UNEP/GEF Project “Russian Federation - Support to the National Programme of Action for the Protection of the Arctic Marine Environment”

4th Steering Committee Meeting
4-5 February 2010
Hotel Radisson Saga, Reykjavik, Iceland

Report
On the Forth Meeting of the Project Steering Committee

Prepared by: the Project Office

Status: approved by the Project Steering Committee members

Table of Annexes

Report
On the Forth Meeting of the Project Steering Committee

Introduction

The 4th meeting of the Steering Committee (StC) for the UNEP/GEF Project "Russian Federation - Support to the National Programme of Action for the Protection of the Arctic Marine Environment" was convened on 4-5 February 2010 at the Radisson Saga Hotel in Reykjavik, Iceland. The meeting was chaired by Mr. Boris Morgunov, the Assistant to the Minister of Economic Development of the Russian Federation and the representative of the Project Executing Agency.

The meeting started at 10.00 on February 4, 2010. The list of participants is presented in **Annex I** of this report**.**

AGENDA ITEM 1. OPENING OF THE MEETING AND ADOPTION OF THE AGENDA

The Chairman welcomed participants. He introduced new members of the StC. He then invited Dr. Ampai Harakunarak to speak on behalf of UNEP, the Project Implementing Agency; and invited Mr. Magnús Jóhannesson, the Secretary General of the Ministry for the Environment in Iceland, to welcome the StC members as the co-host.

Due to the availability of a key representative from the Russian Federation, Mr. Andrey Peshkov, Head of Section for Cooperation in the Field of Atomic Industrial Safety and Waste Management of the Department on International Cooperation of the Ministry of Natural Resources and Ecology of the Russian Federation, the Chairman proposed revisions of the provisional agenda of the meeting. He recommended that Agenda Items 3.1 and 3.4 be reviewed and discussed on the first day of the meeting, while allowing details to be further discussed on the second day of the meeting.

The StC meeting approved the proposed revisions and adopted the new agenda as attached in **Annex II** of this report**.**

AGENDA ITEM 2. PROJECT ACTIVITIES AND IMPLEMENTATION PROGRESS REPORTS.

2.1. Brief summary of the Project implementation and financial management since the third Steering Committee Meeting in Helsinki.

Project implementation. The Information on progress of the Project implementation was prepared by the Project Office for the reporting period from March 2009 to February 2010 and circulated to Steering Committee members together with all other documents prepared by the Project Office to the 4th meeting of the Project Steering Committee.

The main Project achievements for the reported period were as following:

- ✓ Final revision of the Strategic Action Programme for Environmental Protection in the Arctic Zone of the Russian Federation (SAP) which was considered and approved by the Maritime Board at the Government of the Russian Federation. The Maritime Board recommended that the executive federal and regional authorities as well as other organizations should be guided by the provisions of this document when elaborating the Russian Arctic Development Programs and Policies.
- ✓ Pre-investment studies (PINS) are nearly completed in all three selected areas (western, central and eastern) of the Russian Arctic and resulted in a set of proposals for environmental investment projects which are supported by regional and local authorities. 16 investment projects proposals have been developed.
- ✓ Within Environmental Protection System Improvements (EPS) component a few important draft documents have been prepared: Draft Report to the Government of the Russian Federation on improvement of Environmental Protection System in the Arctic Zone of the Russian Federation, Analytical materials to this Report, two concept versions of Draft Federal Law on special regimes on natural resources use and Environmental protection in the Arctic zone of the Russian Federation.
- ✓ Demo BASES and CLEANUP projects were successfully finalized, two additional PILOT-Bioremediation and PILOT- Tiksi projects were also successfully completed. One new demo-project ONEGA-BASE was commenced in autumn 2009. Two new pilot projects: FJL BASES-2 and TIKSI-2 have been prepared already for implementation (both contracts signed).

Financial management. The PO presented a summary of project expenditure and contract payment reports, which were accepted by the Project Steering Committee. The StC was also reported on some delays in implementation and subsequent delayed disbursement, which was due to a timely procedure in decision-making by the Governmental Commission on humanitarian and technical assistance on tax exemption. The StC acknowledged the information provided by the PO that the Commission meetings had been convened on an irregular schedule, and thus recognized the possibility of delay in the process of decision – making.

The Project Office assured that all project activities which were approved by the Steering Committee will be implemented in due time, including the implementation of possible new pilot projects (2-4) identified by the PO based on available budget.

The meeting approved the Progress Report on the Project implementation. It was also noted that Mr. Senchenya, the Project Manager was resigned, and that the recruitment of the new PM would be completed as soon as possible. The Report on the Project implementation is enclosed as an ***Annex III****.*

2.2. Project Phase1 Mid-Term Review Results.

The representative of the Project Implementing Agency (UNEP) informed the StC that a Mid-Term Review (MTR) of the project was conducted between October- December 2009 in accordance with the Project Document and GEF requirements, with the results to be presented by the consultant.

The consultant presented detailed information on results and findings of the Project Mid-Term Review. A Summary of the Project MTR findings are as follows

"The Mid-Term evaluation examined the project performance and progress in implementation of planned activities, actual results as well as assessment of operational aspects such as project management and implementation. The review focused on identifying the corrective actions needed for project performance improvement to achieving maximum and measurable impacts (as agreed in the Project Document).

The review identified that the project has made important progress towards the objective of development and establishment of a sustainable framework to reduce environmental degradation of the Russian Arctic from land-based activities on a system basis in spite of a relatively slow start due to administrative problems at project inception, substantial results have been produced with regard to the SAP, pre-investments studies as well as EPS component and DEMO projects implementation. The strengths of the project include its close cooperation with the regional stakeholders, industry, and the international cooperation.

The main findings of this Mid-Term evaluation are as follows:

Overall, the project design, implementation and current achievements are satisfactory. The GEF resources are used to develop the SAP-Arctic, conduction of pre-investment studies, preparation of recommendations on improvements of environmental protection system in the Russian Arctic and implementation of a number demonstration and pilot projects.

However, ***the design is moderately satisfactory*** for the following reasons:

- Project Document (PD) was resigned three times by initiative of the former Partner Agency ACOPS what caused 2 years delay in the beginning of the project implementation.
- The scheme of donor funds drafting through ACOPS accounts approved by the PD demonstrated its ineffectiveness and lack of transparency that caused difficulties to the Project office in quality control of works implemented according to contracts with ACOPS as well as in monitoring of donor funds.
- ACOPS withdrawal from the Cooperative Agreement with EPA on June 15 2007 was demonstrated its ineffectiveness as the Project partner.

- PD was prepared for two Phases of the project considering development of the SAP-Arctic and preparatory works for other Components at the Phase I. In fact more ambitious benchmarks were approved by the Steering Committee and executed during implementation of the Phase I.

Additionally, the ***use of project resources (efficiency) is moderately satisfactory*** due to implementation delays (at initial stages), management issues and problems with donor funds transfers, as well as due to long procedure of tax exemption of the project expenditures.

The ***project is relevant in meeting the objectives*** of the UNEP, GPA and Arctic council. It responds well to the country needs and recently adopted strategic documents such as Principals of the State Policy of the Russian Federation in the Arctic Zone until 2020 and further perspective, Arctic Council's Regional Program of Action for Protection of the Arctic Marine Environment from Land-Based Sources.

The ***project effectiveness is satisfactory***. It is achieving its expected outcomes in particular to a great extent of those which were planned for the Project Phase II. So far, the generated management information is improving the understanding of the impact of human activities on the Arctic environment

The Project activities have potential for replication both, nationally and regionally, to ensure sustainability of the project outcomes. All interested federal and regional authorities, as well as companies and the Arctic Council's Working Groups are duly informed about the project implementation and outcomes. The ***potential to achieve the long-term project goal and objectives is satisfactory***. However the assessment indicates that there is a risk that not all project-generated knowledge will be properly published and delivered to corresponding stakeholders. The project is closing its implementation in about one year from the time of this MTR and the remaining time will put pressure on the implementation of the project to be able to improve the distribution of project-generated knowledge to all stakeholders. From a global environmental benefit point of view, however, the project is contributing through the detailed assessments of the current environmental problems of Russian Arctic, promoting and developing the capacity of local and national stakeholders.

The ***potential for the long-term sustainability*** of the project achievements is much related to the potential for long-term impact of the project; it ***is satisfactory***. Project has received full support and technical backstopping by the Executing Agency (Russian Ministry of Economic Development) that assures that project recommendations will be taken at the highest level possible and future interventions will be sustainable. Provisions of draft SAP are taken into account in FTOP "The World Ocean" for 2008-2012 and in other documents related to the Russian Arctic, which are approved by the Russian Government. SAP, a strategic framework document that sets the goals, tasks, principal activities and targets in the area of protecting Arctic environment for the period

up to 2020, is also recommended by the Maritime Board at the Russian Government for further promotion to the relevant governmental bodies.

It is recommended that a new project is formulated and implemented in order to benefit from the momentum created by the achievements of the current project. This would allow to follow-up on existing activities and also introduce a broader scope addressing other management issues and approaches based on integrated environmental management that will mainstream into socioeconomic development strategies for the subjects of the Arctic Zone of the Russian Federation, schemes of territorial planning and socioeconomic development programs. Such a project needs to be formulated with some urgency to ensure continuation. The design process should be participatory – using the mechanisms for stakeholder consultations already established under Arctic Council umbrella and in the countries participating in the current project."

The Meeting acknowledged the results of the MTR and endorsed the proposed recommendations for project improvement and further development.

2.3. Presentation of Diagnostic Analysis of State of the Environment in the Arctic zone of the Russian Federation

The Acting Project Manager presented a summary of the Diagnostic Analysis reports, as well as the plans to update data and information on the reports **(Annex IV).** He informed the StC that additional consultants would be recruited for technical reviews and for publication**.** The Executing Agency proposed that implementation of the activities would be completed in August 2010 (prepared for publishing one month before the closure of the Project – September 2010).

The StC recognized the importance of updating and publishing the Diagnostic Analysis reports of the Russian Arctic environment for further distribution. It was agreed that the reports would be prepared within the proposed plan and timeline, as well as in conformity with GEF recommendations. Additional recommendations and steps towards an attempt to control industrial activities are as follows:

- to work out a methodology for the Diagnostic Analysis implementation in Russian Arctic, including identification of the analysis frames, to make a comparison with similar experience associated with other countries, to generate a complex approach to analysis most convenient for the Russian Arctic;
- to connect key environmental problems with industrial activities, to assess and differentiate impact factors for different zones of the Russian Arctic;
- to determine key reasons for decision- making at a political level;
- to tie the key reasons of environmental degradation with economic activities and hot spots.

2.4. Presentation of the Approved Strategic Action Program and the next Steps

The Project Office presented a report on SAP-Arctic and stressed its role in connecting interests of the Russian Federation on the governmental level, Russian business, NGO and international participants associated with Russian Arctic.

The SAP-Arctic document was approved by the Maritime Board at the Government of the Russian Federation, the highest-level body of the government in charge of coordinated efforts of federal enforcement authorities in the field of maritime activities, investigation and exploration of the World Ocean, Arctic and Antarctic. The Maritime Board recommended that the executive federal and regional authorities, as well as other organizations should be guided by the provisions of the SAP-Arctic when elaborating the Russian Arctic Development Programs and Policies.

The SAP-Arctic was dispatched to all interested federal and regional authorities, as well as to main companies dealing with development of Arctic resources.

The Steering Committee members agreed that the next steps on SAP-implementation would include the following actions:

- presentation of the Project achievements at major national events as well as international forums such as Arctic Council and Barents/Euro-Arctic Council and others;
- publication of the Diagnostic Analysis in Russian and English;
- finalizing PINS and EPS components of the Project;
- preparation of the Project Phase 2.

2.5. Presentation of the Pre-investment Studies Results and Discussion on Concept and Potential Date of Investment Forum in 2010

The Project Office presented a progress report on pre-investment studies (PINS) implementation in the Russian Arctic (**Annex V**). Selection of PINS was aimed at a potential for reduction industrial pollution, to cope with past environmental liabilities and to develop new or upgrade environmental management infrastructure (in waste management and water treatment sectors in particular). Environmental investment draft projects were prepared by selected consulting companies for Western (5 projects), Central (5 projects) and Eastern (6 projects) sectors of the Russian Arctic.

The StC supported the proposal to submit a complete package of environmental investment projects derived from PINS to the Arctic Council for approval and adoption as Arctic Council projects which is a precondition for financing via PSI. It was also agreed that NEFCO would provide the Project Office with comments on all PINS. These comments will be taken into account in final reports on selected environmental investment projects for the Russian Arctic.

The NEFCO representative pointed out that co-financing and strong commitment from project owners and local/regional authorities is a necessary precondition for attracting

funding for PINS implementation; and therefore such conditions should be reflected in PINS. It was noted that, due to realization of the importance of ownership/commitment and more developed financial mechanisms, the Western part of Russian Arctic had seen higher potential for attracting finance for further PINS implementation than the Eastern part. He also recommended considering possible technical solutions for waste water treatment related proposals, for Vorkuta region in particular. It was also recommended that proposed projects should be divided into phases with different sources of financing.

The StC advised that, in order to further secure financial support for the environmental investment projects implementation, the Project Office, supported by the Executing Agency, should participate in various international and national forums that are relevant to PINS implementation. The Project Office should also distribute all developed individual PINS (detailed information) to receive preliminary comments from the Steering Committee members. All final reports on PINS component after approval by the Executing Agency will be available on the Project website in Russian and English (www.npa-arctic.ru).

The StC was informed about the GEF Earth Fund as a possible source for the proposed investment projects under the SAP-Arctic implementation phase. It was recommended that the Project Office, jointly with the Implementing Agency and with support of NEFCO, would review the possibility for implementation of PINS under the GEF Earth Fund opportunity.

2.6. Progress Report on Environmental Protection System Component Implementation

The Project Office presented Progress Report on Environmental Protection System Component Implementation (EPS) (**Annex VI**). EPS component of the Project has achieved considerably more results than it was initially planned by the Project Document.

Outcomes of this component include the following documents submitted to Executive Agency:

1. Analytical materials to the Report to the Government of the Russian Federation concerning improvement of the environmental management system in the Russian Arctic (on 234 pages with annexes on 155 pages):

- Gaps in the Russian management system that does not allow to achieve effective response to environmental threats, in the Russian Arctic – in particular;
- Analysis of environmental management systems in other Arctic countries;
- Assessment of basic international conventions and recommendations on their

use for more effective addressing environmental problems in the Russian Arctic;

- Proposals on the best available practice use for environmental protection in the Russian Arctic;
- Proposal related to climate changes and their impact on arctic regions;
- Provided recommendations to amend the applicable international conventions.

2. Draft Report to the Government of the Russian Federation, which, based on the analysis made, summarized proposals for improvement of the environmental management system in the Russian Arctic including proposals based on the best international practice.

3. The analysis-based Conception of the Federal Law 'On Special Conditions for Natural Resources and Environmental Management in the Russian Arctic';

4. The analysis-based Conception of the Federal Law 'On Special Conditions for Natural Resources and Environmental Management When Developing Oil and Gas Resources in the Russian Arctic'.

The PO proposed that the next steps for implementation of this component under the current NPA-Arctic Project would include:

- revision of above documents according to comments of Executing Agency;
- consideration of revised documents at the Inter-Agency Working Group (IAWG) meeting ;
- revision of the documents according to comments of IAWG;
- preparation of the documents for submission to the Russian Government;
- presentation of EPS output at various national and international events.

It was agreed that the EPS component would be completed by August 2010.

2.7. Progress Report on Demo and Pilot Projects

The Project Office presented a report on demo and pilot projects implementation. A list of the projects with brief description is attached as **Annex VII** to this Report.

The StC discussed issues concerning the demo and pilot projects implementation, and was informed that detailed reports provided by contractors with information on completed and ongoing projects accompanied with video and photos are available on the Project website in Russian and English (www.npa-arctic.ru).

AGENDA ITEM 3. MATTERS FOR DECISION

3.1. Possible New Demo/Pilot Projects to be Completed by 1st October 2010

Based on the latest project budget revisions agreed between EA and IA, following an initial assessment of the Project Office and the Executing Agency, it was proposed that 3-4 additional demo or pilot projects could be funded through the project budget. These additional projects, if approved, should be completed by October 2010.

Four new project proposals were presented for consideration as additional pilot projects:

- Development and implementation of a system for collection and elimination (utilisation) of PCB wastes and PCB containing equipment in the Arctic region;
- Inventory of pollution sources at the area of decommissioned military sites on New Siberian Islands
- Evaluation of cost effectiveness and health impact of rehabilitation of heavily polluted indigenous Arctic communities in Russian Arctic;
- Review and introduction of system of reaction to emergency of oil spill and oil products in the Arctic conditions for protection of coastal areas especially sensitive to petroleum (with examples from Barents Sea and White Sea).

The meeting agreed that these project proposals would be considered as potential, new pilot projects based on two conditions: the availability of project fund and the proven evidence of achieving project results by October 2010. The Project Office, in coordination with Executing Agency and Ministry of Natural Resources and Ecology of the Russian Federation (MNRE), will work further on the project proposals, taking into account concerns discussed at the 4th StC meeting, as well as comments received from the StC members. It was agreed that any comments on the project proposals should be received by the PO within two weeks after the meeting. The revised proposals will then be sent by the PO to the StC members for final approval via e-mail. After receiving approval, the PO will announce a tender for implementation of the approved demo/pilot projects. The representatives of US-EPA and NEFCO were requested to express and/or conform their interest in the proposed projects as well as to consider the possibility of co-financing.

3.2. Work Plan and Budget Plan for the Remaining Period of the Project Phase I: January – October 2010

The Project Office introduced a draft Work Plan and Budget Plan for the remaining period of the project implementation, until the end of the Project Phase I: – October 2010.

The 4th Steering Committee meeting members recommended that the Work Plan should include activities on Phase II preparation and therefore the proposed budget required some revisions, including:

- add budget lines to reflect the costs of hiring consultants for preparation of the project documents for Phase II and special meeting to discuss a concept of

- the PO to consult with UNEP for budget revision under the budget lines 2234-5 to reflect the need for transferring unused amount of $200,00 for implementation of the proposed “new pilot projects”;
- review the project financial plan to identify whether the remaining budget would be sufficient and available for implementing Phase II preparation activities, proposed new projects, as well as other activities agreed during the meeting.

The representative of UNEP proposed to the StC meeting that, due to recent changes in project activity and timeframe, the amount of fund allocated under budget line 1181 is no longer needed, and that the remaining funds may be reallocated for other Project activities as needed. The StC meeting welcomed this revision and advised that the PO review and propose budget revisions as appropriate.

The Project Office in close coordination with Executing and Implementing Agencies will prepare the appropriate revisions to the Project Budget and distribute it together with revised Explanatory Note and amended Work Plan for the STC members review and final approval by e-mail correspondence.

3.3. Completion of Project Phase 1: Terminal Report and Evaluation; Project Implementation Experiences, Lessons, and Knowledge Management

The UNEP representative introduced GEF requirements and procedures for project completion and evaluation, including the preparation of Project Terminal Report and the Project Terminal Evaluation.

The StC meeting agreed that, whereas the project completion date would be scheduled on 30 September 2010, a period of 2-3 months would be required for preparing final reports and thus the project budget should be prepared for activities to be implemented by the Project Office during the months of October to December 2010.

The 4th StC meeting agreed that the Project Terminal Report and the Project Terminal Evaluation would be prepared and completed within 90 days of the completion of the Project (October-December, 2010).

The UNEP representative will send updated form of the Project Terminal Report to the Project Office.

3.4. Preliminary Discussion of Phase II Project Idea and Planning for Submission to GEF-5

The Steering Committee members unanimously supported the development of Phase II Project to implement SAP-Arctic and keep the momentum of Phase I achievements. It was agreed that Phase II implementation should mainly focus on:

- implementation of priorities identified in the SAP-Arctic;

- implementation of investment projects identified and recommended under PINS;
- expansion and replication of demo and pilot projects taking into account results achieved during Phase I.

