accidental or intentional discharges of pollution and damage caused by unsustainable exploitation of natural resources; and
- the development and wide diffusion of appropriate contingency plans for environmental accidents, particularly those involving oil, gas and chemical spills and nuclear accidents.

4.4.4 Environmental monitoring

The following objectives for provision of environmental monitoring in the next three year period (1999-2002) can be formulated:

- identification and description of the main sources of environmental pollution and transport routes of the pollutants to the Arctic seas;
- elaboration of proposals on the formation of an intersectoral network of analytical laboratories and quality assurance/quality control system for the Russian Arctic Monitoring Network;
- development of a unified control system for data obtained through ecosystem monitoring in the Russian Arctic;
- introduction of a training system in order to attain a high level of monitoring to meet the requirements of the integrated programme and the new regulations on environmental quality objectives; and
- establishment of the "Seas of the Russian Arctic" Geographical Information System as a tool of environmental management, and co-ordination of the system with regional information systems and international information systems.

4.4.5 Public participation in environmental activities and public access to environmental information

The following objectives for general public and indigenous involvement in environmental activities in the next three-year period (1999-2002) can be formulated:

1. development of communication channels between the authorities and the public on the environmental problems of the Russian Arctic (state of the environment, impact of new economic and other projects, impact of pollutants on public health etc.);
2. legal and information support for public organisations concerned with protection of the Arctic marine environment;
3. public involvement in decision making on Arctic environmental issues and public participation in the Environmental Impact Assessment procedures;
4. provision, in co-operation with indigenous organisations, of:
5. protection of the native habitat and traditional lifestyle of small ethnic groups and communities,

6. their informed participation in matters related to development in areas of their habitats and traditional nature use;
7. the rights of the Arctic indigenous populations to rental payments for the development of natural resources in areas of their habitats and traditional nature use; and
8. publication of the biennial report "State of the Russian Arctic", prepared by a committee of independently appointed scientists granted open access to all monitoring data gathered by the national and international programmes. The report must include relevant public health information.

4.4.6 Building capacities for implementation of the NPA-Arctic

The following objectives for building capacities for implementation of the NPA-Arctic in the next three-year period (1999-2002) can be formulated:

- development of a concept for training civil servants in environmental problems of the Russian Arctic;
- organising and running retraining courses on NPA-Arctic problems for professionals employed in private business, industrial and banking entities;
- preparation of a set of information products/training materials geared for various strata of Arctic populations to upgrade their environmental education;
- organising international exchanges among communities and specialists concerned with Arctic environmental capacity building;
- preparation of a directory of research and other institutions dealing with the Arctic region of the Russian Federation;
- improved management training for conducting environmental audits, introducing economic instruments and calculating permitted levels of emissions and discharges;
- training of regional inspectors of pollution in the enforcement of regulations concerning emissions, permitted discharges and waste repositories;
- training in the application of contingency plans. This should include the training of public security officials and community leaders;
- training of physical planners in integrated management, land-use planning, particularly of coastal areas (integrated coastal zone management);
- training in the preparation and presentation of EIA; and
- introduction of the teaching of environmental issues within school curricula.

4.5 Identification of Measures and Activities for the Implementation of the NPA-Arctic

In order to attain the objectives indicated in the previous section, the National Plan of Action should clearly indicate the measures already envisaged by federal programmes of the Russian Federation and areas where external technical assistance (bilateral and multilateral) will be required. The Government should approve the strategy for elaboration and implementation of the NPA. As mentioned above, the NPA-Arctic may be considered an integral part of the World Ocean FTOP and its sub-programme "Exploration and Use of the Arctic" as approved by the Russian government. The NPA-Arctic should be drawn up and implemented according to the rules formulated by the law "Supplies for State Needs

Act" and the Methodological Recommendations for the Elaboration and Implementation of FTOPs for the Russian Federation (approved by the Ministry of Economics on 13 March 1997).

However, the current serious economic difficulties in Russia prevent large-scale involvement of federal and regional budgets in the financing of the NPA-Arctic. Consequently, extra budgetary financing, in particular from the international community and private sector, may become the main source of funding.