The representative of the MNRE presented a detailed vision of the Project priorities resulting from the agency's assessment, which was accepted in principle by the meeting members. According to the MNRE, priorities for selection of additional demo\pilot project proposals would include the issue-areas as follows:

- Destruction of outdated pesticides;
- Elimination of POPs;
- Waste mercury collection and disposal;
- Institutional provision on these directions of environmental activities, including support to the regions in arrangement of complex waste management systems.

The Chairman of the 4th Steering Committee meeting pointed out that the proposed issue-areas by the MNRE had been identified as part of the SAP-Arctic priorities and would be taken into account in the development of Phase II project.

As part of the project exit strategy, the 4th Steering Committee meeting recommended that the PO, in cooperation with Executing Agency, prepare strategies for managing knowledge and maintain databases/information developed during the project activity implementation (i.e., documents, photo and video materials, project website) for the interim period in between the Phase I and Phase II.

The NEFCO representatives proposed that new demo and pilot projects during the Phase II Project should focus on the 'hot spots' identified during Phase I implementation. Specific measures should be proposed and introduced for each selected "hot spot" to decrease suppression of the environment or to eliminate the "hot spot" completely. These proposals were supported by the Steering Committee members.

It was agreed that criteria, indicators and measuring tools should be developed to evaluate progress under the new project implementation, as well as to determine the difference "before" and "after" the project implementation in appropriate 'hot spots'.

The 4th StC meeting recommended that the Executing Agency and the Implementing Agency should work in close cooperation and submit to GEF5 agreed proposal on Phase II in due time utilizing appropriate UNEP recommendations. It was specifically advised that, in designing the Phase II project, the following factors should be taken into consideration:

- GEF-5 strategies, procedures and requirements for project submission;

- SAP-Arctic principles and recommendations;
- Results and achievements from Phase I implementation.

AGENDA ITEM 4. OTHER MATTERS

No other matters were considered at the meeting.

AGENDA ITEM 5. SCHEDULE FOR THE NEXT MEETING

The Executing Agency proposed that the next Steering Committee meeting be held in Moscow, during the last week of October 2010. The proposal was approved by the STC members.

AGENDA ITEM 6. ADOPTION OF THE RESULTS OF THE MEETING

The STC members adopted the meeting results and expressed satisfaction at the progress achieved during the reported period. It was agreed that the Project Office would prepare a draft meeting report and send it to the Steering Committee members for comments. Revised demo/pilot project proposals and amended Work Plan as well as revised budget until the end of Phase I, after consultations with the Executing Agency and the Implementing Agency, will be sent by the PO to the STC members for approval via electronic communication.

AGENDA ITEM 7. CLOSURE OF THE MEETING

The Chairman of the 4th StC meeting, in his closing remarks, expressed his appreciations to all members for their active participation and for contributing important inputs and decisions that allow the PO to carry on the project implementation toward the successful completion. He thanked the Ministry for the Environment of Iceland for excellent hosting of the meeting; thanked the NEFCO and USEPA representatives as well as the representative of UNEP for their constructive inputs during the meeting. He finally thanked the Project Office for excellent presentation of the project implementation results and achievements, for document preparation, and for technical support.

The meeting was adjourned at 17:00 on 5th February, 2010.

Annex I

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/info

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Prepared by: the Project Office
Required actions: for information

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Annex II

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/1

Revised Agenda

Prepared by: the Project Office

Fourth Meeting of the UNEP/GEF Project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment Project Steering Committee

Hotel Radisson Blue Saga, Reykjavik, Iceland; 4-5 February, 2010

AGENDA (revised)

Thursday, 4 February 2010 (first day)

1. OPENING OF THE MEETING

1.1. Welcome address on behalf of the Minekonomrazvitiya

1.2. Welcome address on behalf of UNEP

1.3. Remarks by the Chair of the Project Steering Committee

1.4. Introduction of Participants

1.5. Adoption of the Meeting Agenda

2. PROJECT ACTIVITIES AND PROGRESS REPORTS

2.1. Brief Summary of the Project Implementation and Financial Management since the Third Steering Committee Meeting in Helsinki

2.2. Project Phase I Midterm Review Results

2.3. Presentation of Diagnostic Analysis of State of the Environment in the Arctic Zone of the Russian Federation

2.4. Presentation of the Approved Strategic Action Program and the Next Steps

Friday, 5 February 2010 (second day)

2.5. Presentation of the Pre-investment Studies Results and Discussion on Concept and Potential Date of Investment Forum in 2010

2.6. Progress Report on Environmental Protection System Component Implementation

2.7. Progress Report on Demo and Pilot Projects

3. MATTERS FOR DECISION

3.1. Possible New Demo/Pilot Projects to be Completed by 1st October 2010 *(consideration of this item was transferred to the first day of the*

meeting, 4th of February)

3.2. Work Plan and Budget Plan for the Remaining Period of the Project Phase I: January – October 2010

3.3. Completion of Project Phase 1: Terminal Report and Evaluation; Project Implementation Experiences, Lessons, and Knowledge Management

3.4. Preliminary Discussion of Phase II Project Idea and Planning for Submission to GEF-5 *(this item partly was considered at the first day of the meeting, on 4th of February)*

4. OTHER MATTERS

5. SCHEDULE FOR THE NEXT MEETING

6. ADOPTION OF THE RESULTS OF THE MEETING

7. CLOSURE OF THE MEETING

Annex III

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/2

Item 2.1 of the Agenda

Progress Report on NPA-Arctic Project Implementation for the Period from March 2009 to February 2010

Prepared by:
Project Office

I. SUMMARY

During reported period Project Office (PO) finalised work with the third draft of the Strategic Action Programme (SAP) which have been discussed at third meeting of Interagency Work Group (IAWG) in Moscow and at third meeting of the Project Steering Committee (StC) in Helsinki. All final remarks and suggestions received from IAWG, federal and regional authorities as well as from NGO and businesses were thoroughly considered by the PO and SAP Task Team (TT) and the SAP document was reworked and reformatted taking into account all above remarks and suggestions. It was also reworked in accordance with Russian standards imposed for strategic documents of such kinds. The final revision of the SAP document was approved by the Maritime Board at the Government of the Russian Federation, the highest-level body of the government in charge of coordinated efforts of federal enforcement authorities in the field of maritime activities, investigation and exploration of the World Ocean, Arctic and Antarctic. The Maritime Board recommended that the executive federal and regional authorities, as well as other organizations should be guided by the provisions of the Strategic Action Plan for Environmental Protection in the Russian Arctic when elaborating the Russian Arctic Development Programs and Policies.

Pre-investment studies (PINS) Component is near the completion in all three selected regions (western, central and eastern) of the Russian Arctic and resulted in a set of proposals for environmental investment projects (EIP) for these sectors of the Russian Arctic. Proposed EIP are strongly supported by regional and local authorities. 16 EIP in Western, Central and Eastern Arctic have been developed. To date, they have being worked further on in accordance with Executing Agency comments.

Task Team (TT) on the EPS Component (Environmental Protection System Improvements) finalised their activities with the following documents preparation: 1) - Draft Report to the Government of the Russian Federation on Improvement of Environmental Protection System in the Arctic Zone of the Russian Federation; 2) – Analytical Materials to the Report to the Government of the Russian Federation on Improvement of Environmental Protection System in the Arctic Zone of the Russian Federation; 3-4) - two different versions of Concept of Federal Law on Special Regimes of Natural Resources Use and Environment Protection the Arctic Zone of the Russian Federation. These documents, according to Executing Agency view, are needed additional work on.

Two mentioned in the Project Document main demo BASES and pilot CLEANUP projects have been successfully finalised. Two additional pilot projects, which were approved by the 2nd Steering Committee meeting, namely PILOT-BIOREMEDIATION and PILOT-TIKSI, have also been successfully finalised. One new demo project ONEGA-BASE (Remediation of Environment in Area of Decommissioned Military Base near Pokrovskoe Settlement, Arkhangelsk Region) approved by the 3d Steering Committee meeting in Helsinki, has been prepared and its implementation started in the middle of the autumn 2009. Two new contracts for demo project - FJL BASES-2 and pilot project TIKSI-2 – have been prepared and signed.

Key project achievements for the reporting period are as follows:

SAP component. Completed to date.

Several SAP TT meetings were held by PO with the purpose of addressing the comments received from official authorities on distributed SAP document. All remarks and comments obtained from Russian federal and regional authorities, IAWG, NGO and main industrial companies operating in the Arctic were thoroughly considered. Third and fourth drafts of the SAP document were considered on two IAWG meetings in February and May 2009 in Moscow and on StC meeting held in Helsinki in March 2009. A final release of the SAP document was submitted by Executing Agency (EA) for approval to Expert Advisory Body of Maritime Board at the Government of the Russian Federation and then to the Maritime Board at the Government of the Russian Federation. The Maritime Board approved the SAP document and recommended that the executive federal and regional authorities, as well as other organizations should be guided by the provisions of the Strategic Action Plan for Environmental Protection in the Russian Arctic when elaborating the Russian Arctic Development Programs and Policies. At the moment PO staff is concentrated on updating and improvement of Diagnostic Analysis on Russian Arctic Environment with preliminary title "Environmental Situation in the Russian Arctic – Problems and Prospects". The DA analysis prepared in a mid of 2007 which served as a basis for the SAP requires updating. In addition Executing Agency proposed a new structure for the DA document which requires some additional work. PO tendered several consultants who are well known experts in their field and hired them for writing/rewriting several sections in the DA .

PINS component. The PINS Component has been completed in general in all three selected regions (western, central and eastern) of the Russian Arctic and resulted in a set of proposals for environmental investment projects (EIP) for these sectors of the Russian Arctic. Proposed EIP are strongly supported by regional and local authorities. Five EIP in Western (lead by Royal Haskoning), and Central Arctic (lead by Rambøll Storvik AS) and to 6 EIP in Eastern Arctic (lead by ERM Eurasia Limited) have been developed. To date, these EIP have being worked further on in accordance with Executing Agency comments.. At the moment, PINS contractor for Western Arctic finilised a fifth stage and works on a final six stage, PINS contractor for Central Arctic finished its third stage (out of fifth) and PINS contractor for East Arctic finilised its final fourth stage and submitted draft final report.

The following five individual investment projects were selected to be suggested for potential investors for imiplementation in West Arctic: 1. Improved waste water management in Murmansk region; 2. Improved waste water management in Severomorsk; 3. Improvement of solid domestic waste management; 4. Improvement of oil waste management program; 5. Automatic air quality monitoring system.

For Central Arctic region five individual investment projects were also prepared. They are: 1. Land remediation from oil products in water protection zone of Northern Dvina River of White Sea basin near settlement Krasnoe of Primorsky district of Arkhangelsk Region; 2. Construction of new sewage treatment facilities in Lesnaya Rechka dwelling district of Arkhangelsk; 3. Solid domestic wastes disposal in Vorkuta, Komi Republic; 4. Modernization of sewage water treatment system in Vorkuta, Komi Republic, and: 5. Modernisation of Waste Water Treatment Facilities in Settlement Kachgort and Bondarka, Nenets Autonomous Okrug.

In Eastern Arctic six individual PINS projects were picked up: 1. Closure of the Kular Gold Tailings Based on Sound Environmental and Health & Safety Principles; 2. Mothballing of the Deputatsky Tin Ore Mining and Processing Plant Based on Sound Environmental and Health & Safety Principles; 3. Restoration of Commercially Important Fish Species in the Subarctic and Arctic River Basins in Yakutia; 4. Waste and Contamination Inventory and Clean-Up of the Wrangel Island Reserve; 5. Search and Disposal of the RITEG installation Located at Rogers Bay, the Wrangel Island, and 6. Programme of Survey of Current and Historical Land-Based Contamination Sources of the Laptev Sea, East Siberian Sea and Chukchi Sea.

EPS component. Work under this Project component started ahead of schedule in 2008. In the original Project Document EPS component implementation was placed in the Second Phase of the Project. Task Team for EPS component worked under the component for more than one year and to date finalised its work, which resulted in preparation of the following main documents: 1) - Draft Report to the Government of the Russian Federation on Improvement of Environmental Protection System in the Arctic Zone of the Russian Federation; 2) – Analytical Materials to the Report to the Government of the Russian Federation on Improvement of Environmental Protection System in the Arctic Zone of the Russian Federation; 3-4) - two different versions of Concept of Federal Law on Special Regimes of Natural Resources Use and Environment Protection the Arctic Zone of the Russian Federation. These documents were submitted to EA for comments. According to EA view these documents require additional work.

Demonstration projects component:

BASES - demo project (Environmental remediation of Decommissioned Military Bases on Franz-Josef Land Archipelago) - Completed.

The project was implemented by non-profit organization “Polar Foundation” mainly at Nagurskaya Station (Alexandra Land Island) and some additional reconnaissance works and ecological mapping were fulfilled also on abandoned military bases situated on Graham-Bell and Goffman islands. Field works was fulfilled in September 2007 (an expedition was delivered to the FJL archipelago by the research vessel “Mikhail Somov”) and in September 2008 (a team was conveyed to Alexandra Land by aircraft). Both a field photo report and video were uploaded on the official website of the NPA-Arctic Project (http://npa-arctic.ru/). To date the demo project was finalized, approved by Executing Agency (EA) and fully paid. Final report is under translation in English. A contract for second Phase of the project approved by EA and signed. It is now pending to obtain the tax-free status in the Commission for Humanitarian and Technical Assistance under the Government of the Russian Federation. Field works on FJL archipelago are planned for the navigation period of 2010. The project FJL BASES-II will be partially funded by US EPA.

CLEANUP – pilot project (Remediation of the Environment through the use of Brown Algae) - Completed.

A contract with a bid-winner (“Sirena Ltd”) was signed on 29/08/2007. Practical implementation of this project started in September 2007 To date the demo project was completed, approved by Executing Agency (EA) and fully paid. Approved final report is under translation in English.

COMAN - demo project (Indigenous Environmental Co-management) - Completed.

A contract with a bid-winner Consortium RAIPON, "BATANI" Fund and GRID-Arendal was signed on 15/11/2007. The project implementation started immediately after the contract has been signed. To date the project is totally completed. A final report was submitted to the PO in the middle of February 2009 and approved by EA. The report has been published in Russian and English and uploaded at official websites of the Project and the Batani Fund: http://www.batanifund.org

BIOREMEDIATION - pilot project (Designing of bioremediation technology for oil sludge and oil contaminated soil in Arctic conditions) - Completed.

A contract for the pilot project implementation was concluded with a bid-winner "NAVECOSERVIS Ltd.". To date the pilot project was completed, approved by Executing Agency (EA) and fully paid. A concept of a large scale project based on the obtained results was prepared and included in the list of investment projects suggested for the western Arctic.

TIKSIBAY - pilot project (Removing of sunken wood and ship frames from the sea bottom in Tiksi Bay) - Completed.

The pilot project has been implemented by the OOO "Seaport of Tiksi". To date the pilot project is completed and fully paid. A contract for prolongation of the pilot project (TIKSIBAY-2) approved on the 3rd StC session was prepared and signed. Basing on project results Tiksi television prepared a short movie, copy of which was also provided to the PO.

ONEGA-BASE - (Remediation of Environment in Area of Decommissioned Military Base near Pokrovskoe Settlement, Arkhangelsk Region) is a new demo project approved by 3rd STC meeting. Practical implementation of the project started in September 2009 by a bid-winner company OOO "GORST", which has a tax-free status already. A first tripartite contract was designed by PO and signed by all interested parties. This demo project is funded 50:50 by NPA-Arctic Project and by the Committee for Ecology of Arkhangelsk Region (a part of Arkhangelsk regional administration).

Tender documentation with provisional requirements specification together with tender invitation for implementation of a demo project **PESTICIDES** - (Eliminating Outdated and Banned Pesticides in the Northern Regions of Russia) and of a pilot project RITEG-KONDRAT'EV (Localisation and removal from a thermokarst crater of two radioisotope thermoelectric generators (RITEGs) of GONG type at the Kondratiev navigation beacon site in Ust-Yanski Ulus of Republic of Sakha (Yakutia)) were prepared and uploaded on the Projects website. Invitations to participate in the tender were also sent to companies and organisations who may be interested in. A company "CESSOR" submitted its proposal without proper working plan for the project implementation of the demo project PESTICIDES. However the main reason of delay with the project implementation is due to the absence of the licensed installation for elimination of pesticides within the Russian Federation. According to information from the MNRE of Russia this problem will be solved in the first quarter of 2010. As for the pilot project RITEG-KONDRAT'EV it is expected that application from the interested consortium of companies will be received before the Steering Committee meeting.

International Training Workshop on Environmentally Safe Management of Hazardous Wastes, Including Occupational Health and Safety Issues was held by the Project Office in coordination

with US Environmental Protection Agency (USEPA) and with assistance of the Ministry of Natural Resources and Environment of the Russian Federation (MNRE of Russia) and ACAP Secretariat in accordance with decision of the UNEP/GEF Project Steering Committee. The purpose of the training was to increase trainees' knowledge on the latest methods of ensuring environmental safety. The event took a place in Moscow on 20-23 of July 2009.

Meetings and conferences. During the reported period PO prepared and held a number of meetings among them: Interagency Work Group (IAWG) meeting (Moscow, 21 of May 2009), meetings with regional authorities, meetings with key representatives of the lead cooperating organizations (LCO) for demo/pilot projects and PINS implementation in western, central and eastern Russian Arctic regions and stakeholders, TT SAP and TT EPS meetings, Workshop on environmentally safe management of hazardous wastes.

PO staff participated also in several important international invents: 1- PAME Workshop (Oslo, Norway, September 2009), where project manager reported about NPA-Project achievements made for the last years; 2 - the Fifth GEF Biennial International Waters Conference (Cairns, Australia, 24-29 October 2009) where deputy project manager participated and presented exhibit highlighting project results and achievements at the IWC5 Innovation Marketplace: special booth was rented and decorated for this purpose and also video on FJL BASES I demo project and project website both were introduced and were participated in a conference competition; and 3 - International Scientific and Practical Conference "Integrated Ecosystem Management in the Russian Arctic: Challenges and Prospective" - project manager presented the new edition of SAP document approved by the Maritime Board at the Government of the Russian Federation.

One of the other Project achievements was establishing and keeping of good working relationship with Arctic regional administrations, non-governmental organizations and businesses involved in environmental projects.

II. PROGRESS ON PROJECT COMPONENTS (according to the Project IWP Phase I)*

***Present Integrated Work Programme reflects changes approved at the 3rd Steering Committee Meeting in March 2009 and then revised by the Steering Committee members via e-mail communication.**

Activity I. Strategic Action Programme (SAP)

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
1.1	Proposals and selection of the Task Team (TT) Co-ordinator.	Approval of TT Co-ordinator familiar with the methodology for the preparation of the SAP and familiar with the organisations and individuals that might be involved in the preparation of the SAP. *Output 100 %*	Manager/ ExA	January 2006	February 2006	Completed
1.2	Proposals and selection of the TT members.	Selection of TT members to cover all major sectors of the SAP and the NPA-Arctic. *Output 100 %*	Manager/ ExA	January 2006	February 2006	Completed
1.3	Preparation of the consultancy contract with TT Co-ordinator.	Signed contract with TT Co-ordinator, including duties, outputs, work plan, timetable and other details. *Output 100 %*	Manager/ ExA	January 2006	February 2006	Completed
1.4	Preparation of consultancy contracts with TT members.	Draft contracts including duties, outputs, work plan, timetable and other details discussed with the potential TT members and signed subsequently. *Output 100 %*	Manager	January 2006	March 2006	Completed
1.5	Preparation of the working document to be considered at the First Meeting of the TT.	Working document to include the basic SAP concept; objectives; principles; content; outputs; work plan; timetable; role of TT co-ordinator and members, as well as lead organisation; procedure for the national and international review of the draft SAP; procedure for the adoption of the SAP; and basic ideas about the implementation mechanism. The document is also to contain proposals for the terms of reference for the TT. This document is to be considered, amended and adopted by the First	TT co-ordinator/ Manager	February 2006	February 2006	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
		Meeting of the TT. *Output 100 %*				
1.6	Review of the working document at the First Meeting of the TT.	Report of the meeting to include the basic SAP concept; objectives; principles; content; outputs; work plan; timetable; role of TT co-ordinator and members, as well as lead organisation; procedure for the national and international review of the draft SAP; procedure for the adoption of the SAP; and basic ideas about the mechanism of the implementation; terms of reference for the TT; tender documentation for selection of the lead co-operating organisation; and decision on the establishment of working groups. *Output 100 %*	TT co-ordinator/ Manager	February 15, 2006	February 15, 2006	Completed
1.7.1.	Development of financial mechanisms of the SAP implementation	Scoping report on mechanisms of financing the activities included into the SAP. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA and PA	Jan.- June 2007	September 2007	Completed
1.7.2.	Regional aspects of SAP	Scoping report on regional SAP sub-programs with recommendations for SAP. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA and PA	Jan.- June 2007	October 2007	Completed by the PO, ACOPS provided report only for 1 region
1.7.3.	Strategic environmental assessment on the SAP	Report on SEA to support SAP with recommendation on improvement of SAP *Output 100 %*	Manager in coordination with ExA	June 2007	April 2008	Completed
1.7.4.	Diagnostic analysis of environmental situation in Arctic region	Diagnostic analysis considering all environmental aspects of the Russian Arctic incl. causal-chain analysis and prepared according to international standards *Output 85 %*	TT co-ordinator/ Manager in coordination with ExA and PA	July 2006 – March 2007 Publication – end of June 2007	March–April 2009;	To be completed by May 2010

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
1.7.5.	Causal chain analysis	Report on causal chain analysis with recommendations. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA and IA	March 2007	November 2007	Completed
1.7.6.	Stakeholder analysis and development of public involvement	Stakeholder perception survey report and draft public involvement plan. *Output 75 %*	Manager in coordination with ExA and PA	Regional reports ready by 15th June 2007; PPS is ready by 20th Jul 2007	October 2009	Initially planned to be executed by ACOPS (only 2 regional reports were completed). PO has a lead. It is in process of finalisation as a part of DA
1.7.7.	Information to stakeholders and communication strategy to public on project results	Specific public awareness actions (round tables, TV broadcasting, newspapers, internet and other public activities) for all Arctic regions. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA	Apr. 2007 - Nov. 2008	Constantly	New strategy for public involvement developed and implementation started in September of 2008
1.8	Preparation of the first draft of the SAP	The first draft of the SAP prepared in accordance with the conclusions and recommendations elaborated at the First Meeting of the TT. *Output 100 %*	TT co-ordinator/ Manager	Dec. 2006	August 2007	Completed
1.9	Review of the first draft of the SAP	SAP TT reviews the first draft of SAP and provides written comments. SAP document is translated and reviewed by the international SAP consultant. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA	Jan. - March 2007	September 2007	Completed
1.10	Preparation of the second draft of the SAP.	Project office combines comments received by SAP TT and international SAP reviewer and organizes for translation. *Output 100 %*	TT co-ordinator/ Manager	Jan. - March 2007	December 2007	Completed
1.11	Review of the	Comments by federal and regional executive	TT co-ordinator/	July – Sept.	February 2008 -	

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	second draft of the SAP by federal and regional executive authorities.	authorities that will be taken into account in preparing the third draft of the SAP. *Output 100 %*	Manager in coordination with ExA	2007	IAWG reviewed 2nd draft SAP June 2008 – authorities reviewed 2nd draft SAP	Completed
1.12	Preparation of the third draft of the SAP	The third draft of the SAP, to address comments by federal and regional executive authorities is prepared for review by SAP TT. *Output 100 %*	TT co-ordinator/ Manager	July – Sept. 2007	December 2008	Completed
1.13	Review of the third draft of the SAP at the SAP TT meeting	The third draft of the SAP is reviewed by SAP TT and agencies whose remarks were received. *Output 100 %*	TT co-ordinator/ Manager in coordination with ExA and IA	July – Dec. 2007	February-March 2009	Completed
1.14	Preparation of the 4th draft of the SAP.	The fourth draft of the SAP, to address comments by the SAP TT. *Output 100 %*	TT co-ordinator/ Manager	October – Dec. 2007	March 2009	Completed
1.15	Endorsement of the SAP by relevant state authorities	Endorsed SAP, ready for approval. *Output 100 %*	Manager/ExA	December 2007 – March 2008	April-May 2009	Completed
1.16	Adoption of the SAP by the relevant executive authority.	SAP adopted by the relevant executive authority of the Russian Federation. *Output 100 %*	Manager/ExA	March 2008	May-June 2009	Completed
1.17	A round table with all interested parties for presentation, discussion and popularization of	Awareness of federal and regional authorities, RAS, business circles, NGOs and civil society with the SAP as the first major outcome of the Project. *Output 100 %*	Manager		June-July 2009	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	the SAP					

Activity 2. Pre-investment studies (PINS)

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
2.1	Proposals for and selection of the Co-ordinator of the Working Group (WG) for Pre-Investment Studies (PINS) will be prepared.	Approval of the selected WG Co-ordinator familiar with the methodology for the preparation of PINS and familiar with the organisations and individuals that might be involved in the preparation of PINS. *Output 100 %*	Manager/ExA	March 2006 Jan. – March 2007 for new person	November 2007	Completed
2.2	Proposals for and selection of the WG members.	Approval of the selected WG members for development of criteria for the hot spots selection and co-ordination of PINS taking into account environmental, economic, social and political factors. The WG will be composed of 8 Russian and 3 International consultants, and 1 representative from the Executing Agency. *Output 100 %*	Manager/ExA	April 2006	May 2006	Completed
2.3	Preparation of the consultancy contract with WG Co-ordinator.	Signed contract with WG Co-ordinator, including duties, outputs, work plan, timetable and other details. *Output 100 %*	Manager/ExA	April 2006 Apr. – June 2007 for new person	May 2006	Completed
2.4	Preparation of consultancy contracts	Draft contracts, including duties, outputs, work plan, timetable and other details, to be discussed with	WG Co-ordinator / Manager	April 2006	May 2006	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	with WG members.	the potential consultants and signed subsequently. *Output 100 %*				
2.5	Preparation of the working document to be considered at the First Meeting of the WG.	Working document to include the basic concept of PINS; overview of priority environmental hot spots selected during the work on the NPA-Arctic and PDF B GEF Project; objectives and the content of PINS; work plan; timetable; and the role of the co-ordinator of the WG and its members and of the lead cooperating and participating organisations. The document is also to contain proposals for the criteria for the selection of hot spots for which PINS will be prepared and terms of reference for the WG. This document is to be considered, amended and adopted by the First Meeting of the WG. *Output 100 %*	WG Co-ordinator / Manager	April 2006	June 2006	Completed
2.6	Review of the working document at the First Meeting of the WG, Moscow.	Report of the meeting to include the basic concept of PINS; overview of hot spots selected during the work on the NPA-Arctic and PDF B GEF Project; objectives and targets, the content and outputs of PINS; work plan and timetable; the role of the co-ordinator of the WG and its members and of lead cooperating and participating organisations. The Report is also to contain proposals for the criteria for selection of hot spots for which PINS will be prepared and terms of reference for the WG. *Output 100 %*	WG Co-ordinator / Manager	May 2006	April 2006	Completed.
2.7	Update and review of the existing hot spots identified at PDF-B stage	Update (data collection), review and analysis of the situation with hot spots *Output 100 %*	WG co-ordinator / Manager in coordination with PA	Jan. - June 2007	July 2007	Completed
2.7.1	Development and uploading into the Project website a data base for	Russian Arctic Hot Spots data-base developed and uploaded into the Project official website:	Manager/ Deputy manager		December 2008	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	Russian Arctic Hot Spots	http://npa-arctic.ru/rus/hs/hs_list_ru.html *Output 100%*				
2.8.	Preparation of Guidelines on conduction of pre-investment studies	Guidelines for conducting the pre-investment studies (methodology and procedures) *Output 100%*	WG co-ordinator / Manager in coordination with PA	June 2007	August 2007	Completed
2.9	Development of criteria for selection of hot spots for which PINS will be prepared, on the basis of comments given at the First Meeting of the WG.	Criteria for selection of hot spots for which PINS will be prepared, which will include criteria for taking into account environmental, economic, social, and other aspects in the process of selection. *Output 100 %*	WG Co-ordinator / Manager in coordination with PA	Apr. - June 2007	August 2007	Completed
2.10	Hot spots screening and selection. Preparation of the list of potential pre-investment studies.	On the basis of the work done on analysis of environmental hot spots in the PDF B GEF Project, the hot spots identified in the NPA-Arctic and submitted by federal and regional authorities, the list of potential pre-investment studies will be prepared. Using the adopted criteria for selection, about 8-10 hot spots will be selected for which PINS will be prepared. The Report of the Second Meeting will include selected hot spots and the rational for the selection. *Output 100 %*	WG Co-ordinator / Manager in coordination with PA	Apr. - June 2007	October 2007	Completed
2.11	Preparation of tenders dossiers and ToRs for three lead cooperating organisations.	Tender for the selection of three lead cooperating organizations for conducting PINS (for the western, central and eastern parts of the Russian Arctic) will be announced by the Project Office. Terms of reference for lead cooperating organisations will be included in the conditions of the tender. *Output 100 %*	WG Co-ordinator / Manager in coordination with PA	July – Sept. 2007	January 2008	Completed
2.12	Selection of three lead cooperating	On the basis of the tender and criteria adopted by the Executing Agency, three lead cooperating	WG Co-ordinator / Manager	September 2007	April 2008	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	organisations for the conduction of PINS in west, east and centre parts of Russian Arctic. Concluding the contracts with bid-winners	organisations are selected. Contracts are concluded that includes schedule of payments. *Output 100 %*				
2.12.1	Contract maintenance for the conduct of PINS for the west part of the Russian Arctic (PINS-West) by the OOO Haskoning Consultants, Architects and Engineers	A set of environmental investment projects for the west part of the Russian Arctic. *Output 100 %*	PINS-West Project leader/ Manager / EA	November 2009	November 2009	Completed
2.12.2	Contract maintenance for the conduct of PINS for the east part of the Russian Arctic (PINS-East) by the ERM Eurasia Limited	A set of environmental investment projects for the east part of the Russian Arctic. *Output 100 %*	PINS-East Project leader/Manager/ EA	December 2009	Novembe 2009	Completed
2.12.3	Contract maintenance for the conduct of PINS for the central part of the Russian Arctic (PINS-Centre) by the Ramboll Storvik AS	A set of environmental investment projects for the central part of the Russian Arctic. *Output 100 %*	PINS-Centre Project leader/Manager/ EA	November 2009	November 2009	Completed
2.13.	Investment Forum (Partnership conference)	Investment forum is organised and conducted *Output 0 %*	Manager in cooperation with ExA and IA	April - June 2008	May-July 2010	Planned for May-July2010
2.14.	Consultations with potential financers for selected PINS	Consultations with potential financiers for selected PINS are performed. *Output 100 %*	Manager in coordination with PINS bid winner	2008 – first half of 2009	November 2009	Completed
2.15.	Review of PINS and	Collated report setting out the optimum package of	Manager in	September	February 2010	Submitted to EA

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	approval of final report	environmental investment projects in the Arctic region of the Russian Federation *Output 85%*	cooperation with ExA and IA	2009		reports require additional work

Activity 3. Environmental Protection System Improvements (EPS)

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
3.1	Proposals for and selection of the Co-ordinator of the Task Team on Implementation of the SAP (TT EP).	Approval of the TT Co-ordinator familiar with the methodology for the implementation of the SAP and with organisations and individuals that might be involved. *Output 100 %*	Manager/ExA	July – Sept. 2007	August 2008	Completed
3.2	Proposals for and selection of TT members.	Approval of the TT members to cover various aspects of this activity, to be developed by three WGs (Legislative Improvements, Administrative Improvements and Institutional and Technical Improvements). It is envisaged that the TT will be composed of 10 Russian and 3 international consultants and 1 representative of the Executing Agency. *Output 100 %*	Manager/ExA	July – Sept. 2007	August 2008	Completed
3.3	Preparation of the consultancy contract with the TT Co-ordinator.	Signed contract with the TT Co-ordinator, including duties, outputs, work plan, timetable and other details. *Output 100 %*	Manager/ExA	July – Sept. 2007	August-September 2008	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
3.4	Preparation of consultancy contracts with TT members.	Signed contracts with TT members, including duties, outputs, work plan, timetable and other details, to be discussed with the potential consultants and signed subsequently. *Output 100 %*	TT Co-ordinator / Manager	July – Sept. 2007	January 2009	Completed
3.5	Preparation of the working document to be considered at the First Meeting of the TT.	Working document to include basic concept of the Environmental Protection System (EPS); overview of priority improvements in environmental protection mechanisms for which the need was identified during work on the NPA-Arctic and PDF B GEF Project; proposals for the establishment of three WGs subordinate to the TT, including proposals for the respective Co-ordinators, tasks on EPS improvement in general and in all three directions for lead cooperating and participating organisations, outputs, work plan, timetable and other details. The document is also to contain draft terms of reference for the TT, including expected outputs, work plan, timetable and other details; the role of the co-ordinator of the TT and its members; as well as the role of cooperating and participating organisations. This document is to be considered, amended and adopted by the First Meeting of the TT. *Output 100 %*	TT Co-ordinator / Manager	Oct.-Dec. 2007	December 2009	Completed
3.6	Review of the working document at the First Meeting of the TT, Moscow.	Report of the meeting to include basic concept of EPS; overview of priority improvements in environmental protection mechanisms for which the need was identified during work on the NPA-Arctic and PDF B GEF Project; and proposals for the establishment of three WGs subordinate to the TT, including proposals for the respective Co-ordinators, tasks on EPS improvement in general	TT Co-ordinator / Manager	Jan-March 2008	January 2009	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency *	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
		and in all three directions for lead cooperating and participating organisations, outputs, work plan, timetable and other details. Report is also to contain terms of reference for the TT, including outputs, work plan, timetable and other details; the role of the co-ordinator of the TT and its members; as well as the role of cooperating and participating organisations. *Output 100 %*				
3.7	Preparation of the report on EPS improvements and its approval by EPS TT	The report on EPS improvements approved by EPS TT *Output 100 %*	TT Co-ordinators / Manager	Apr.-June 2008	June 2009	Completed
3.8	Preparation of the final report on EPS improvements	The report to the Russian Government is prepared and approved by TT EPS and EA. *Output 70 %*	TT Co-ordinators / Manager	December 2009	April 2010	Submitted to EA Documents require additional work

4. Demonstration Projects (DEMOS)

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
4.1	Proposals for and selection of the Co-ordinator of the WG on Contaminant Clean-up (WG CLEANUP).	Approval of the WG Co-ordinator familiar with the methodology for decontamination of marine waters through the use of brown algae as well as of organisations and individuals that might be involved. *Output 100 %*	Manager / ExA	March 2006	March 2006	Completed
4.2	Proposals for and selection of the WG CLEANUP members.	Approval of the WG members to cover various aspects of this demonstration project. *Output 100 %*	Manager / ExA	April 2006	March 2006	Completed
4.3	Preparation of the consultancy contract with the WG CLEANUP Co-ordinator.	Signed contract with the WG Co-ordinator, including duties, outputs, work plan, timetable and other details. *Output 100 %*	Manager / ExA	April 2006	October 2006	Completed
4.4	Preparation of consultancy contracts with the WG CLEANUP members.	Draft contracts, including duties, expected outputs, work plan, timetable and other details, to be discussed with the potential consultants and signed subsequently. *Output 100 %*	WG Co-ordinator / Manager	April 2006	October-November 2006	Completed
4.5	Preparation of the working document to be considered at the First Meeting of the WG CLEANUP.	Working document to include basic concept of the Contaminant Clean-up method; draft terms of reference for the WG, including expected outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. This document is to be considered, amended and adopted by the First Meeting of the WG. *Output 100 %*	WG Co-ordinator / Manager	May 2006	October 2006	Completed
4.6	Review of the working document at the First	Report of the meeting to include basic concept of Contaminant Clean-up method; terms of reference	WG Co-ordinator / Manager	June 2006	February 2007	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	Meeting of the WG CLEANUP, Moscow.	for the WG, including outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. *Output 100 %*				
4.7	Preparation of ToR and conduct of the tender and preparation of the contract with the lead cooperating organisation for the development of Contaminant Clean-up demonstration.	ToR for the lead cooperating organization for the development of CLEANUP-DEMOS is prepared. Signed contract with the lead cooperating organisation (which won the tender) to include duties, expected outputs, work plan, timetable and other details. Contract is concluded that includes schedule of payments. *Output 100 %*	WG Co-ordinator / Manager	August 2006	August 21, 2007	Completed
4.8	Proposals for and selection of the Co-ordinator of the WG on Indigenous Environmental Co-Management (WG COMAN).	Approval of the WG Co-ordinator familiar with the methodology for the implementation of the Indigenous Environmental Co-Management Project as well as of organisations and individuals that might be involved. *Output 100 %*	Manager /ExA	July 2006	August 2006	Completed
4.9	Proposals for and selection of the WG COMAN members.	Approval of the WG members to cover various aspects of this demonstration project. *Output100 %*	Manager	August 2006	August 2006	Completed
4.10	Preparation of the contract with the WG COMAN Co-ordinator.	Signed contract with the WG Co-ordinator including duties, expected outputs, work plan, timetable and other details. *Output 100 %*	Manager /ExA	September 2006	November 2006	Completed
4.11	Preparation of contracts with the WG COMAN members.	Draft contracts, including duties, outputs, work plan, timetable and other details, to be discussed with the potential consultants and signed subsequently. *Output 100 %*	WG Co-ordinator / Manager	October 2006	November 2006	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
4.12	Proposals for and selection of the Co-ordinator of the WG on the Environment Remediation in the areas of Two Decommissioned Military Bases (WG BASES).	Approval of the WG Co-ordinator familiar with the methodology for the environment remediation in the areas of two decommissioned military bases as well as of organisations and individuals that might be involved. *Output 100%*	Manager /Executing Agency	November 2006	August 2006	Completed
4.13	Proposals for and selection of WG the BASES members.	Approval of the WG members to cover various aspects of this demonstration project. *Output100 %*	ExA/Manager	November 2006	August 2006	Completed
4.14	Preparation of the contract with the WG BASES Co-ordinator.	Signed contract with the WG Co-ordinator, including duties, expected outputs, work plan, timetable and other details. *Output 100 %*	ExA/Manager	November 2006	October 2006	Completed
4.15	Preparation of contracts with the WG BASES members.	Draft contracts, including duties, expected outputs, work plan, timetable and other details, to be discussed with the potential consultants and signed subsequently. *Output 100 %*	WG Co-ordinator / Manager	November 2006	November 2006	Completed
4.16	Preparation of the working document to be considered at the First Meeting of the WG COMAN.	Working document to include basic concept of the environmental co-management method for extracting companies and indigenous peoples of the North; overview of relevant needs identified during the work on the NPA-Arctic and PDF B GEF Project; draft terms of reference for the WG, including expected outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. This document is to be considered, amended and adopted by the First Meeting of the WG.	WG Co-ordinator / Manager	October 2006	December 2006	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
		Output 100 %				
4.17	Preparation of the working document to be considered at the First Meeting of the WG BASES.	Working document to include basic concept of the environmental remediation method for the areas of two decommissioned military bases; overview of relevant needs identified during the work on the NPA-Arctic and PDF B GEF Project; draft terms of reference for the WG, including outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. This document is to be considered, amended and adopted by the First Meeting of the WG. *Output 100 %*	WG Co-ordinator / Manager	October 2006	April 2007	Completed
4.18	Review of the working document at the First Meeting of the WG COMAN, Moscow	Report of the meeting to include basic concept of the environmental co-management method for extracting companies and indigenous peoples of the North; overview of relevant needs identified during the work on the NPA-Arctic and PDF B GEF Project; terms of reference for the WG, including expected outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. *Output 100 %*	WG Co-ordinator / Manager	November 2006	May 2007	Completed
4.19	Preparation of ToR and conduct of the tender and preparation of the contract with the lead cooperating organisation for Indigenous Environmental Co-Management	ToR is prepared. Signed contract with the lead cooperating organization (which won the tender) to include ToR, expected outputs, work plan, timetable, schedule of payments for the contract and other details. *Output 100 %*	WG Co-ordinator / Manager	November 2006	October 03, 2007	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
4.20	Review of the working document at the First Meeting of the WG BASES, Moscow.	Report of the meeting to include basic concept of the environmental remediation method for the areas of two decommissioned military bases; overview of relevant needs identified during the work on the NPA-Arctic and PDF B GEF Project; draft terms of reference for the WG, including outputs, work plan, timetable and other details; the role of the co-ordinator of the WG and its members; the role of the lead cooperating organisation. *Output 100 %*	WG Co-ordinator / Manager	November 2006	July 2007	Completed
4.21	Preparation of ToR and conduction of the tender and preparation of the contract with the lead cooperating organisation for the environmental remediation in the areas of two decommissioned military bases	ToR is prepared. Signed contract with the lead cooperating organisation (which won the tender) to include ToR, expected outputs, work plan, timetable, schedule of payments for the contract and other details. *Output 100 %*	WG Co-ordinator / Manager	December 2006	August 23, 2007	Completed
4.22	Preparation and review of Progress Report to be considered at the Second Meeting of the WG CLEANUP.	Progress Report to include suggestions for further work. *Output 100 %*	WG Co-ordinator / Manager	January 2007	March 2008	Completed
4.23	Preparation and Review of Progress Report to be considered at the Second Meeting of the WG BASES	Reviewed Progress Report with suggestions for further work *Output 100 %*	WG Co-ordinator / Manager	April 2007	March 2009	Completed
4.24	Preparation and Review of Progress Report to be considered at the Second Meeting of the	Reviewed Progress Report with suggestions for further work *Output 100 %*	WG Co-ordinator / Manager	February 2008	January-February 2009	Completed

No.	Activity	Output and Output status (estimate in %)	Responsible person / Agency	Set in IWP target date	Actual date of completion or date to be completed if different from previous column	Status and description of problems encountered if activity is not completed as scheduled
	WG COMAN					
4.25.	Consultations with potential financers on pilot projects	Potential financiers are found for pilot projects *Output 100 %*	Manager	2007 – First part of 2008	first part of 2008	Completed
4.26.	Preparation of project documentation for pilot projects	Project documents for pilot projects are ready Output – 100 %	Manager	Second - third quarter of 2007	1st-2nd quarters of 2008	Completed
4.27.	Contracting companies on selected pilot projects (preparation of tenders where applicable)	Contracts with companies on selected pilot projects are concluded Output – 100%	Manager	Third-fourth quarter of 2007	3-4 quarters of 2008	Completed
4.28.	Final evaluation of conducted pilot projects and their replicability potential	Reports on pilot projects with recommendations for their replicability Output – 100%	Manager	Third quarter of 2008	Third –fourth quarters of 2009	Completed

As it was stated in the initial Project Document several additional demonstration and pilot projects would be designed by the PO in close cooperation with local administrations with purpose of possible expansion of the donor base for the Project.