Based on the above considerations, the following measures and activities are proposed:

1. taking into account that NPA-Arctic implementation will lead to improvement of the environmental situation not only in Russian territory but also in the territories of other circumpolar countries, the interest of these countries (both public and private sectors) in the development and implementation of the NPA-Arctic is quite justified. The NPA-Arctic must be closely connected with sustainable economic development of the Arctic and the development of an urgent investment portfolio based on pre-investment studies, conducted in close co-operation with representatives of international financial institutions. This portfolio should be presented to the Partnership Conference approved for 2001 by the Arctic Council meeting in Iqualuit (September 1998). Projects may include modernising and reconstructing industrial objects, technological changes (transition to best available technologies (BAT) and best environmental practice (BEP)) and enlargement of existing or construction of new objects;
2. one of the main aims of the NPA-Arctic is to identify the main industrial and other sources polluting the Arctic marine environment. However, it is clear, that emissions and discharges from some sources and hot spots inevitably influence to a greater or lesser degree the marine environment. Three regions are especially suitable for analysis of actual or potential influences on the Kara, White and Barents seas resulting from large-scale land-based industrial activities (see Table 1). These are the areas of Norilsky Nikel, Arkhangelsk (including Severodvinsk) and the Kola Peninsula, with varied pollution sources. The selection of priority hot spots from these sources will be a prerequisite for beginning pre-investment studies in projects of ecological significance. The principles for the selection of priority hot spots for these purposes should be agreed with governmental bodies and potential investors;
3. the mines and smelters of Norilsky Nikel situated at Taymyr and Kola Peninsulas are first to be screened for the presence of priority hot spots. Heavy metals can be considered as the most important pollutants with regard to the influence on the marine environment. However, emissions of sulphur and nitrogen oxides in great quantities cannot be overlooked. Urgent investment in improved emission controls in key industrial installations could be feasible as an element of the NPA-Arctic. This should involve application of the best available technologies and compliance with the selected EQOs;
4. there is a need for development of new, or strengthening of existing appropriate institutional mechanisms in the Russian Federation to assist in the preparation of pre-investment studies. Recommendations are needed on improving the methodology of pre-investment studies for projects in the Russian Arctic. Preparation is envisaged of a set of documents on implementation of investment programmes and ecologically sustainable development in the Russian Arctic. The methodology for pre-investment studies will be presented at the Partnership Conference in 2001. The methodology developed will receive practical implementation in the projects approved by the Partnership Conference. Periodic reports on the effectiveness of pre-investment studies in the framework of the NPA-Arctic could be useful;
5. the Kola Peninsula and Severodvinsk are the sites with the greatest concentration of potential large-scale sources of radioactivity formed by naval and civil nuclear fleets. There is a need to develop a system of environmental radiation monitoring in the coastal zone of the Russian North. Preparation of a comprehensive database on the storage of spent nuclear fuel and liquid

and solid radioactive waste in this zone should be envisaged (including GIS technology application). There is an urgent need for development of a system to treat liquid and solid radioactive waste at Kola Peninsula and Severodvinsk and for regional disposal sites. Pre-investment studies for appropriate projects should be considered with due account of on-going international projects in the frameworks of bilateral and multilateral international co-operation. The unloading of spent nuclear fuel from disposed nuclear submarines and construction of new storage places for the fuel are high priority tasks. Proposals could be presented to the Russian regulatory authorities on improving the system of standards and rules for radioactive waste and nuclear materials treatment, storage and disposal;

6. another series of problems is represented by the development of adequate sewage treatment and disposal systems for communities on the Arctic coast of Russia. Necessary measures to improve the security of existing waste disposal sites and repositories should be taken;

7. investment should be made in the best available technologies for waste management from industrial and domestic sources and in recovery and recycling facilities for the processing of discarded logs and scrap metal currently littering the Arctic shores;

8. a joint team of Russian and international experts should undertake identification of the existing capacity for environmental management in the region. A comprehensive review of the status of existing enforcement measures and infrastructure (including pollution inspectorates) and a review of existing intersectoral arrangements for pollution assessment, control and enforcement should be provided. Problems of sharing responsibilities between federal and regional institutions should be taken into account;