To date the following additional demonstration and pilot projects earlier approved by the 2nd Project STC meeting had been completed and paid:

1. KOLABAY - Cleaning of hazardous substances from the bottom sediments of the Kola Fjord. Phase 1. Monitoring of hazardous substances in the bottom sediments of the Kola Bay. Pilot project.

2. BIOREMEDIATION - Designing of bioremediation technology for oil sludge and oil contaminated soil in Arctic conditions. Pilot project.

3. TIKSIBAY - Removing of sunken wood and ship frames from the sea bottom in Tiksi Bay. Pilot project.

4. TERIBERKA - Salvation and scrapping of the hunting ship "Teriberka". This pilot project was implemented by Murmansk administration and supported by NEFCO.

Works on implementaion of the following projects earlier approved by the 2nd Project STC meeting have not been started yet for the following reasons:

5. RITEG-KONDRATIEV - Localisation and removal from a thermokarst crater of two radioisotope thermoelectric generators (RITEGs) of GONG type at the Kondratiev navigation beacon site in Ust'-Yanski Ulus of Republic of Sakha (Yakutia). This pilot project was approved by the 2nd meeting of the Steering Committee. Objectives: to determine the depths of two RITEGs which are buried near Kondratyev navigation beacon site and to dig up both RITEGs from a thermokarst crater to the surface for following removal to the special storage. Project document, tender dossier and ToR are prepared by the Project Office. Tender was announced. It is expected that application from consortium of the interested companies will be received before the Steering Committee meeting.

6. RITEG- VRANGEL. Localisation and removal from sea of radioisotope thermoelectric generator (RITEG) in Rogers Bay, Vrangel' island, Chukotsky AO. Executing Agency rejected this project from demo-projects portfolio due to official letter from the Russian Federal Agency of Marine and River Transport that this RITEG is planned to be removed for utilization according to special federal target program. At the same time environment investment project for removal and utilization of this RITEG was prepared as result of PINS in East part of the Russian Arctic.

A number of projects were introduced at the third meeting of the Steering Committee and approved conceptually. Then they were fully approved by the Steering Committee members via electronic communication

List of new demonstration and pilot projects approved by the 3rd Steering Committee meeting:

1. ONEGA-BASES. Environmental Remediation of the Former Military Site near Pokrovskoye (Onezhsky District of Archangel Region of Russian Federation) – contract signed, advance payment done, project implementation has been started already.

The purpose of this demo project is to demonstrate a cost-efficient methodology of an environmental remediation of disused military sites and handover thereof to civil use. This first case can then be used for remediation of chemically contaminated areas in coastal areas at a larger scale and consequently diminishing the impact of Russian sites on the international Arctic waters.

2. TIKSIBAY-2. Removing of sunken wood and shipwrecks from the sea bottom in Tiksi Bay. Phase 2 - contract signed, advance payment cannot be paid – waiting for getting a tax-free status for implementation of this project but project implementation has been started already at risk of a contractor.

The pilot project objectives is finalisation of cleaning works started during Phase 1 of the pilot project and fulfilment of basic hydro-biogeochemical survey with the purpose of understanding of the ecological situation in the Tiksi bay follow up by methodological recommendations for its remediation. Fully supported by Iceland.

3. International Training Workshop on Environmentally Safe Management of Hazardous Wastes, Including Occupational Health and Safety Issues – the International training workshop was held in Moscow on July 20-23, 2009 in cooperation with USEPA.

Purpose of the training seminar is to familiarise audience with up-to-date safety methods of hazardous wastes handling including labour and health protection items. Particularly attention should be paid to safe handling and removing of abandoned metal drums with hazardous wastes spread in huge amounts in Russian Arctic, to all elements of .obsolete and prohibited pesticides handling and destruction, to reclamation works and other.

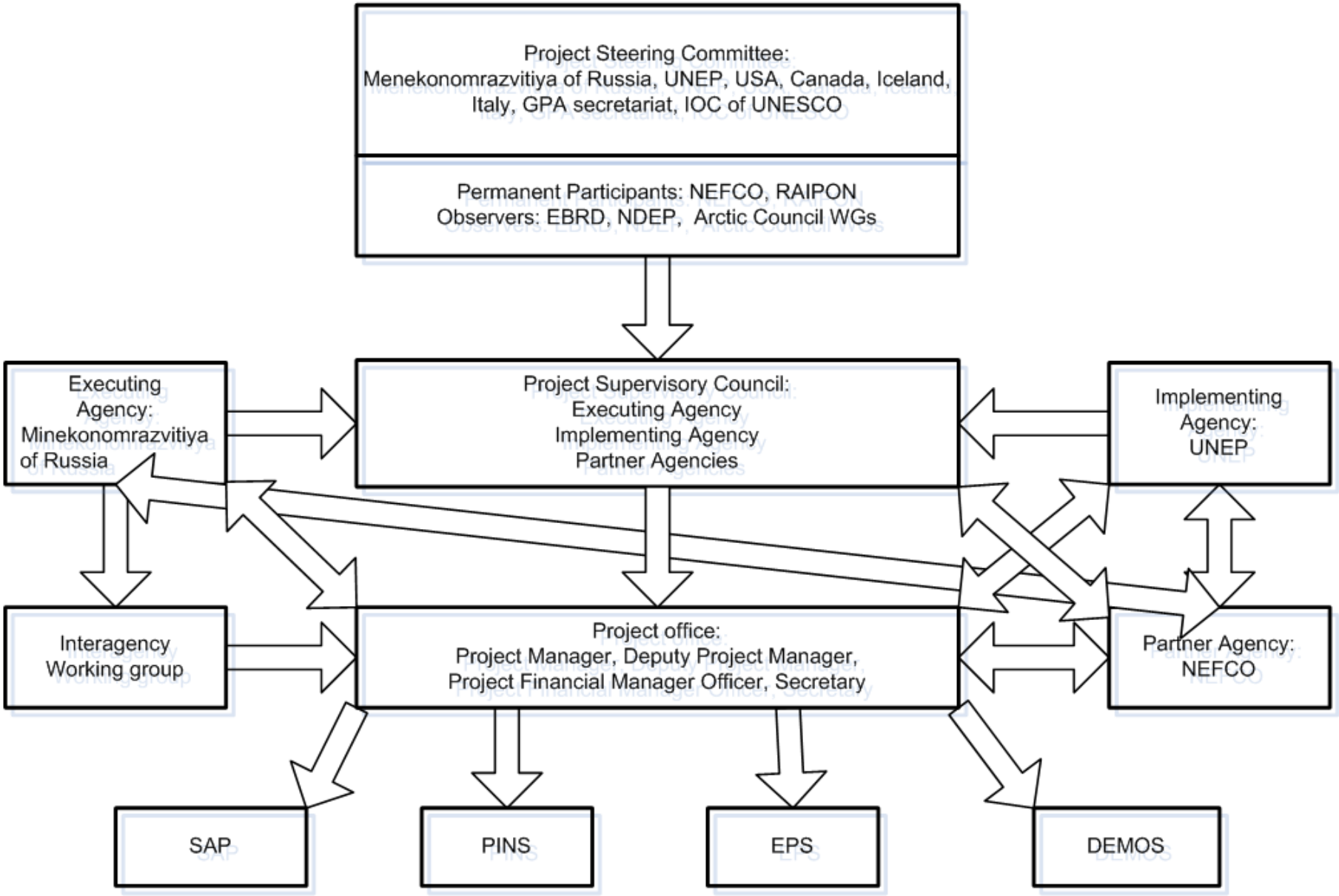
4. BASES-FJL-2. Development of technology of clean up from hazardous waste of the area of decommissioned sites of the Russian Federation Ministry of Defense in the Arctic by the example of Alexandra Island of Franz Josef Land Archipelago. Phase 2. - contract signed, advance payment cannot be paid – waiting for getting a tax-free status for implementation of this project but project implementation has been started already at risk of a contractor.

This pilot project addresses serious environmental security threats posed by large contamination sources located at three abandoned military sites in Franz Josef Land. Basing on the Phase 1 outcomes the project objective is to develop elements of infrastructure that will address these contamination threats and reveal in practice the whole chain of operations for collection, cleaning, compaction of metal drums follow up with safe destroying of hazardous contents of the drums and removing them from archipelago with subsequent recycling in mainland. Partially supported by EPA USA

5. PESTICIDES. Demo project on obsolete and prohibited pesticides destruction in Russian Federation – delay with the project commencing due to process of state expert examination and licensing of equipment for destruction of pesticides according to Russian standards is to be finalized by the end of the 1st quarter 2010.

The objective of the demo project is to demonstrate elimination of outdated pesticides, which includes repackaging of pesticides into the UN-approved bags, transportation of pesticides to the incineration place, obtaining permits for transportation and temporary storage, equipment evaluation for the environmentally sound destruction of pesticides, chemical analyses of pesticides designated for destruction; monitoring and evaluation of air emissions and discharges and similar activities. Partially supported by EPA USA.

III PROJECT ADMINISTRATION AND CO-ORDINATION



IV ADMINISTRATIVE ISSUES DURING THE REPORTING PERIOD

Project Office ensured that all Project activities are carried out in compliance with the original Project Document and the instructions of the Steering Committee, Executing and Implementing Agencies. Detailed quarterly reports were prepared and submitted to UNEP/DGEF by the Project Office in a timely manner. Details of expenditures were reported on an activity-by-activity basis, in line with Project budget codes as set out in the Project Document using the format given in Annex XVI (Quarterly Expenditures Report) of the Project Document.

A new edition of benchmarks where suggested by EA which were reviewed by StC members at 3rd meeting in Helsinki. The following benchmarks has been approved and adopted as major outcomes for the Project Phase I:

1. Project Management: Project implementation structures established, including Project Office, Project Steering Committee, Project Supervisory Council and Inter-Agency Working Group.
2. Strategic Action Programme: Strategic Action Programme fully developed and endorsed by relevant stakeholders. Diagnostic analysis document prepared and ready for publication in English and Russian.
3. Pre-investment Studies: Hot spots list updated and finalised. Pre-investment studies successfully carried out and interest of financial institutions preliminary confirmed.
4. Improving Environment Protection System: Report on gap analysis of the environmental legislation applicable to the Russian Arctic with recommendations on improvements prepared and submitted to the Russian Government.
5. Demo and Pilot Projects: Demonstration activities in accordance with the original Project Document fully implemented. New demonstration and pilot projects approved by the Steering Committee prepared and implemented.
6. Project Phase I Evaluation: Project results for all components evaluated by Interagency Working Group. Independent evaluation of the project completed satisfactory implementation of the Project Phase I.

The benchmark #1 - Project Management was successfully achieved.

The benchmark #2 - Strategic Action Programme (SAP) has been achieved: Strategic Action Programme fully developed and endorsed by relevant stakeholders (approved by Maritime Board at the Russian Federation Government). As far as Diagnostic analysis concerned the work on it is ongoing and the document will have to be completed in May 2010.

The benchmark #3 - Pre-investment Studies (PINS). Hot spots list is updated and finalised. Pre-investment studies in all 3 Arctic sectors (western, central and eastern parts of Russian Arctic) are finalised and interest of some financial institutions preliminary confirmed. A set of 16 individual investment projects for western, central and

eastern Russian Arctic sectors are prepared and submitted to EA. Additional work with these projects is required.

The benchmark #4 - Improving Environment Protection System (EPS). Draft documents were submitted to EA in December 2009. Additional work with these documents is required

The benchmark #5 - Demo and Pilot Projects (DEMOS) Demonstration activities in accordance with the original Project Document successfully finalised. New demonstration and pilot projects approved by the 2nd and 3rd Steering Committee meetings are in the pipeline. Some of demo and pilot project have been completed already, the other will be finished by October 1, 2010.

The benchmark #6 - Project Phase I Evaluation. As per agreement reached in 3rd StC meeting in Helsinki the Project mid-term review was undertaken. To date MTR fully completed and submitted to UNEP. Interagency Working Group will evaluate Project results in the middle of 2010 follow up by independent evaluation on the Project Phase I completion.

Among other activities performed by the Project Office within Project Management component are the following:

- Organisation variety of meetings and workshops among them: meetings with regional authorities, meetings with key representatives of the lead cooperating organizations (LCO) for demo/pilot projects and PINS implementation in western, central and eastern Russian Arctic regions and stakeholders, TT EPS meetings, Workshop on environmentally safe management of hazardous wastes.
- Packages of tender and contract documentations to select LCO for 5 demo and pilot projects were prepared. ToRs were prepared and agreed with Executing Agency. 6 domestic tenders were also held to select individual consultants for further DA elaboration.
- Collection of video materials in Decommissioned Military Base near Pokrovskoe settlement, Arkhangelsk Region (ONEGA-BASE) and preparation of video clip.
- Increasing awareness on the Project: Project website (http://npa-arctic.ru) has been updated and became more informative: materials obtained from demo and pilot project teams were reworked and included in both Russian and English versions of the web pages. All official Project documents was uploaded and all Projects events was highlighted on the Project website. The website maintenance has being fulfilled on the permanent base.

  Other activities:

  - preparation of meeting of Executing and Implementing Agencies with the Project office (September 2009, Moscow);
  - participation with report in PAME Workshop (Oslo, Norway September 2009);

- participation with exhibition in Fifth GEF Biennial International Waters Conference (Cairns, Australia, 26-29 October 2009).
- participation with report in International Scientific and Practical Conference "Integrated Ecosystem Management in the Russian Arctic: Challenges and Prospective" held by UNEP/JFEF Project ECORA.

Project Manager leaved the Project Office at the end of December 2009. Announcement on competition to fill the vacancy was posted in central Russian newspaper "Rossiyskaya Gazeta" on December 30, 2009 as well as to corresponding web-sites. Until the vacancy will have been filled Deputy Project Manager acts as PM.

V CONCLUSIONS

The success of the NPA-Arctic Project depends on degree of involvement of top-level stakeholders from governmental institutions at federal and regional level, the implementation of the activities at the regional level as well as on proper channelling contributions from donors and from the Russian stakeholders for the project needs. Bearing this in mind, during the reporting period for the project implementation Project Office continued to pay special attention to defining clear procedures of project management mechanisms and administrative procedures. Special attention was also given to establishing of good working relations with the Russian Arctic regional authorities.

The success achieved to date in the Project implementation is directly related to sustained political commitment at federal and regional levels, ensuring the adequate extent of the project ownership, to the broad-based public support, including support of indigenous communities it has received as well as to closer cooperation with existing and planned programmes and projects in Arctic region. The maintenance of this support requires effective dissemination of accurate information about the objectives, achievements and challenges of the project. The broad support is critical for mobilization of domestic resources and obtaining commitments from municipalities, local NGOs and companies of all forms of ownership. A great deal of efforts has been undertaken in this direction by PO, EA and IA together with companies and organizations involved in PINS, demo and pilot projects implementation. These companies and organizations have been spreading information on their achievements on PINS, demo and pilot projects in frame of NPA-Arctic Project in local mass-media. However, it should be noted that the dissemination of information on project implementation requires further improvement.

Project has being received full support and technical backstopping by the Executing Agency (Russian Ministry of Economic Development) that assures that project recommendations will be taken at the highest level possible and future interventions will be sustainable. Provisions of SAP document were taking into account in FTOP "The World Ocean" for 2008-2012, in draft Strategy of development and safeguarding of

national security in the Arctic zone of the Russian Federation for the period till 2020 and in other documents related to the Russian Arctic. .

Amongst other lessons learned the following should be noted:

Institutional arrangements, including project governance

- Closer cooperation amongst existing and planned programmes that address the impact of various sources and activities on the Arctic marine and coastal environments is needed. Information on the Project was presented at the Arctic Council ministerial meetings as well as to Senior Arctic Officials, PAME Working Group and on the Fifth GEF Biennial International Waters Conference. The work of several Arctic Council Working Groups, first of all ACAP, is very pertinent to the NPA-Arctic and Project Office should consider how these sources of expertise could be best incorporated. Provisions of SAP document were used in preparation of Russian proposals for the PSI of the Arctic Council which has being elaborating in Russian governmental institutions.

Follow-up action: Establish closer co-operation with existing initiatives

- Key federal and regional bodies' technical support in the process of finalisation of diagnostic analysis of current state of Arctic environmental situation is of very high importance. Regional and federal authorities provided necessary information (copies of latest reports on environmental protection for the regions, other information specifically requested by the Project Office). Scheduled meetings to the Arctic regions could be useful to fill the gaps in.

- Information on the project including visualisation should be further disseminated at the widest possible levels through the project web-site as well as mass-media, including regional sources. Formal and informal communication mechanisms for the exchange of information should be further developed. Scheduled meetings in the Arctic regions will provide further impetus to this process. Information on NPA-Arctic and first of all on SAP is planned to be presented in SAOs of the Arctic Council and in ACAP

Follow-up action: To update the web-site allowing interactive communication and providing the basis for long-term dialogue and for the continuous participation of regional stakeholders in the project. To use regional sources of information to provide broader dissemination of information on the Project.

Financial management and co-financing

- As a rule reports from Project subcontractors and consultants require revision after inspection by the Project Advisor. It leads to overwork of the Project Advisor and retardation for payments to contractors. Follow-up action: Taking into account that reports cover different areas it is recommended that Executing Agency in some cases use external expertise for evaluation of the reports sent to the Project Advisor by PO for comments. PO should also more careful inspect documents before submitting them to EA.

- Further work is needed for involvement of key stakeholders from Arctic regions and industrial companies to increase their commitments, obtaining necessary information on regional and private co-financing and their involvement in preparation of investment projects.

Follow-up action: PO and PINS contractors established good working ties with regions and industrial companies of all forms of ownership in western, central and eastern parts of Russian Arctic. Several meetings in the Arctic regions have been held already. However further work with stakeholders is needed for dissemination of project results.