9. a review of existing legislation for the control of pollution in the Arctic and identification of the possible gaps in it should be made. Use of environmental quality objectives (EQO) in circumpolar countries and the feasibility of this practice for the Russian Federation are to be considered. New draft laws and regulations to fill the identified gaps should be developed in co-operation with the State Duma at the earliest possible opportunity;

10. the practice of environmental impact assessment and public participation in it should be assessed and ways for improvement should be indicated. The same is necessary for contingency planning in case of environmental accidents;

11. a study of training requirements for attaining the objectives indicated above will be necessary. The study should indicate those areas where external support is required. The results of the study should be presented to the Partnership Conference in the form of a project for capacity building under the auspices of agencies such as UNDP or the TACIS (Technical Assistance to the Commonwealth of Independent States) Programme of the European Union;

12. a network of laboratories will need to be selected for incorporation in the Arctic Monitoring Network and a package of technical support envisaged. In establishing such a network, the existing AMAP technical support programme should be taken into account;

13. ecotourism programmes can be closely connected with programmes for support and creation of the new specially protected areas (SPA) within continental, marine and coastal regions in the Russian Arctic. The programme for support and creation of the new SPA will need approval by the State Committee for Environmental Protection and by the State Duma;

14. one of the directions of pre-investment studies for projects with quick financial return may be the development of ecotourism. A comprehensive programme for ecotourism development in the Russian Arctic could be developed and presented to federal and regional authorities, private firms and public organisations. Specific projects may be presented to the Partnership Conference in 2002;

15. environmental problems in the Arctic are the consequences of industrial development. Traditional indigenous methods of using Arctic natural resources are usually compatible with the ecological equilibrium. For some Arctic areas, a return to traditional use could restore the environment, though after a rather long period of time. The traditional interests of indigenous

people can be protected by adoption, within the framework of the NPA-Arctic, of the special Arctic Charter which should be approved by the Government of the Russian Federation;

16. a conference could be organised together with local authority representatives and NGOs in order to structure a programme of public and indigenous awareness and dialogue on Arctic environmental issues. Participation by representatives of industry and the defence sector should be encouraged; and
17. to organise all these activities one could consider the possibility of establishing a permanent NPA-Arctic Direction, housed in existing infrastructure, to act as a focal point for the management actions it considers pertinent to co-ordinate for elaboration and implementation of the NPA-Arctic.

4.6 Criteria for evaluating the effectiveness of strategies and programmes

The criteria for evaluating the effectiveness of the actions will depend heavily upon the accuracy of the information included in the proposed State of the Russian Arctic Report. The first of these reports will act as a baseline and subsequent ones will reflect the status and trends of pollution and its effects in the Arctic environment, trends in the development and implementation of new legislative measures and trends in the reduction of the detrimental influence of hot spots. Typical indicators should include the following:

- levels and effects of key pollutants;
- development and adoption of new Environmental Quality Objectives;
- development and adoption of new legislation in order to attain the EQOs;
- improvements in compliance measured by objective assessments obtained through monitoring;
- analysis of environmental impact assessments;
- creation of new specially protected areas;
- measurable improvements in public health;
- elimination of hot spots or investment in new technologies which should eventually result in such elimination; and
- evidence of improved public participation and the diffusion of environmental information documents.

4.7 Programme support elements

The necessary administrative and management structure should be put in place to support the NPA-Arctic. One of the proposals already made here is the NPA Direction under the aegis of the Ministry of Regional Policy of the Russian Federation. Other options are also possible. In any case, this structure should provide for:

- organisational arrangements to co-ordinate sectors and sectoral institutions;
- legal and enforcement mechanisms (for example improved norms and rules);
- regular, reliable funding for the NPA;
- means of identifying and pursuing research and development requirements to support the NPA-Arctic;

- integrated coastal zone management;
- contingency planning;
- human resources development and education; and
- public and small indigenous people participation and awareness.

5. TIMETABLE FOR DEVELOPMENT AND IMPLEMENTATION OF THE NPA-ARCTIC

The exact schedule for elaboration and implementation of the NPA-Arctic will strongly depend on the availability of financial support for these activities. However an approximate timetable incorporating the most necessary preliminary steps can be formulated as following:

1. elaboration of the first official draft of the NPA-Arctic. Jan. 1999;
2. implementation of the projects proposed by NPA-Arctic. Jan. 1999 – Dec. 2002;
3. selection of high-priority topics for pre-investment studies and their approval at the meetings of the International Task Team and Russian Inter-Agency Task Team with representatives of Russian ministries and departments. Feb. 1999;
4. execution of pre-investment studies. Feb. 1999 – Feb. 2000;
5. preparation and execution of the Partnership Conference. Feb. 1999 – Sep. 2001;
6. selection of pilot projects (approximately 3). Oct. 2001;
7. implementation of the chosen pilot projects for NPA-Arctic. Nov. 2001 – Dec. 2002;
8. support for the activities of the Arctic Council and its working groups (PAME, AMAP, EPPR, CAFF) Jan. 1999 – Dec. 2002; and
9. elaboration of bilateral international programmes to support the most important elements of the NPA-Arctic. Jan. 1999 – Dec. 2002.

6. REVISED WORK PLAN FOR THE IMPLEMENTATION OF THE NPA-ARCTIC

The implementation of the NPA-Arctic started in 1999. In view of the slower pace of fundraising than was originally anticipated, and also the need to put together and elaborate internal institutional and technical framework for implementation of the NPA-Arctic, the original work plan, as elaborated in 1997 had to be amended. The revised work plan (as of May 2000) is attached herewith as Annex I to this document. The actual implementation of the NPA-Arctic will depend on the success in fundraising for 2000-2002.

Annex I
Draft Work Plan for the Implementation of the NPA – Arctic
(Sept. 1999 – Aug. 2002)

A. Activities

Activity	Target Date
1. Improvement of the government's environmental policy in the Arctic	
1.1 Review of the current Federal Target Oriented Programmes relating to protection of the Arctic marine environment. Proposals for their updating, modification and enlargement.	Sept. 2000
1.2 Review of the current policy of environmental protection in the Arctic region of the Russian Federation. Proposals for improvement.	Sept. 2000
1.3 Review of legislative and regulatory infrastructure available in the Russian Federation for the protection of the Arctic marine environment. Proposals for its improvement.	Sept. 2000
1.4 Analysis of the structure and efficiency of the governmental system for the monitoring and control of the state of the Arctic marine ecosystems. Proposals for improvement of the system.	Sept. 2001
1.5 Formulation of political measures for sustainable development of the Russian Arctic and sustainable use of its marine resources in the 21st century.	May 2001
1.6 Co-ordination of domestic policy on the Arctic marine environment with the international obligations of the Russian Federation and regional political development.	Sept. 2001
2. Improvement of legal and statutory regulation with respect to environmental protection and the use of natural resources in the Arctic zone of the Russian Federation	
2.1 Analysis and evaluation of legal regulatory acts of the Russian Federation on protection of the environment and the use of natural resources in terms of their relevance to the protection of the Arctic marine environment. Proposals to enhance the protection of the Arctic marine environment.	Sept. 2000
2.2 Assessment of statutory methodological documents on environmental protection and the use of natural resources issued by federal ministries and governmental departments and executive authorities in the Arctic region of the Russian Federation, in terms of their relevance to the protection of the Arctic marine environment.	Sept. 2000
2.3 Preparation at federal and regional levels of draft legal regulatory acts and statutory methodological documents on environmental protection and the use of natural resources at federal and regional levels with a view to ensuring the protection of the Arctic marine environment.	Sept. 2001
3. Improving nature management to resolve priority problems of the NPA-Arctic in 1999-2002	
3.1 Review of federal and regional management systems for environmental protection of the Arctic and elaboration of recommendations for their improvement (system of site-specific permits for releases and discharges, user fees, etc.)	Sept. 2001
3.2 Identification of environmental hot spots affecting the Russian Arctic and selection of priority objects for pre-investment studies	Nov. 2000
3.3 Analysis of the existing practice of pre-investments studies and development	Nov. 2000