The following advantages can be formulated:

- Sustainable political commitment at federal and regional levels ensuring the adequate level of project ownership;
- Broad public involvement including organizations of indigenous people of North;
- Formal and informal communication mechanisms for exchange of information, which have been developed;
- Institutional procedures and structures have been established for long-term dialogue and for the continuous participation of multiple-stakeholders.
- Creation and continuous updating of the Project website that helps in the Project publicity: http://npa-arctic.ru . The website can and should become a forum on Arctic environmental issues.
- Visualisation of the Project activities.

The following disadvantages or weaknesses can be noted:

- Relatively small involvement at this stage of industrial companies of different ownership in the process.
- Insufficient capacities of the Project Office staff. Project Office organizes and coordinates all the activities, prepares all ToRs for task teams, working groups, individual consultants, website maintenance etc. More to it, all these documents should be prepared in English and Russian, which require additional resources and time. More active involvement of working groups' co-ordinators in preparation of ToRs for consultants and meetings of working groups is needed.

The following activities have to be completed till the end of Phase I

- To finalise the Diagnostic Analysis of Environment of the Arctic Zone of the Russian Federation in Russian and English and to prepare it for publication;
- To finalise the PINS component in Western, Central and Eastern parts of Russian Arctic: complete preparation of the selected EIP (with preliminary confirmation of interest from financial institutions) and widely distribute them among prospects;

- To prepare and to hold an Investment Forum with participation of national and international potential investors;
- To finalise all the documents prepared under the EPS component and to submit them to the relevant Russian authorities;
- To finalise started already demo/pilot projects (FJL-2, TIKSI-2, ONEGA-BASE);
- To find contractors and to implement (to October 2010) approved by STC demo/pilot projects which are not started yet (RITEG-KONDRATYEV, PESTICIDES);
- To prepare and to implement (to October 2010) a new demo project provided it will have been approved by STC meeting;
- To elaborate Project Phase II idea to be submitted to GEF 5;
- To evaluate Project Phase 1 results at the IAWG meeting;
- To prepare all required materials for STC closing session (Phase I).

Final conclusion:

The Project Office considers that the Project Phase I can be successfully completed in October 2010, to the date fixed by the 3rd Project Steering Committee meeting (March, 2009, Helsinki) what would demand the intensive work of all members of the Project Office personnel.

Annex IV

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/5

Item 2.4 of the Agenda

Diagnostic Analysis of State of the Environment in the Arctic zone of the Russian Federation

(Summary)

Prepared by:	Project Office in cooperation with Executing Agency
Status:	For approval by the Project Steering Committee

DIAGNOSTIC ANALYSIS STRUCTURE

Environment of the Arctic Zone of the Russian Federation (the Russian Arctic): Problems and Prospects

Introduction

In accordance with the Basic Principles of the Arctic Policy of the Russian Federation for 2002 and beyond approved by the Presidnet of the Russian Federation on 18 September 2008, the Arctic Zone of the Russian Federation (the Russian Arctic) means part of the Arctic comprising:

- all or parts of the territories of the Republic of Sakha (Yakutia), Murmansk and Arkhangelsk oblasts, Krasnoyarsk Krai, and the Nenets, Yamalo-Nenets, and Chukotka Autonomous Okrugs defined by the State Commission on Arctic Affairs under the USSR Council of Ministers, April 22, 1989;

- the lands and islands named in the Decree of the Presidium of the USSR Central Executive Committee of April 15, 1926, “On Declaration of the Lands and Islands Located in the Arctic Ocean as Territory of the USSR”; and

- the internal marine waters adjacent to these territories, lands, and islands of the Russian Federation, as well as the territorial sea, exclusive economic zone, and continental shelf of the Russian Federation, within the boundaries of which Russia enjoys sovereign rights and jurisdiction in accordance with international law.

The Russian Arctic is characterized by ice cover, continuous permafrost and forest-free tundra. The Russian Arctic environment depends both on the internal and external conditions and factors. In order to identify and assess the environmental concerns in the Russian Arctic, it is necessary to take into consideration all the factors of man-induced pollution including from sources beyond this zone. In this regard, of priority importance are the areas of the Komi Republic and Khanty-Mansiysky Autonomous Okrug adjacent to the Russian Arctic. These areas are characterized by intensive economic activities and numerous pollution sources with transboundary impacts on the Russian Arctic environment due to the atmospheric transport and river runoff. Analysis of the environmental status of these territories is needed to identify the cause-effect relations of the problems and factors that define and characterize the environmental status of the Russian Arctic.

The diagnostic analysis of the environment within the Russian Arctic and adjacent areas of the Russian North focuses on the selection of policies and measures aimed at conserving the favorable environment in the Russian Arctic. At the same time, the diagnostic analysis of the environment could be viewed as part of the global diagnostic analysis of the environment across the entire Arctic.

The diagnostic analysis of the environment carried out in the Russian Arctic is a unique activity because it was based on an integrated review of the full set of

problems and factors that characterise the status of all the environmental components in this region. Until recently, the methodology of the diagnostic analysis has been used to assess individual problems and components of the environment.

Identification of the priority environmental problems in the Russian Arctic was based on the approaches and criteria adopted in various diagnostic studies including the GEF Methodology and Global Assessment of International Waters, Methodology of the World Bank for the study of the past environmental damage, etc.

The diagnostic analysis of the environment in the Russian Arctic includes (i) the detailed assessment and ranging of the environmental problems by priorities; (ii) the cause-effect analysis of the problems and factors that define the status of the environment; (iii) identification of the basic, direct, and sectoral causes of environmental problems and development – on this basis- of the potential policies adn action plans aimed at conserving the favorable environment in the Russian Arctic.

Chapter 1

Physical and Geographic Description of the Russia Arctic

The total area of the Arctic zone of the Russian Federation (AZRF) exceeds 6 million square kilometers, including the area of the Arctic sea space within the territorial sea and the exclusive economic zone of the Russian Federation – over 3 million square kilometers. The Arctic seas of Russia include the Barents, White, Kara, Laptev, East Siberian, Chukchi and Bering seas. The land territory of the Russian Arctic accounts for 18% of the entire country's territory.

There are some specific features that make the Arctic different from other northern parts of the Russian Federation:

- Too harsh nature and climate conditions (low temperatures throughout the year, the long polar night and the long polar day, seas and river estuaries ice-bound for more than half a year, frequent magnetic storms, the thinning ozone layer, strong winds and blizzards, thick fogs, monotonous landscapes in Arctic deserts and tundra, perennially frozen soils lying close to the surface – permafrost), generally overwhelming for humans;
- The natural environment is very vulnerable, ecosystems are not sustainable enough, and can be damaged easily as a result of human impact, and it takes a very long time for them to recover;
- Sparsely populated, it has just a few densely populated areas, with virtually no transport infrastructure in place. However, there are some major towns, mining industry centers and sea ports in the Russian Arctic, too.

- The Arctic has an important part to play in that how the Northern Hemisphere climate is formed and how environmental equilibrium is maintained on the whole planet.

Common characteristics of the Arctic region include low temperatures in summer, a lengthy (at least 7-8 month long) cold winter, dominance of precipitation over evaporation, omnipresent permafrost, high water supply, especially so in the south, high seasonal differences in solar radiation inflow, as the polar day and night alternate. Drift ice covers much of the Arctic sea areas all the year round (around 11 million km^2 in winter and around 8 million km^2 in summer). Severe climate results in low temperatures in the surface seawater layer – close to -2°C throughout the year. The great Siberian rivers (the Northern Dvina, Pechora, Ob, Yenisei, Lena, Indigirka, Kolyma, etc.) discharge into the Arctic basin, draining huge areas, including well-developed ones and thus capable of contributing pollutants both soluble and insoluble.

Chapter 2

Economic and Geographic Description of the Areas, Which are Wholly or Partly within the Russian Arctic, as well as of the Republic of Komi and Khanty-Mansiysky Autonomous Okrug

The basic structure of the Russian economy was developed during the Soviet era with economic planning as a core instrument. As a consequence of planned public industry development, resource extraction and processing have to a large extent been organized in combinates that are vertically integrated and produce multiple outputs. The extractive industries that are pre-dominant in AZRF have this historic origin, and economic statistics have been compiled in formats associated with that institutional framework.

Russian government long-term strategy aims at enlargement of the Russian Arctic natural resources basis, which will be able to provide to a large degree Russian demand for hydrocarbons, water biological resources and for other types of strategic materials, Raw material extraction and processing industries that produce large amounts of solid, liquid and gaseous wastes used to account for about 70% of all companies operating here.

Now the leading economic sector in western part of the Russian Arctic is industrial production, which accounts for over 60% of goods, and 63% of main production assets made in the region. Key industries include fuel production and power generation, as well as smelting, accounting for 40 and 15% of industrial output respectively. The region contains unique stocks and probable reserves of copper-nickel ores, tin, platinum less-common metals, and rare earth elements, as well as large stocks and probable reserves of gold, diamonds, tungsten, mercury, ferrous metals, optical raw materials and ornamental stones. The main mineral resources of the central and eastern parts of the Russian Arctic are located in the following provinces:

- Taimyr-Norilskaya (copper-nickel ores, platinoids);
- Maymecha-Kotuyskaya and Udzhinskaya (phosphorus, iron, niobium, platinoids, diamonds);
- Taimyr-Severozemelskaya (gold, mica, molybdenum, tungsten, chrome, vanadium, polymetals);
- Anabarskaya and Yakutskata (diamonds, iron, rare metals);
- Verkhoyanskaya and Yano-Chukotskaya (tin, gold, mercury, tungsten, copper, molybdenum, silver, platinoids, polymetals).

The continental shelf and archipelagos in the Russian Arctic contain stocks and probable reserves of almost all the categories of stream tin, gold and diamonds, silver, manganese, polymetals, fluorite and ornamental stones, titanium and zirconium

Industrial production

The outlook for economic development in the region is determined by its natural resource potential and the growing demand for raw materials in both domestic and world markets. The depletion of mineral fields in the mid-latitudes of the country and the associated price increase makes it more and more economic to exploit resources in polar lands and seas. This explains the growing interest on the part of Russian and foreign corporations in the fields found in the central and eastern territories of the region.

The determining factors for economic development of the Russian coast of the Barents Sea region are the exploitation of natural resources. The main branches of industry in this and adjacent regions are the following:

- Mining industry and metallurgy (Karelia, Murmansk Region);
- Forestry, wood-processing, and pulp and paper industry (Karelia, Arkhangelsk Region);
- Oil and gas industry (Arkhangelsk Region, Nenets Autonomous Region);
- Fishery and fish-processing industry (Murmansk Region, Arkhangelsk Region, Nenets Autonomous Region);
- Electric power production (Murmansk Region);
- Production of building materials (Karelia, Murmansk Region).

The Murmansk and Arkhangelsk regions house shipbuilding enterprises, including those strategically important for the entire country. The ports of Murmansk and Arkhangelsk are among the largest ports of Russia.

The Murmansk Region provides:

- 100% of the total Russian production of apatite and nepheline concentrate;
- 8.5% of iron-ore concentrate;
- 17% of copper;

- 45% of nickel;
- 11.5% of fish products;
- 2% of electric power (the share of the branch in the northwest Russia is 20.8%).

The major industrial branches in the Murmansk Region are non-ferrous metallurgy, food industry, chemical industry, and electric power production. The backbone of the Murmansk Region's economy is mining and metallurgy. The Murmansk Shipping Company is the only shipping company in Russia able to work in the Arctic all year round. Possessing a unique fleet of nuclear powered icebreakers, it enables yearly navigation along the Northern Sea Rout.

The forestry sector is the leading branch for the Arkhangelsk Region. In second place is the electric power production.

The oil industry is the backbone for the Nenets Autonomous Region; 4 million tonnes of oil were extracted in the region in 2000. In general, the Nenets Autonomous Region occupies second place in oil production in Northwest Russia (34.1%). A large volume of construction work in the region is linked to the exploitation of oil deposits. Some estimates for the Nenets AO predict that economic growth will mainly rely on the development of hydrocarbon stocks.

The Yamalo-Nenets AO has the largest gas fields in the developing world (every fourth cubic metre of all the world's gas is extracted from this area). There are 205 hydrocarbon fields located in the autonomous district, including world's largest.

The outlook for economic development up north of Krasnoyarsky Kray is related to the development of the Norilsk industrial complex, which provides up to 20% of the world's nickel and cobalt, 65-70% of the world's copper and essentially 100% of the world's platinum metals. The northern Krasnoyarsk region, which includes Taimyr, contains oil and gas regions (Yenisei-Khatanga, Anabaro-Khantanga and others) with estimated oil resources of about 3.2 000 billion tonnes and about 14.6 billion km3 of gas and condensate. Gas extracted in this region now mainly supplies the Norilsk metallurgic plant (Gramberg et al. 2000).

The oil and gas potential of the arctic regions of the Republic of Sakha (Yakutija) and Chukotka is not well known. The estimated supply in the Bering Sea basin (which adjoins Chukotka) is more than 16 000 billion tonnes of oil equivalent. Among the most promising issues for the development of the Chukotski AO is the extraction of non-ferrous metals: gold (up to 30 tonnes per year), silver, tin, tungsten, and coal (up to 800 000 tonnes per year).

With the development of extracting industry in nearly the entire Russian Arctic region it is expected a growth of production volume in transporting, services sectors in traditional spheres of living of aborigines.

Power Production

Most Arctic areas use decentralized power supplies. Local needs in power are normally met by local power plants that mainly use fuel shipped from elsewhere.

Key deficiencies in the sector also include a outdated structure of power generating capacities, low technical level, poor equipment adaptability to heavy operation conditions, unsustainable power supplies (especially as far as decentralized power supply is concerned). The state of repair and technical level of existing power generating sites calls for urgent intervention. Over half coal mining machinery needs replacement, as do 30% of gas pumping stations. Around two thirds of equipment in oil industry is 50% worn out, as is over one third of that in gas industry. About half all main oil pipelines and over 40% of all gas pipelines have been in operation for 20 to 30 or more years.

One of the reasons behind lack of coordination in supplying power to industries and homes is a considerable number of small diesel-fired power stations in use across the Arctic.

Agriculture

Agriculture is a largely sideline economic sector and includes animal farming (reindeer, milk cattle, pigs, poultry), vegetable growing (potato, greenhouse vegetables), and feed production. Due to its limited scale, agriculture, less reindeer farming, has no adverse environmental effects over any large areas. Overgrazing, however, affects to some extent up to 30% of the total Russian Arctic and Subarctic area. The pollution of lichens (along with fires and overgrazing) results in an annual loss of 2-3% of winter reindeer feeding grounds, which undermines feed resources available to both wild and domesticated reindeer, thus affecting traditional economies of many native peoples in the Arctic.

Milk and meat livestock and poultry farming, vegetable and potato growing are quite popular in western parts (Murmansk and Arkhangelsk oblasts), while fur animal farming (blue fox, silver fox, mink), fishing, killing of fur (polar fox, sable, squirrel, ermine) and sea wild animals are more common in Central and Eastern parts of the Arctic.

Fisheries, as part of agriculture, merit special attention in Arctic regions, since fish products account for more than 20% of animal protein consumed in Russia, and over 45% of that in the Arctic. There are lower landings of walleye pollack, crabs of all kinds, and navaga. At the same time, there have been higher landings of salmon, flounder, halibut, rasp, shrimp, as well as species with no limitations placed on their harvesting. The main reasons for lower fish and sea product landings included: reduced quotas compared to the previous year, worn-out fishing boats and fish processing equipment, and depleted stocks of commercial fish species.

Forest industry

Forest industry is one of the most important uses of nature in northern taiga areas, and covers largely sub-arctic forests and open woodlands. According to the Russian Federation Forest Fund a few years ago the Sub-arctic region had an annual felling area of 0.5 - 1 thousand km^2. Sub-artic forests perform important environmental functions not only region-wide, but also play a part in forming the climate in areas further south, as they prevent cold Arctic winds from reaching there.

Transport

The Northern Sea Route (NSR) is a very important part of the Russian Artic economic system and a key transport link between the Russian Far East and western parts of the country. The NSR has all key Siberian river transport arteries united in a single transport network. For some Arctic areas (Chukotka, Arctic sea islands, and some settlements on the coast of Taimyr peninsula, maritime transport is the only means of cargo carrying and delivering vital supplies to the populations. At the same time most of the maritime transport sector is composed of numerous transport firms and organizations that pursue their group-wide or private interests. The only exception is the nuclear-powered icebreaker fleet. Essentially, the Government has surrendered its functions as a coordinator of transport services in the macro region. Transport infrastructure of NSR requires serious modernization. Most of the 14 sea ports are in need of reconstruction. Piers in most Arctic ports are in a decrepit state, and there is a need for both their capital repair and increasing depths at piers to be able to handle modern ships. Aircraft and helicopter stocks need renovation as the only means of year-round inter- and intra-regional cargo and passenger transport, and a significant portion of sea and river fleets needs to be replaced, too. Also, there are not enough trucks designed to operate in a permafrost-dominated environment that could be used for cargo carrying inside Arctic regions.

The amount of cargo transported along the NSR, now 4 times as small as it used to be, remains to be at a critical low. The huge drop in cargo flows has caused the Arctic transport system to deteriorate dramatically.

Undeveloped transport infrastructure, the fact that most types of transport can be used only a limited time during the year, long distances and complicated route patterns have resulted in transport expenses accounting for 70-80% of the cost of goods produced in the Arctic (while the rest of the country has an average of about 18-20%).

A significant growth in both sea and river navigation in this region is expected.

One of the main features of the Russian part of the region is insufficient development of the railway and motor transport infrastructure; the density of the road net decreases both from west to east and from south to north.

Chapter 3

Current Geoecological Status of the Russian Arctic and Human-Induced Impacts on the Arctic Ecosystems

Intense economic activity with prevalence of resource exploration sector has contributed to deterioration of the environment in virtually all economically developed parts of Russian Arctic. The most common environmental problems in this region include air, surface water and ground water pollution, neutralization and utilization of toxic industrial waste, radiation safety, degradation of soils, depletion of vegetation cover and wildlife resources. Negative anthropogenic stress on the environment is unevenly distributed over the territory of Russian Arctic. Pollution is mostly concentrated in actively developed coastal territories, urban and industrial agglomerations. So called

environmental “hot spots” where pollution level of natural components many times higher than consent limits appeared in these regions and as a consequence, ecosystems degradation, population health deterioration, biodiversity lost, and life support system distress occur.

Environmental risks and threats emerge in the result of acceleration of economic development of Russian Arctic, changes of economic strategies and tactics, and expanding activities of private companies.

Narrow and socially-oriented interpretation of legislation that regulates development of North territories often causes disregards of environmental standards, resource and land laws. Management of such risks often requires innovative regulatory and economic mechanisms. These risks include:

- Excessive and uncontrolled exploitation of land resources;
- Expansion of pockets of pollution (around industrial sites, settlements and sources of impact air pollution;
- Intensification of pollutant transfer in troposphere;
- Biota and ecosystems in the areas of intensive technogenic stress lose their potential to restore natural equilibrium after disturbances;
- The north boundary of forested lands gradually shifts down south and to large river valleys in the areas of intensive technogenic stress in Russian Arctic;
- Transformation of river, lake and estuary ecosystems;
- Transformation of sea shelf and coastal ecosystems in Russian Arctic;
- Other factors.

All these problems are aggravated by monopolistic character of economic development of natural resources of Russian Arctic. Usually, only one resource-extracting company dominates in regional economy.

Chapter 4

Extent of Environmental Pollution on Land and Water Areas, Which are Wholly or Partly within the Russian Arctic, as well as of the Republic of Komi and Khanty-Mansiysky Autonomous Okrug

4.1. Introduction

4.2. Sources of Pollution in the Russian Arctic and Pathways of Pollution Migration into the Marine Environment

The main sources of environmental pollution in Russian Arctic include mining industries, fossil (hydrocarbon) fuel extraction, seaports, sea transport, and energy sector.

4.3. Extent of Pollution by Pollutant Types

4.3.1. Role of Hydrometeorological Factors in Establishing the Pollutant Concentration Patterns

Air

Arctic atmosphere contains fewer pollutants than Arctic soils, bottom sediments and natural waters. However, atmospheric transport of pollutants is the fastest way of transfer of pollutants from their sources to the Arctic. Usually it takes from several days to several weeks. About two-thirds of Arctic pollution by heavy metals originates in Europe and North America. Also, 40% of sulphur comes to the Arctic from industrialized regions of Eurasia, 20% of sulphur comes from North America, and the rest comes from South-East Asia, mainly from China.

Along with long-range transport of pollutants, there are local sources of pollution in Russian Arctic. These include metal works, cement plants, power stations, open pit mining, oil and gas exploration, which affect local ecosystems within economically developed parts of Kola Peninsula, Archangelsk and Vorkuta Oblasts, Norilsk, and some other regions.

Surface and Ground Waters

Russian Arctic is characterized by large volumes of river flow. Total river flow is 3000 cubic kilometers per year, or 8.5% of global river flow.

Low population density and relatively low level of economic development in Siberia limit the scale of anthropogenic influence. Only 1% of river flow is drawn for industrial and communal needs. This proportion is projected to increase less than two-fold by 2025.

Recent research of AMAP and other investigations showed that the level of contamination of Arctic rivers by main pollutants did not exceed global range. The latest high-precision analyses of water samples from the lower ranges of the largest Siberian rivers (Ob, Yenisei, Lena) showed that concentrations of heavy metals did not exceed background levels. However during winter time the pollutants are accumulated in the snow mantle in big amounts over the whole catchment basin and when snow melt down they enter to the Arctic seas with river runoff.

Very high, even catastrophic levels of pollutants are typically observed in the rivers and lakes near large industrial centers. Water and bottom sediments of such rivers and lakes are highly polluted by heavy metals, oil products, benzpyrene, and sometimes by radio-nuclides.

Still, most Arctic rivers and lakes remain relatively clean. On this soothing background, there are several extremely polluted large and small rivers and lakes.

There is very few data about condition of ground waters in the Arctic. Chemical composition of ground waters is similar to that of big rivers in the winter season, when they are fed by ground waters. Estimates show that ground waters exert little influence on Arctic environment, if we compare them with surface waters.

Pollution of Arctic Seas

The open waters of the Arctic seas are clean, with the concentration of pollutants low or absent, and the state of the pelagic ecosystems as a whole is good. However, some of the shelf regions and essentially most of the coastal zones are considerably polluted and the state of a number of bays, gulfs and estuarine areas is as critical or even catastrophic. The ecological situation in these regions is aggravated by the presence in the bottom sediments of high concentrations of numerous contaminants of anthropogenic origin, which has accumulated for many years. The character of marine pollution is specific to each of the regions of the Arctic seas and depends on the degree of anthropogenic loading and the specific features of pollution sources. The main contribution to pollution in the Russian Arctic region results from non-point sources such as river run-off and long-range atmospheric transport as well as localised sources in the high latitudes or directly on the Arctic coast. Given their large catchment areas and run-off volumes, northern rivers exert a powerful influence on the character and level of pollution in the Arctic seas, particularly in the estuarine and shelf regions. More than half of the organic toxics (including phenols and chlorinated hydrocarbons), as well as nitrogen and phosphorus compounds, and the bulk of oil pollution that are exported from the Russian territory are carried by river flow to the Arctic Ocean. Practically all petroleum hydrocarbons and chlorinated hydrocarbons are transported to the Arctic seas by the run-off from the Ob and Yenisei rivers.

Local coastal sources determine the specific distribution of pollution and its severity. Local fluxes of anthropogenic pollutants are mainly formed from the atmospheric emissions and wastewater produced by large cities, public services, industrial zones and transportation. The greatest number of point sources of contaminants is centred in the western Russian Arctic in the territories of the Murmansk and Arkhangelsk regions.

Soils and Land Resources

There are hundreds of square kilometers of contaminated soils in Russian Arctic. Around Norilsk Mining and Metallurgy Combine, concentrations of heavy metals in soils, moss and lichen are 150 – 200 times higher than MAC. Considerable quantities of oil hydrocarbons have accumulated in the soils around oil producing centers in the Arctic. Concentrations of OH vary from several grams to hundreds of grams per kilogram of soil. Direct destruction of permafrost typically occurs at all industrial sites, located in permafrost zone.

Transboundary Transport of Pollutants

Analysis of long-range transboundary flows of pollutants should be an integral part of environmental assessment of Russian Arctic. There are sources of pollutants in lower latitudes (the USA, Canada, Norway, Denmark/Greenland, Sweden, Finland) on the shores of the Atlantic, which supply sustainably high levels of POPs to Arctic region, both airborne and waterborne. It has been found that about two-thirds of heavy metals come to Arctic from industrial sources in Europe and North America.

Airborne and waterborne transport of pollutants contributes to wide proliferation of pollution in Arctic Ocean. Waters of Arctic seas not only wash off the shores of Arctic countries, but also intensely transport pollutants to the Atlantic through Bofort Strait and Bering Strait.

4.3.2. Heavy Metals

Heavy metals have been detected in the air, precipitation, seas and rivers, bottom sediments, soils, freshwater and seawater organisms in the Arctic. Presence of heavy metals in the air and precipitation is explained by atmospheric transport from industrial centres. After being transported to the Arctic, heavy metals are deposited on vegetation, snow cover, and in Arctic seas.

4.3.3. Oil Pollution

Arctic is one of the regions, which suffer from long-term and intense oil pollution. Accumulation of oil in the environment is facilitated by low air temperatures, long polar night, thick ice cover, and other factors. Oil accumulates in ice-free patches and under ice cover. Oil may exert negative influence on biota for much longer periods in the Arctic than in moderate climate. The territories near the borders of ice-covered zones are especially vulnerable to oil pollution. Oil spills directly affect sea organisms, and may have catastrophic consequences. Oil spills mainly happen during oil transportation and extraction, and to lesser extent, during surveillance and oil explorations.

4.3.4. Persistent Organic Pollutants.

Production and utilization of POPs (PCB, DDT, Hexachlorcyclohexane (HCCH), chlordane and toxaphene) have been banned or limited in several countries, but these substances are still produced and applied in large amounts elsewhere all over the world. Although there are no large sources of these pollutants in the Arctic itself, they come to the Arctic with river waters, via atmosphere and ocean currents from industrialized regions. High concentrations of POPs are routinely detected in fat tissues of mammals, topping food chains (white bear, seal, whale). This causes special concern of local population, because these pollutants may enter human organisms with lipids that people receive with food products made from these mammals.

4.3.5. Acidification.

The most important acidifying substances are sulphur-containing and nitrogen-containing compounds. They are emitted by vehicles, industrial sources (particularly by nonferrous-metals industry), heat-and-power plants, which are fired by coal and oil. These compounds are transported by air over long distances in the Arctic, especially during winter season. Sulphur and nitrous emissions from industrial sources in the Arctic also play important role. Acidification creates serious environmental problems in the regions adjacent to industrial centres. Cumulative effects of acid rains and climatic stresses increase risks for Arctic vegetation. The degree of acidification of Arctic environment is yet to be defined, but Arctic haze and drying of forests indicate that this problem does exist.

4.3.6. Radioactive Contamination

According to international experts, radioactive pollution of the Arctic is mainly caused by nuclear tests in the atmosphere, which were conducted in 1950s and 1960s. Another source of radionuclides is Chernobyl accident (1986). Radionuclides with long half-lives, including Stroncium-90 (half-life is 29 years) and Cesium-137 (half-life is 30 years), pose the most concerns. Arctic vegetation, especially lichen, actively accumulates these radioactive substances, and they enter the food chains. Other sources of radioactive pollution include emergency emissions from nuclear energy installations and nuclear transport, storage and disposal of radioactive waste.

4.4. Extent of Pollution in Specific Arctic Regions

Industrial development in the Arctic creates risks for traditional types of subsistence, causes environmental pollution and degradation. Many years of research established direct links between the rates of economic growth and the degree of degradation of Arctic environment. The original loci or sites of economic development are being gradually replaced by wide expanses of industrialized areas and inter-regional areas of zonal scale.

There are several regions with the greatest man-caused pollution in the Arctic. They are called “impact zones”. They are characterized by very strong transformations of natural geochemical background, air pollution, degradation of vegetative cover, soil and topsoil, intrusion of pollutants in food chains, excessive risks of morbidity among local population. Impact zone is defined as *territorial industrial complex, settlement and territory of industrial use, where, in the result of man-caused influence, negative changes in the environment led to emergence and development of unfavourable environmental consequences and related social and economical situations.*

Table. General characteristic of terrestrial impact zones in Russian Arctic

№	Impact zone	Sources of impact	Pollutants	Environmental situation
1.	Kola (Nickel, Monchegorsk, Zapoliarny)	Non-ferrous metallurgy, mining industry, nuclear power plant (NPP), heat-and-power plant (HPP), transportation and extraction of oil and natural gas	Oxides of sulfur and nitrogen, nickel, benzpyrene, mercury, methanol, strontium, carbon fluoride, aluminum, radionuclides, dust, oil products	Catastrophic
2.	Severodvinsky (Archangelsk, Severodvinsk, Novodvinsk, Koryazhma, Dvina Bay of White Sea)	Pulp and paper industry, military sites, HPP	Benzpyrene, polyaromatic hydrocarbons, heavy metals, oxides of sulfur and nitrogen, CS_2	Catastrophic
3.	Timano-Pechersky	Extraction of oil and natural gas	Oil products, oxides of carbon, sulfur and nitrogen	Crisis

4.	Novaya Zemlya	Military objects (drowned nuclear installations, etc.)	Radionuclides, heavy metals	Crisis
5.	Vorkutinsky (Vorkuta, Inta, Vorgashor)	Mining and cement industries, HPP	Dust, oxides of sulfur and nitrogen, heavy metals, polyaromatic hydrocarbons	Crisis
6.	Pur-Nadymsky	Extraction of oil and natural gas	Oil products, oxides of carbon, sulfur and nitrogen, strontium, radionuclides	Crisis
7	Sredneobsky	Extraction of oil and natural gas, water transport	Oil products, oxides of carbon, sulfur and nitrogen, strontium and radionuclides	Crisis
8	Norilsky	Mining and non-ferrous metallurgy	Dioxides of sulfur and nitrogen, formaldehyde, copper, nickel	Crisis
9.	Yano-Indigirsky	Mining	Dust and heavy metals (tin, lead, strontium, etc.), redionuclides	Critical
10.	Valkumeisky	Mining industry and HPP	Dust and heavy metals (tin, lead, strontium, etc.), oxides of sulfur and nitrogen	Critical
11.	Bilibinsky	NPP	Radionuclides	Strained

Identification of priority hotspots on the basis of intensity of man-caused impacts showed that rates of degradation of terrestrial and sea ecosystems are accelerating. This is caused by intensification of economic activity (e.g., expansion of seaports in Dudinka and Mezen, oil and natural gas exploitation in North-Urengoi and Prirazlomnaya oil and gas provinces, extraction of Kuloisky diamonds near river Zolotnitsa, development of sea transport, etc.). Other factors, which contribute to emergence of hotspots, include aging of technological equipment at most industrial enterprises, and increased risks of man-caused emergencies.

Comparative analysis of current and prospective priority lists of impact zones shows that the share of oil-related impact zones increases, while the number of terrestrial hotspots remains relatively constant. The priority of “sea” hotspots increases as negative impacts increase in Kola, Tazovsky and Obsky Bays.

4.5. Analysis of the Surface and Groundwater Quality in the Russian Arctic

Analysis of the existing research literature concerning assessment of the quality of the surface and underground waters in the Arctic Basin showed that this region has not been studied properly. Most studies focus on the upper and middle reaches. In the Russian Arctic, the quality of water is monitored, as a rule, on water bodies that are receptacles of waste waters focusing on the measurements of individual components of the pollution ignoring the entire set of physical, chemical and biological processes taking place in the northern water bodies. The existing system of the assessment and regulation of pollution does not take into account the specific features and high vulnerability of the northern water waters.

At present, high level of pollution load is observed on nearly all major rivers of the Arctic Basin near settlements and industrial zones. The water shed area is contaminated through air and man-cased channels both locally and globally. At the same time, the

monitoring data concerning the assessment of the pollution loads in the arctic rivers and their tributaries at the pollution discharge points is not to be extrapolated on land-based waters across the entire territory of the Arctic Basin. On the vast expanse of the Arctic Basin, the water resources preserve their natural characteristics.

In the Russian Arctic, the largest contributors of the wastewater discharges and air emissions are the industrial centers such as Kola and Norilsk regions, where the contamination loads of the land-based waters are very high. And around the copper and nickel facilities, there are cases of groundwater contamination with metal. No ground water contamination has been observed in other regions, and the permafrost areas do not display such a problem.

In the Northern Dvina River, the poor quality of water is mostly caused by the ingress of wastewater from the forestry and paper/pump industries. The water contamination in the lower reaches of the Pechora River is associated with the operations of gas, oil extracting and oil refining industries and with the ingress of oil products, phenols, and metals. In the estuary of the Ob' River, most common pollutants are phenols, nitrogen ammonium, compounds of copper, iron, zinc. In the Yenisei River estuary, there are higher, as compared with the Ob' River, concentrations of practically all micro elements, but they are not higher that the values of the regional geochemical baseline data, as well as of the middle global concentration in the river runoff as suspended solids or dissolved components. Contaminated waters of the Lena River have a relatively weak influence on the water quality in the river estuary, since its self-purifying capacity is sufficiently high. For the rivers of the Russian Arctic, the estuaries of which are east of the Lena River, the main sources of the pollution ingress are waste waters of the mining enterprises and utilities, as well as the surface runoff from the poorly maintained territory of the settlements and agricultural lands.

Bioindication of the impact zones of the pollution provides evidence of the poor quality of water on the main water intake facilities of the drinking water supply systems. The studies of the environmental consequences of the land-based surface waters in the Russian Arctic is a very good argument in favor of the MPC adjustment and stronger values for most components (at least three times). In the Arctic context, the interplay of man-induced factors and the environment displays the most pronounced negative effects. At the same time, water bodies of this region become even more important due to the large stocks of high quality of fresh water and valuable fish products (salmons). In the integrated use of water resources in the subarctic regions, the priority should be on clean water and generation of fish products.

Chapter 5

State of the Traditional Habitat of Indigenous Peoples in the Russian Arctic

Most (75%) of indigenous peoples reside in the countryside. The Saami people have a relatively high urban population (up to 40%), as do the Nenets (17.1%) and the Chukchi

(10%). The traditional patterns in how native low-population peoples populate the Arctic region have been undergoing significant change as new mineral resource deposits are discovered and developed continuously, transport infrastructure is growing, etc. which affect livestock grazing areas and hunting grounds, fish spawning and feeding grounds in rivers, thus undermining native peoples' traditional resources base.

There are 11 indigenous peoples in AZRF: the Saami, Nenets, Khanty, Mansi, Nganasans, Dolgans, Evens, Evenks, Chukchi, Eskimos and Yukaghirs. Settlements with residents having their own traditional households provide a natural basis for the Russian State to have presence here, and are proof by themselves as to which country the areas belong to. While the Russian government wants native peoples to be present here on a sustainable basis, Arctic regions continue to fall behind other regions in Russia considerably in terms of both living standards and the quality of life.

Eleven native low population peoples are engaged in traditional nature uses (reindeer herding, hunting, fishing, sea animal harvesting) across Russia's Arctic coast, along with another 5 peoples that reside in areas adjacent to the Arctic coast. Traditional nature uses help maintain the whole system of cultural traditions and trade skills and thus perform an ethnicity protection function.

Key problems of native low-population peoples of the Arctic that need to be addressed urgently include first of all those of their traditional economies (reindeer herding, hunting and sea animal harvesting, fishing, etc.) that cannot put up competition to other market players and are in a grave crisis. As companies to process raw materials are not available locally, technical facilities are obsolete, commodity flow networks are underdeveloped and transport costs are high, most locally produced goods do not reach their destination markets, and in consequence often remain uncalled for.

Reindeer herding has become loss-making, while it used to be one of the most profitable trades in the past. The Russian reindeer stock has got no longer breeding capacity as it used to have. At the same time reindeer herding has always been a key trade for native low-population Arctic peoples.

Fisheries have been degrading, too, albeit being one of the most profitable native peoples' traditional trades in the past. In recent years fish landings in rivers flowing through areas of residence of native peoples have almost halved. The quality of fish supplied to the market is often quite low, and a lot of valued fish go bad never reaching customers. The main reasons include systematic overexploitation, failure to meet environmental standards, and an undeveloped sales network. The pollution of fisheries bodies of water by industrial effluents causes huge damage to traditional fish harvesting.

The situation that has transpired has a lot to do with a low economic efficiency (reliance on governmental subsidies) of traditional economies, difficulty local communities meet with trying to adapt to changed economic realities, lack of trained personnel, as well as lack of favorable conditions and economic prerequisites for sustainable development.

Another matter that should be mentioned in this context is that traditional economies have been affected considerably by the fact that part of their lands has been expropriated to meet the growing needs of mineral resource extraction. Some estimates have it that mining/oil and gas companies have expropriated around 15-18% of traditional use lands.

Chapter 6

Biodiversity in the Russian Arctic

Landscape and biological diversity of Russian Arctic survived and remained in much better condition than in the south regions of the Russian Federation. But there are particular sites (loci) of active degradation of soils and landscapes, which are subject to thermal erosion, fragmentation of habitats, destruction of vegetative cover, replacement of indigenous vegetation by successive forms, reduction of populations of rare species, etc. There are several factors, which influence the state of biota and ecosystems in the Arctic:

Natural factors:

- Regional warming of Arctic climate, which results in increase of vegetative period for plants, nesting period for birds, warm period for invertebrates, etc. Climate warming leads to northward expansion of areals of some mammals and birds, and to irreversible changes of habitats of some endemic rare species.

Anthropogenic factors:

- Global, regional and local pollution of the environment, including troposphere transport of air pollutants, emissions from impact sources, emergency oil spills, etc.;

- Mechanical disturbance of soil and vegetative cover by uncontrolled movement of vehicles, construction and exploration works;

- Poaching and unregulated using of biological resources lead to reduction of their stocks and populations within the boundaries of ethnic and economical zones;

- Overgrazing of domestic deer and violation of traditional grazing norms and practices;

- Introduction of adventive plant species often leads to loss of habitats of indigenous plant species. Some adventive species have been introduced voluntarily (e.g. Kamchatka crab in Barents Sea), while some others have been introduced involuntarily (except reacclimatization of muck ox) in Arctic ecosystems, which may cause ecological crisis.

Pollution of air, soils and surface waters around industrial centres leads to rapid changes in biodiversity. During the last 100 years, vegetation around such centres has changed drastically, because of intensive construction, logging, fires, and agricultural development. Destruction of grazing lands and pastures lead to reduction of deer

populations. Disturbance of water balance of surface soils, especially near water bodies, ditches, rivers and streams leads to loss of amphibious species, including very rare species in local biotopes. Environmental pollution and changes of hydrological regime of water bodies will cause reduction of populations of rare coastal and water mammals.

Overall trends in the state of ecosystems and landscapes of Arctic regions may be characterized as moderately negative. The heaviest anthropogenic stresses are concentrated in already developed and disturbed territories, which are being restored very slowly. Economic development of virgin lands also proceeds slowly, because of immense investments required for such development.

So far, changes of natural ecosystems of Russian North have not been that significant as in other regions of the Russian Federation.

Polar deserts, with the exception of insignificant coastal stripes near polar stations and military objects, have not been altered significantly. About 20% of deer grazing lands are in the state of overgrazing digression in Tundra zone. Near Norilsk (Taymyr Peninsula) and Monchegorsk (Kola Peninsula) copper-nickel combines, vegetation was disturbed within several dozens of kilometres, in the result of sedimentation of emissions of sulphur and nitrous compounds. Up to 3-8% of tundra forests and northern taiga have been disturbed by extraction of minerals, oil and natural gas. There are many locally disturbed areas in Kola Peninsula, in West and North-East Siberia. Despite legislative bans on utilization of northern forests, their area diminishes because of logging and forest fires, especially in Murmansk Oblast, NAO, YaNAO, and Yakutia.