of a methodology for their preparation	
3.4 Programme of priority measures for radioactive waste and nuclear materials treatment, processing, storage and disposal in the Arctic coastal zone	Jan. 2001
3.5 Development of proposals for restoration of environment at decommissioned military bases in the Russian Arctic (especially in coastal zones)	Jan. 2001
3.6 Programme for the development of ecotourism in the Russian Arctic	March 2001
3.7 Preparation of a system of Environmental Quality Objectives (EQO) for adoption at federal and local levels, to be based on the application of the Precautionary Principle.	Sept. 2001
3.8 Improvement of Environmental Impact Assessment (EIA) procedures in all sectors of the economy without exception.	May 2002
3.9 Establishment and management in the Russian Arctic of specially protected areas including marine and coastal zones.	May 2002
3.10 Review of the current laws and policies regarding liability for environmental damage resulting from pollution as a result of accidental or intentional discharges of pollution and damage caused by unsustainable exploitation of natural resources.	May 2002
3.11 Development and wide diffusion of appropriate contingency plans for environmental accidents, particularly those involving oil, gas and chemical spills and nuclear accidents.	May 2002
4. Environmental monitoring	
4.1 Identification and description of the main sources of environmental pollution and transport routes of the pollutants to the Arctic seas.	Sept. 2000
4.2 Elaboration of proposals on the formation of a united intersectoral network of analytical laboratories and quality assurance/quality control system for the Russian Arctic Monitoring Network.	May 2002
4.3 Development of the system of unified management of data obtained through ecosystem monitoring in the Russian Arctic.	May 2002
4.4 Establishment of the "Seas of the Russian Arctic" Geographical Information System as a tool of environmental management, and co-ordination of this system with regional information systems and international information systems.	May 2002
5. Public participation in environmental activities and public access to environmental information	
5.1 Development of a system for information exchange system between the authorities and the general public on the environmental problems of the Russian Arctic (state of the environment, impact of new economic and other projects, impact of pollutants on public health etc.).	May 2002
5.2 Legal and information support for public organisations concerned with protection of the Arctic marine environment.	Dec. 2001
5.3 Public involvement in decision-making on Arctic environmental issues and public participation in the Environmental Impact Assessment procedures.	Dec. 2001
5.4 Preparation (in co-operation with indigenous organisations) of the Arctic Charter to ensure protection of the habitat and traditional lifestyle of small ethnic groups and communities and their participation in matters related to the development in areas of their habitat and traditional nature use.	Jan. 2001
5.5 Publication of a biennial State of the Russian Arctic report, prepared by a committee of independently appointed scientists granted open access to all monitoring data gathered by the national and international programmes. The report must include relevant public health information.	May 2002

6. Building capacities for implementation of the NPA-Arctic	
6.1 Identification of existing capacity for environmental management in the Arctic	Jan. 2001
6.2 Training of civil servants in environmental problems of the Russian Arctic.	May 2002
6.3 Preparation of a directory of research and other institutions dealing with the Arctic Region of the Russian Federation.	Jan. 2001
6.4 Permanent seminar providing training in conducting environmental audits, introducing economic instruments and calculating permitted levels of emissions and discharges.	May 2002
6.5 Training of regional pollution inspectors responsible for enforcing regulations concerning emissions, discharges and waste repositories.	May 2002
6.6 Training in the application of contingency plans.	May 2002
6.7 Training in physical planning of coastal areas and training of appropriate specialists.	May 2002
6.8 Training in the preparation and presentation of EIA.	May 2002
6.9 Introduction of teaching of environmental issues in secondary school curricula.	May 2002

B. Conferences and Meetings

1. Conference "Partners for Investment in the Environmental Protection of the Arctic Region of the Russian Federation", Moscow (3 days)	Sep. 2001
2. Preparatory Meeting for the Partnership Conference, Moscow (3 days)	Nov. 2000
3. Meeting to Review Progress in the Implementation of the NPA-Arctic, Moscow (3 days)	June 2000
4. Meeting to Review Progress in the Implementation of the NPA-Arctic, Moscow (3 days)	Nov. 2001