Chapter 7

Climate Changes in the Arctic and their Potential Consequences

Changes in the Arctic climate are one of the most topical and controversial subjects in today's climate research. Issues of concern include the fate of sea ice in the Arctic Ocean, and that of permafrost and glaciers in Artic land areas, since the cryosphere of which the two are part is especially vulnerable to climate change and may either speed up, or slow down further climate change, or both.

About 29% of total Arctic sea area in wintertime is taken up by fast (not moving) ice. On an average, for the last 20 year period the total fast ice area has decreased by 20 thousand km2 against the preceding period of the same length, or by only 3% of the mean area.

Far less data are available on the thickness of drift ice. Analyzing data on ice drift in the Arctic Basin showed a decline in mean ice thickness by approximately 42% (from 3.1 to 1.8 m) from 1958-76 to 1993-99, while its total volume declined by almost 32%.

Direct adverse impacts would probably include greater heat-related pressures and a growing number of injuries linked with untypical ice or weather conditions. Indirect effects include impacts on the traditional diet due to restricted access to sources of food, increased psychological and social pressures relating to changes in the environment and life style, to potential changes in the rate of bacterial or viral development, to epidemics linked to mosquito invasions, to hindered access to good quality drinking water, and to illnesses linked to sanitation problems. Another sort of impact on human health might be that combining pollutant, UV radiation and climate change effects.

Chapter 8

Russian Arctic Protected Areas

The Russian Arctic zone has extensive areas of virgin nature, which are part of world nature heritage, and their international importance continues to grow. The importance is linked with the need to protect biodiversity in the unique Arctic surroundings. Protected natural areas (PNAs) are the only form of nature conservation measures that has been taken quite actively in the Russian Arctic in past decades. Existing and planned PNAs encompass all key typical zonal, mainland, mountainous, river delta and other Arctic landscapes. PNAs often provide opportunities for local populations to pursue traditional nature uses, in recognition of very close links existing between native peoples and Nature. However, as of now it is quite hard to assess whether measures taken to protect Arctic biota and ecosystems through PNAs are sufficient.

Protected water areas covering offshore and coastal Arctic ecosystems are far less representative as of now, and are developed not quite well yet, although the seas are abundant in bioresources.

The sea coasts are interzonal in character and have features of virtually all Russian Arctic landscape zones – from polar deserts and Arctic tundra to northern taiga (Okhotsk Sea coast). It is here where the largest wetlands of international importance are found, with tens of millions waterfowl flocking at their nesting, stopover or wintering grounds (deltas of the Pechora, Ob, and Lena, the Murmansk Coast, Kandalaksha Bay, etc.).

The Russian Arctic seas and coasts are a habitat for many rare and endangered plant and animal species listed in the Red Book of Russia: 17 invertebrates, 15 cyclostomes and fish, around 20 birds, 29 species and subspecies of mammals, which is important to remember when planning economic activities in the coastal areas.

A significant part of Russian Arctic coastal and sea ecosystems are under human impacts, mainly those resulting from commercial pressures and oil and gas development projects on the shelf. Endangered species include salmon and cod fish in the Barents and White seas, salmon, herring and invertebrates in the Far East seas (crabs, shrimp, scallops, sea urchins, trepang), as well as sea mammals in the Barents,

Okhotsk, Bering and White seas (seals, fur seals, sea-lions, walrus, gray and bowhead whales).

Some proposed offshore and coastal PNAs in the Russian Arctic will include land and water areas in its European section, where hydrocarbon prospecting, extraction and transportation are expected to take place on a large scale

Chapter 9

Cause-Consequence Analysis of Environmental Problems in the Russian Arctic and Analysis of the Stakeholders' Views

GIWA (Global International Water Assessment) and GEF criteria have been used for selection of key environmental problems of the Russian Arctic. These criteria are based on methodology of identification, quantitative assessment and prioritization of environmental problems, and on identification of direct, indirect and fundamental causes of these problems. Identification of causes of environmental problems allows to determine practical methods, sources, objects and types of economic activity, which led to environmental deterioration and created environmental risks.

The focus of the assessment was given on the impacts of five pre-defined concerns namely; Freshwater shortage, Pollution, Habitat and community modification, Unsustainable exploitation of fish and other living resources and Global change, in transboundary waters. Considering the diverse range of elements encompassed by each concern, assessing the magnitude of the impacts caused by these concerns was facilitated by evaluating the impacts of 22 specific issues that were grouped within five above concerns.

Approaches and criteria adopted by GEF and GIWA, were used in the process of identification of priority environmental problems of the Russian Arctic. They envisage (1) quantitative assessment and prioritization of environmental problems, (2) identification of immediate, underlying sectoral and root causes, and causal-chain analysis.

The socio-economic and environmental impacts of these issues have been taken into account during this assessment.

The assessment integrates environmental and socio-economic data from each Russian Arctic region to determine the severity of the impacts of each of the five concerns and their constituent issues on the entire Russian Arctic.

Chapter 10

Conclusion

(Summary Description of the Russian Arctic Environment)

The detailed diagnostic analysis of the current situation and forecasting of the potential environmental changes in the Russian Arctic were used to identify the following priority environmental issues in the region:

- Environmental pollution (transboundary transport of pollutants by water and air, and oil, chemical, and radiation contamination) and deterioration of the quality of surface and ground waters in the coastal areas of the Russian Arctic;
- Land degradation and irresponsible use of land
- Changes in biodiversity and depletion of biological resources;
- Deterioration of the living conditions and environment of the indigenous population of the Russian Arctic and disruptions of their traditional use of natural resources;
- Negative consequences and threats from the ongoing global climate changes.

To solve above problems the following main directions of nature-conservative measures in AZRF have been established:

- Prevention and abatement of pollution of the coastal and marine environments in the Russian Arctic, including the transboundary transport of pollutants with aquatic and atmospheric flows oil, chemical, and radiation contamination;
- Conservation and improvement of the quality of the environment, living conditions of the indigenous small-in-numbers peoples and conditions for traditional nature use by native small nations of the North;
- Prevention and mitigation of the negative consequences of natural disasters and technological emergencies, as well as of global climate changes.

Annex V

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/6

Item 2.5 of the Agenda

Report on Pre-investment studies implementation in three Russian Arctic regions

Prepared by:
Project Office

Pre-investment studies implementation in three Russian Arctic regions

The Pre-investment studies (PINS) Component is defined as a consolidated document containing sufficient physical definition, technical and implementation risk evaluation, environmental and social assessment, financial and economic analysis, and business planning information that would allow a public or private sector developer or proponent of an investment project to make the necessary business or public policy decision to proceed with such an investment and to present it for financing to one or more possible sources of financing. The investment projects considered for PINS preparation are characteristically capital investments that will reduce or eliminate sources of land-based or coastal area pollution, either from past, present or potential development activities. Three major categories of potential investment projects to be selected for PINS were stipulated by the Terms of References: (i) industrial pollution abatement investments (i.e. facilities upgrading or replacement for purposes of modernization in order to reduce and prevent pollution incl. use of cleaner production technology), (ii) clean up of past environmental liabilities with actual or significant future major potential to add to Arctic pollution loads, and (iii) new or upgraded environmental management infrastructure (i.e. waste management, waste water treatment). Investments that contribute to biodiversity and the sustainability of habitat and traditional resource utilization by indigenous people are also included provided they have a defined proponent and reasonable commercial or public policy based investment rationale.

Several tens of investment project proposals have been reviewed by consulting companies who won the international bids. The job resulted in a set of proposals for environmental investment projects (EIP) for western, central and eastern sectors of the Russian Arctic. Selected EIP are strongly supported by regional and local authorities. Five EIP in Western (lead by Royal Haskoning), five EIP in Central Arctic (lead by Rambøll Storvik AS) and six EIP in Eastern Arctic (lead by ERM Eurasia Limited) have been prepared.

Major part of the PINS component was successfully implemented at selected hot spots in regions of the Russian Arctic and most of them were fulfilled in December 2009. Three selected contractors have made high quality studies, often – in uneasy conditions of transport communications. They suggested an adequate range of projects for implementation in favor of trans-regional and global environment with well identified risks and conditions of the projects organization and financing.

To date, these EIP have being worked further on in accordance with Executiing Agency comments.

INVESTMENT PROJECTS FOR WESTERN ARCTIC

The following five individual investment projects were selected to be suggested for potential investors for implementation in Western Arctic, all in Murmansk Region:

1. Improved solid waste management in Murmansk region; 2. Improved waste water management in Severomorsk-3; 3. Design and construction of complex of sewage

water treatment facilities in Severomorsk; 4. Improvement of oil waste management program; 5. Automatic air quality monitoring system.

Brief Summary of Projects

1.

Project Name	***Construction of waste segregation complex in Murmansk***
Project Objectives	The project aims at construction of a new domestic solid waste segregation and compactor plant followed by subsequent selling recycled resources
Project Owner/Operator	ORKO-Invest LLC – Orko-Invest is the biggest service supplier for disposal of solid domestic waste from population and organizations (95% of municipal SDW)
Project Costs	There are 2 alternative scenarios: the total cost of project implementation pursuant to the first scenario is RUR 211 M (US$7M), pursuant to the second scenario – RUR 300M (US$10M). 4.5 years
Investment Prospects	NDEP; NEFCO; and IFC
Expected Project Results	To reduce drastically a load on the region environment, to improve sanitary condition, and consequently to solve the solid waste problem and set up an organized industrial waste treatment infrastructure.
Identified Benefits	The identified benefits of the project implementation for ORKO-Invest are making profit of the sale of recycled materials. Payback period of the project is six and a half years.
The project has a potential to be reproduced in other Arctic regions	

2.

Project Name	***Construction of Sewage Water Treatment Complex in settlement of Severomorsk-3, Murmansk Region***
Project Objectives	This project resolves the problem of sewage treatment in the Severomorsk-3 settlement, which is discharged to the river Srednyaya without being treated, hence making the ecological and sanitary and epidemiological situation tense.
Project Owner/Operator	Municipal Unitary Enterprise (MUE) "Severomorskvodokanal", which provides water supply and water discharge of Severomorsk, settlements of Roslyakovo, Roslyakovo – 1, Safonovo, Safonovo-1, Kortik, Schuk Lake, Severomorsk-3.
Project Costs and Duration	RUR 280M (~US$10M), 12 months
Investment Prospects	EBRD, IFC, NEFCO and NDEP
Expected Project Results	• A decrease the content of pollutants in the discharges sewage water on average 4 times related to suspended substances, 4 times related to BPK poln., 7 times related to oil products, 7 times related to nitrites, 2.5 times related to phosphates; • An improvement of the sanitary state of the water

	body, quality of water both in the river itself and in the system of lakes through which it flows, and in the Kola Bay; • An improvement the conditions for the reproduction of biological resources in these water bodies. Soicial consequences: • Increase ecological safety of the population residing near the river; • Provide working places for a part of the population of Severomorsk ZATO (altogether 32 working places are planned).
Specific economic benefits	• Cost savings of industrial enterprises for water treatment and maintenance of water treatment facilities; • Reduction of pollution for water fauna resulted from waste waters from industry and public utilities; • Infrastructure development.
This IEP can be replicated within the region considering the fact that the sewage water treatment problem is one of the most critical for Murmansk Region	

3.

Project Name	***Design and construction of complex of sewage water treatment facilities in Severomorsk of Murmansk region***
Project Objectives	In the City of Severomorsk of the Murmansk Region, industrial and social facilities discharge over 7.9 mln m3 of untreated wastewater yearly through 5 sewage outlets into the Kola Bay. The wastewater contains over 3,000 tons of pollutants. Untreated sewage discharge from the area of Severomorsk has an impact on the shore strip of the city and, consequently, on the environment of Severomorsk region with 68,000 population. As a result of this project's completion, untreated wastewater discharge into Kola Bay (which is a fishery water object) in amount of more then 7900 thousand m3 per year will be stopped.
Project Owner/Operator	MUE “Severomorskvodokanal”, which provides water supply and water discharge of Severomorsk, settlements of Roslyakovo, Roslyakovo – 1, Safonovo, Safonovo-1, Kortik, Schuk Lake, Severomorsk-3.
Project Costs and Duration	RUR 1,817M (US$60.6M), 6 year
Investment Prospects	EBRD, IFC, NEFCO and NDEP
Expected Project Results	• reduction of pollutants in sewage in average by outlets: 1) suspended substances – in 16 times 2) BOD full - in 25 times, 3) oil products - in 8 times 4) iron - in 8 times, 5) nitrites - in 2 times, 6) fats – in 3 times,

	7) phosphates - in 5 times • removal of anthropogenic pressure over the Kola Bay from the industrial and social objects; • improvement of the environmental situation in the shore area of the Kola Bay and living conditions of the people resided at the Bay shore; • together with other environmental actions, the increased probability of restoration of permanent residential areas and reproduction of biological resources in the Kola Bay of the Barents Sea and other north seas; • compliance with RF and international legislation for water objects protection from pollution. *social consequences*: • elevate the environmental safety level for the local population; • provide employment to the population of Severomorsk ZATO (organization of more than 50 work place is planned); • to meet key stakeholders (population, budget and private organizations) expectations about water treatment.
Specific economic benefits	• Reducing of enterprises' costs for water treatment and maintenance of treatment facilities; • Decreasing a poisoning level of water organisms with dirty sewage water of industrial objects and municipal services, especially o Improvement of habitat's conditions of water living organisms; o Increasing the health care general level (consequently the health care costs reducing); • Infrastructure's development
This IEP can be replicated within the region considering the fact that the sewage water treatment problem is one of the most critical for Murmansk Region	

4.

Project Name	***Improvement of oil waste management program*** A programme for study of oily waste management includes 3 projects: 1) Introduction of installation of oily sludge treatment facility in Murmansk region, 2) Introduction of new techniques for oily waters treatment, including bilge waters, 3) Construction of an oily soils remediation site
Project Objectives	The objective of the improvement of the oily waste management system is a study of the situation in this area and a choice of oil pollution solutions in Murmansk region.
Project Owner/Operator	Eco-Centre (Group of Companies)
Project Costs and Duration	EU82,000 (RUR3.7M), 7-12 months
Investment Prospects	EVD and NEFCO
Expected Project Results	Obtaining of information and accumulation of

	practical knowledge in oil contamination treatment. This information will comprise the basis for realization of remediation projects on commercial scale. Creation of capacity for decontamination will help to solve the problem of accumulated and emerging oil slimes, oily waters and soils in the region that will have positive impact on the ecological status of the region.
Social Consequences	Organization of new working places, creation of a new direction in oil contamination treatment in the region, involvement of partners.
The Executing Agency calls an expedience of this project implementation in question because this project is rather research project than investment one.	

5.

Project Name	***Development of the Territorial Automated Network of Ambient Air Control in Towns of the Murmansk Region***
Project Objectives	• to set up a system of continuous emission monitoring of the ambient air, installing automated gas analyzers in towns and settlements; • to get reliable real time data on the ambient air pollution in towns and settlements of the Murmansk Region, necessary to prevent and mitigate the adverse effects of environmental changes, and make efficient managerial decisions; and • to ensure the functioning of a central data system to improve the environmental management.
Project Owner/Operator	State Institution “Murmansk Department of Hydrometeorology and Monitoring of Environment”
Project Costs and Duration	RUB16.3M (~US$ 550 000), 1 year.
Investment Prospects	NEFCO and NDEP
Expected Project Results	The establishment of an automated air quality monitoring system will allow obtaining of reliable information on the state of ambient air pollution, which in its turn will facilitate making of proper administrative decisions on reduction of emissions to the air, prevention or reduction of adverse consequences of environmental changes.
Identified Benefits	Direct economic benefits: - Fees for monitored pollution above admissible limits; - Sale of knowledge through scientific articles, attending conferences. Indirect economic benefits: - Improvement of environmental conditions owing to the monitoring and prompt response to the atmosphere pollution and therefore, improvement of general health of the population.
This project provides installation of ambient air quality monitoring station in 3 industrial areas. Further extension of the monitoring network in the future will provide a more complete picture of the ambient air conditions in the Murmansk region and therefore.	

INVESTMENT PROJECTS FOR CENTRAL ARCTIC

For Central Arctic five individual investment projects were also prepared.

Arkhangelsk region: 1. Land remediation from oil products in water protection zone of Northern Dvina River of White Sea basin near settlement Krasnoe of Primorsky district of Arkhangelsk Region; 2. Construction of sewage treatment facilities in Lesnaya Rechka dwelling district of Arkhangelsk.

Komi Republic: 3. Solid domestic wastes disposal in Vorkuta, Komi Republic: Draft technical report completed, financial data preparation in progress; 4. Modernization of sewage water treatment system in Vorkuta, Komi Republic: Draft technical report completed, financial data preparation in progress.

Nenets Autonomous District: 5. Waste Management in the City of Naryan-Mar and settlement Iskatelei of the City of Naryan-Mar: Project selection ongoing.

1.

Project title	***Land remediation from oil products in water protection zone of Northern Dvina River of White Sea basin near settlement Krasnoe of Primorsky district of Arkhangelsk Region***
Project owner	Administration of Primorsky Municipal District
Branch	Municipal administration, damage caused by past development activity
Brief description of IP and its benefits	The contaminated land plot is located in a water protected area, approximately 4 km upstream the settlement of Krasnoe, on the river bank of the Norhern Dvina River. Oil contamination is continually leaking into the River Dvina via subsurface water and erosion of the polluted river bank. Due to the continuous leaking and further dispersion in the Northern Dvina River and the amount of oil (in the range 120 – 180 ton) the pollution is assessed as posing a hazardous risk to the local and regional environment, including the Arctic marine environment. The IP provides a 3-phase solution. Phase 1 is an environmental site assessment to determine quality and quantity of the pollution. Phase 2 is design of remediation and Phase 3 is remediation to environmental acceptable levels. Project implementation is assessed as contributing to reducing negative environmental impacts on the Arctic environment and contributing to capacity building for an integrated approach of remediating polluted sites in the Arkhangelsk Region.
Project implementation period	**4 years**
Total investments, minimum	**1 176 000 EUR**
Total investments, maximum	**7 776 000 EUR**
Environmental Benefit	• Removal of the potential hazardous risk for human health of the local people • Removal of potential risk of unacceptable dispersion to the environment • Removal of the potential hazardous effect on the marine environment

	• Improve the ecological situation at the polluted site • Improve the ecological situation of the Arctic marine environment, specifically contamination of the Dvina delta and White Sea.
Investment Structure/Prospects	The Environmental Committee of the Arkhangelsk region suggested: 50% - international grant, 50% - local co-financing.

2.

Project title	***Construction of New Waste Water Treatment Facilities (WWTF) in Residential District Lesnaya Rechka in Arkhangelsk***
Project owner	Municipal Unitary Enterprise (MUE) Vodokanal, Arkhangelsk
Branch	Municipal services, water supply and sewage
Brief description of IP and its benefits	The existing WWTF in Lesnaya Recha is a poor condition due to poor construction and outdated methods of wastewater treatment. Untreated wastewater is discharged directly into the Lesnaya River, which flows directly into the Dvina River. The existing WWTF in Lesnaya Rechka is assessed as posing a hazardous risk to the local and regional environment, including the Arctic marine environment. In addition it is assessed as posing a hazardous risk to the health of workers and local residents. The IP provides for construction of a new wastewater treatment facility in Lesnaya Rechka with capacity of 800 m^3/day based on prefabricated block modular small treatment plants. The IP provides a solution for current and future capacity for waste water treatment in Lesnaya Rechka with a level of treatment that meets the environmental requirements of discharge into fishery water bodies. Project implementation is assessed as contributing to reducing negative environmental impacts on the Arctic environment; improving the health of workers and local residents; and a positive development of wastewater treatment in the Arkhangelsk Region.
Project implementation period	**2 years**
Total investments	**772 720 EUR**
Environmental Benefit	• dismantling of the hazardous production facility - chlorination plant and WWTP chlorine store house; • block-modular WWTF are especially designed to meet the strict environmental standards, location and operation in the sanitary protection area; • increase of sewage water treatment effectiveness with respect to such characteristics as “oil products”, “phosphorus”, “suspended particles”, “BOD” and nitrite will result in significant reduction of pollutants discharged into water bodies; • elimination of the pollution sources which are similar to this facility will allow reducing the negative environmental impact on Arctic environment in the future.
Investment Structure/Prospects	Financial structure of investment will consist of 30% international grant and 70% local financing. Local authorities are planning to attract also some funding from federal sources

3.

Project title	***Modernization of landfill for municipal solid wastes in Vorkuta, Komi Republic***
Project owner	MUE Vorkutaremstroy
Branch	Municipal services, waste management
Brief description of IP and its benefits	The IP provides for modernization of landfill for municipal solid wastes in Vorkuta based on modern technologies on collection and reclamation of solid wastes according to environmental standards. Implementation of this investment project will allow reducing overall pollution load on the local environment by elimination of pollution of Vorkuta River by wastewater, detritus, flushed wastes, and also by reduction of greenhouse gases emissions into atmosphere. Elimination of polluters similar to this facility will allow reducing the negative environmental impact in future not in an individual city but along the Arctic coast, thus preserving the unique natural and offshore environment.
Project implementation period	**3 years**
Total investments	**1 661 027 EUR**
Environmental/Social Benefit	• significant reduction of waste burning and subsequent toxic fumes discharge; • significant reduction of the Vorkuta River pollution by wastewater and flushed wastes that will lead to better environment for downstream inhabitants; • significant reduction of bio-gas discharge during waste digestion and its influence to the operational personnel; • reconstruction of the landfill will lead to the formation of vegetation on its surface that is very positive in the trans-Arctic conditions; • it is possible to reduce the level of disease incidence rate and improve the standards of living in Vorkuta.
Investment Structure/Prospects	Feasible maximum loan - 34%. Grant percentage could be 20%, and local financing 46%.

4.

Project title	***Modernization of waste water system in Vorkuta, Komi Republic***
Project owner	MUE Vodokanal, town of Vorkuta
Branch	Municipal services, water supply and sewage
Brief description of IP and its benefits	The IP provides for construction of new sewage treatment facilities in Vorkuta with through output of 40 thousand m3/twenty-four hours and reconstruction of domestic sewage wells of the Zheleznodorozhniy district of Vorkuta. Implementation of these two aspects of the project would provide the quality of waste water treatment in compliance with normative parameters and improving the environment in the Zheleznodorozhniy District and in Vorkuta in general. Elimination of polluters similar to this facility will allow reducing the negative environmental impact in future not in an individual city but along the Arctic coast, thus preserving the unique natural and offshore environment.

Project implementation period	**3 years**
Total investments	**40 050 000 EUR**
Environmental/Social Benefit	• Dismantling of the hazardous production facility - chlorination plant and WWTP chlorine store house - replacement of sewage water chlorination unit by ultraviolet sewage water disinfection plant; • Increase of sewage water treatment effectiveness with respect to “oil products”, “phosphorus”, “suspended particles”, “BOD” and other factors will result in significant reduction of pollutants water discharge; • elimination of the pollution sources which are similar to this facility will allow reducing the negative environmental impact on Arctic environment in the future.
Investment Structure/Prospects	International Funds, loan - 50%. Grant - 25%, and local funds - 25%.

5.

Project title	***Modernization of waste water system in Kachgort and Bondarny settlements of Naryan-Mar in the Nenets Autonomous Okrug***
Project owner	Naryan-Mar Municipal Unitary Enterprise Joint Boiler and Heating Systems
Branch	Municipal services, water supply and sewage
Brief description of IP and its benefits	The existing waste water treatment facilities in the Kachgort and Bondarny settlements in Naryan-Mar are in poor condition due to poor construction and outdated methods of wastewater treatment. Treated wastewater that does not meet the environmental requirements is discharged into water bodies that drain directly into the Pechora River. The existing WWTF in Kachgort and Bondarny are assessed as posing a hazardous risk to the local and regional environment, including the Arctic marine environment. In addition it is assessed as posing a hazardous risk to the health of workers and local residents. The IP provides for construction of new wastewater treatment facilities in both Kachgort and Bondarny are based on prefabricated block modular small treatment plants. The IP provides a solution for current and future capacity for waste water treatment with a level of treatment that meets the environmental requirements. Project implementation is assessed as contributing to reducing negative environmental impacts on the Arctic environment; improving the health of workers and local residents; and a positive development of wastewater treatment in the Arkhangelsk Region.
Project implementation period	**1 year**
Total investments	**1 954 500 EUR**
Environmental Benefit	• Increase the efficiency of the waste water treatment at both the Kachgort WWTF and the Bondarny WWTF and in the whole city. • Significant reduction of pollutants discharge into adjacent water bodies.

	• Reducing the negative environmental impact in future not in the okrug only but in the whole Arctic region.
Investment Structure/Prospects	The Narjyan-Mar Municipal Administration was interested in loan with 0% interest. Consultant suggested the following scheme: 40% - loan, 20% - international grant, 40% - local co-financing.

INVESTMENT PROJECTS FOR EASTERN ARCTIC

Six individual PINS projects were also picked up in Eastern Arctic.

Sakha (Yakutia) Republic: 1. Closure of the Kular Gold Tailings Based on Sound Environmental and Health & Safety Principles; 2. Mothballing of the Deputatsky Tin Ore Mining and Processing Plant Based on Sound Environmental and Health & Safety Principles; 3. Restoration of Commercially Important Fish Species in the Subarctic and Arctic River Basins in Yakutia.

Chukchi Autonomous District: 4. Waste and Contamination Inventory and Clean-Up of the Wrangel Island Reserve. 5. Search for and removal of the RITEG device located at Rogers Bay, Wrangel Island.

Inter-regional Project: 6. Programme of Survey of Current and Historical Land-Based Contamination Sources of the Laptev Sea, East Siberian Sea and Chukchi Sea.

1.

PROJECT NAME	***Closure and reclamation of the tailings pond at the Kular gold mill.***
PROJECT INVESTOR AND ASSUMED GRANTEE	Governmental organization “Executive Directorate for Elimination of Consequences of Spring-Time Floods and Organization of Restoration Work in the Republic of Sakha (Yakutia)”
PROJECT LOCATION	6 km to the south of the abandoned community of Kular, in the northern part of the Ulakhan-Sis mountain range, in the upper reaches of the Burguat and Kuchchugai-Kyuegyulyur rivers, 80 km from the Laptev Sea coast and approximately 260 km north-west of the administrative center of the Ust-Yansk Ulus (District) – town of Deputatsky.
PROJECT OBJECTIVE	The main objective of the Project is to carry out closure of the tailings of the Kular gold mill as a source of the current pollution of surface waters in the Omoloy River basin based on sound environmental and health and safety principles and in compliance with the Russian and international standards and requirements set out for reclaimed tailings ponds, as well as to restore the area of the reclaimed tailings pond and return the land to agricultural use.
PROJECT CATEGORY	Clean-up of past environmental liabilities with actual or significant future major potential to add to Arctic pollution loads. Non-resolution of the issue associated with the Deputatsky GOK tailings storage facility implies high environmental risks and might result in adverse consequences for the whole region.
APPLIED TECHNOLOGY	As an example of advanced technology for hazardous waste

	management under permafrost conditions, innovative technologies for freezing of hazardous waste can be proposed, including freezing of ore processing waste by natural frost and capping it with an ice shield playing the role of a protective barrier; tailings closure and remediation; It is also planned to demolish the remains of the abandoned gold mill, with partial disposal of metal scrap in the tailings pond and partial removal of it to the Severny river port for further transportation by river for subsequent recycling.
LEVEL OF DESIGN DEVELOPMENT	Topographic and geodesic surveys were carried out as required for the project design development for tailings pond closure; the project design is being prepared.
PRELIMINARY COST ESTIMATE and PROJECT DURATION	3,000,000 Euros, 9 years
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS OF THE PROJECT	Implementation of the Project will ensure closure of the tailings of the former Kular gold mill which is currently a source of contamination of the Omoloy River basin posing serious threat to the fish resources in the river, as well as to the Omoloy nature reserve and health of residents of Khaiyr indigenous village. The closure of the Kular tailings will enable to use the reclaimed land as reindeer pasture.

2.

PROJECT NAME	***Mothballing of the Deputatsky Tin Ore Mining and Processing Plant Based on Sound Environmental and Health & Safety Principles***
PROJECT INVESTOR AND ASSUMED GRANTEE	Governmental organization "Executive Directorate for Elimination of Consequences of Spring-Time Floods and Organization of Restoration Work in the Republic of Sakha (Yakutia)"
PROJECT LOCATION	5 km to the north of the centre of the settlement of Deputatsky, within the Nemkuchen Range, in the Irgichen River basin, approximately 250 km from the Laptev Sea coast.
PROJECT OBJECTIVES	The main objective of the Project is to ensure mothballing of the tailings of the Deputatsky tin ore mining and processing plant (GOK), partial land remediation and reconstruction of the ash disposal area of the block boiler station and upgrade and maintenance of water diversion tunnels and clean-up of historic industrial pollution sources in the upper reaches of the Deputatka River with subsequent remediation of disturbed lands.
PROJECT CATEGORY	Clean-up of past environmental liabilities with actual or significant future major potential to add to Arctic pollution loads. Non-resolution of the issue associated with the Deputatsky GOK tailings storage facility implies high environmental risks and might result in adverse consequences for the whole region.
APPLIED TECHNOLOGIES	Similar experience in application of advanced technologies for toxic waste disposal under consistent permafrost conditions can be proposed on the basis of innovative

	developments in the field of highly toxic waste freezing in the Nikolay Chersky Northern Mining Institute under the Siberian Division of the Russian Academy of Sciences, in Yakutsk. Conventional technical and biological remediation techniques can be proposed for *in situ* remediation of waste rock dumps.
LEVEL OF PROJECT DESIGN DEVELOPMENT	Topographic and geodesic surveys were carried out as required for the project design development for tailings mothballing; the project design is being prepared.
PRELIMINARY COST ESTIMATE and PROJECT DURATION	12,510,000 Euros, 11 years.
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS OF THE PROJECT	Implementation of the Project will ensure mothballing of the tailings storage facility of the Deputatsky GOK, as well as abandoned tin mining operations in the upper reaches of the Deputatka River, which are a significant source of contamination of the Indigirka River basin, and prevention of environmental damage caused by the Indigirka River basin contamination. Land remediation with restoration of favourable conditions for natural vegetation growth and wildlife habitats; Possibility for people to visit the area without any limitations

3.

PROJECT NAME	***Restoration of Commercially Important Fish Species in the Subarctic and Arctic River Basins in Yakutia.***
PROJECT DEVELOPER AND PROPOSED BENEFICIARY	The Biological Resources Department of the Ministry of Environmental Protection of the Republic Sakha (Yakutia) and the Institute for Applied Ecology of the North of the Federal Agency for Education under the Ministry of Education and Science of the Russian Federation. The Biological Resources Department is proposed as the Project Beneficiary.
LOCATION	The Project site is located on the left bank of the Strekalovka river, near its inflow into the Lena River near Zhigansk, 765 km downstream from the capital Yakutsk, 40 km to the north of the Polar Circle, around 500 km away from the coast of the Laptev Sea
OBJECTIVES	The objectives of the Project are restoration of commercially important fish resources in the subarctic and arctic river basins in Yakutia where local fish populations were depleted by human activities; compensation for the loss of commercially important and rare fish habitats in the arctic river basins, and implementation of advanced technologies for artificial reproduction of sturgeon, salmon and spearnose fish and development of aquaculture infrastructure.
PROJECT CATEGORY	Investment contributing to biodiversity and the sustainability of habitat and traditional resource utilisation by indigenous people.
DESCRIPTION OF THE PROJECT ACTIVITIES	The Project proposes a comprehensive solution of the problem of rebuilding of depleted fish stocks in arctic river basins in Sakha Republic through installing both a permanent fish hatchery and portable incubation units in order to achieve maximum compensation effect to restore commercially

	important fish species where their stocks were seriously depleted by human activities. The fish hatchery comprising pools and nursing ponds is proposed to be used for: - reproduction of spear nose species (nelma, muksun, omul, and peled), and - reproduction of sturgeons (Siberian sturgeon) and salmon (taimen) species. Portable incubation units are proposed to be installed at fishery sites rich in mature producers (estuaries of Natara, Muna and Motorchuna which are tributaries of the Lena River). The larvae will be released into the arctic rivers in Eastern Yakutia (catchments of Indigirka, Yana, and Kolyma) where the status of fish stocks has significantly deteriorated. The project proposes installation of seven incubatory units in three fish breeding areas.
PROJECT PREPARATION LEVEL	The Project is at the conception stage. The Terms of Reference have been prepared for the design and construction of a fish hatchery, as well as technological schemes and operational specifications for a fish hatchery and portable incubatory units.
PRELIMINARY COST ESTIMATE and PROJECT DURATION	Total cost of design and capital expenditures is estimated at 780,000 Euros. 18 months. Total operating costs of the fish hatchery and portable incubation units are estimated at 200,000 to 220,000 Euros per year.
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS	It is estimated that the proposed fish hatchery can facilitate through fish stocking production of around 1,000 tons of spearnose species annually, including: • 600 tons of omul within 8 to 10 years, • 80 tons of muksun within 10 years, • 100 tons of nelma, and • 200 tons of peled within 12 to 14 years. With regard to sturgeons and salmon fish, it is expected to produce through mobile incubation units with the capacity of 500,000 sturgeon eggs and 300,000 taimen/lenok eggs: • in 14 to 16 years – up to 40 tons of sturgeon, • in 5 to 8 years – up to 300 tons of taimen, and • in 5 to 8 years – up to 80 tons of lenok. The indicators for assessing the project performance are: • conservation of gene bank and increasing population of spearnose, sturgeons and salmon in the river basins of Project implementation; • increased fish capacity of the rivers; • improvement of aquatic ecosystems and promotion of sustainable development in the arctic river basins in Yakutia.

4.

PROJECT NAME	***Waste and contamination inventory and clean-up of the Wrangel Island Reserve***
PROJECT SPONSOR AND ASSUMED GRANTEE	Wrangel Island State Natural Reserve
LOCATION	Southern coast of Wrangel Island. The maximum amount of waste generated by historical economic activities is concentrated in 5 areas: • Ushakovskoye village, Rogers Bay; • Weather station; • Zvyozdny village, Somnitelnaya Bay; • Rogers Bay spit; • Gavai Cape.
OBJECTIVES	Inventory of potential environmental pollution sources in the areas of historic economic activities and clean-up of the area including decontamination of potential hazardous and toxic substances, cleaning of empty drums, disposal / reuse of remaining oil products, and removal and partial burial of technogenic waste, scrap metal and empty drums
PROJECT CATEGORY	Clean-up of past environmental liabilities within a UNESCO World Heritage Site
TECHNOLOGIES USED	The Project includes the following components of scrap metal and empty drums disposal process: • determination of condition and hazard class of the waste; • decontamination and separation of oil products and chemicals from water; • cutting and pressing of empty drums and metal structures *in situ*; • loading activities; • transportation, and • delivery of scrap metal to specialised organisations for recycling.
PROJECT PREPARATION LEVEL	The latest data on waste types and volumes were received during an inspection in 2009. No technical solutions for the project implementation have been provided as of the time of preparation of this PINS.
PRELIMINARY COST ESTIMATE and PROJECT DURATION	EUR 1,400,000; 3 years.
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS	As a result of the Project, disturbed lands of the Wrangel Island State Natural Reserve will be cleaned up and reclaimed and the source of oil pollution of the coastal area and the marine environment will be eliminated. Rehabilitation of the area will confirm Russia's international commitments to preserve a World Heritage Site.

5.

PROJECT NAME	***Search for and removal of the RITEG device located at Rogers Bay, Wrangel Island***
PROJECT SPONSOR AND	The project Initiator is the Federal Marine and River Transport

ASSUMED GRANTEE	Agency of the Russian Federation (*Rosmorrechflot*). The potential beneficiary is FGUP Hydrographical Company under *Rosmorrechflot*.
LOCATION	Rogers Bay is located on the south-eastern coast of Wrangel Island. The navigation equipment station and the RTG device are located on a sea spit near former Ushakovsky village.
OBJECTIVES	Search for, recovery and removal of the RITEG device.
PROJECT CATEGORY	Clean-up of past environmental liabilities within a UNESCO World Heritage Site
TECHNOLOGIES USED	A detailed RTG decommissioning procedure was developed by the Icebreaking Fleet and Department for Hydrography of the Navigation Authority and other subdivisions of *Rosmorrechflot*. RTG disposal procedures are applied in compliance with the applicable legal requirements to nuclear waste management by licensed organisations capable of ensuring the required level of safety.
PROJECT PREPARATION LEVEL	Icebreaking Fleet and Department for Hydrography of the Navigation Authority and other subdivisions of *Rosmorrechflot* provided generic technical solutions for the Project implementation
PRELIMINARY COST ESTIMATE and PROJECT DURATION	EUR 1,000,000, including EUR 63,500 as budgetary financing, and EUR 936,500 as non-budgetary financing; 15 months.
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS	The Project is expected to eliminate the risk of current radiation contamination and pollution of the area. Rehabilitation of the area will confirm Russia's international commitments to preserve a World Heritage Site. The Project's key performance indicator is the radiation background level reduced to standard values.

6.

PROJECT NAME	Programme of Survey of Current and Historical Land-Based Contamination Sources of the Laptev Sea, East Siberian Sea and Chukchi Sea.
PROJECT SPONSOR AND PROPOSED BENEFICIARY	Ministry of Environmental Protection of the Republic of Sakha (Yakutia)
LOCATION	Anabarsky, Bulunsky, Ust-Yansky, Allaikhovsky and Nizhnekolymsky uluses (districts) in the Republic of Sakha (Yakutia). Municipalities of Chaunsky and Iultinsky districts in Chukotka.
OBJECTIVES	Inventory taking and assessment of nature and degree of intensiveness of environmental problems in centers of origin and for recipient objects of potential expansion of pollution along the coastline and coastal aquatic areas of Arctic seas of the Eastern sector of the Russian Arctic.
PROJECT CATEGORY	Clean-up of past environmental liabilities with actual or significant future major potential to add to Arctic pollution loads. If the problem remains unresolved, this could lead to consequences of regional and trans-boundary level.

TECHNOLOGIES USED	• The Project will be implemented in accordance with regulatory and standard requirements for baseline surveys and engineering and environmental surveys, i.e. in accordance with SP 11-102-97 “Engineering and environmental surveys” and other regulations.
PROJECT PREPARATION LEVEL	No technical solutions for the project implementation have been provided as of the time of preparation of this PINS
PRELIMINARY COST ESTIMATE and PROJECT DURATION	EUR 900,000, 18 months
EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS	As a result of the Project implementation the following activities will be performed: • Statements on compliance (non-compliance) of water and soil quality with regulatory requirements for sites surveyed will be issued; • Regional (inter-regional) Concept on measures to clean up and remediate affected sites and management of potential hazardous and toxic substances will be developed. A long-term Monitoring Programme for the surveyed sites will be developed. The Project’s key performance indicator includes results of objective chemical and analytical data analysis on the amount and concentration of priority pollutants in soil, surface and underground waters and the marine environment as compared to standard values

At the moment, all above PINS reports are worked further on in accordance with Executing Agency critical remarks and comments. After completion and approving by the Project Office and the EA all the documents will be uploaded into the Project website.

All PINS contractors operating in west, central and eastern parts of the Russian Arctic have been continuing intensive consultations with national and international investment institutes and with interested private companies to attract funds for the above EIP.

Annex VI

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting
Reykjavik, Iceland
February 04-05, 2010

STC 4/7

Item 2.6 of the Agenda

Progress Report on Environmental Protection System Component Implementation

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Prepared by: Project Office in coordination with EPS Task Team
Required actions: for approval

Development and Implementation of the Environmental Protection System: Component III of NPA-Arctic Project

Work under this Project component (EPS) started ahead of schedule in 2008. In the original Project Document EPS component implementation was placed in the Second Phase of the Project. Task Team for EPS component worked under the component for more than one year and to date basically finalised its work and submitted results of this work to the Project Office. According to Project Document, EPS is the first stage of SAP-Arctic implementation.

To develop necessary documents and proposals the Environmental Protection System Task Team (EPS TT) was established comprising leading specialists of the Russian Federation in the area of environmental management and environmental law such as: Professor Vylegzhanin A.N., LLD; Professor Brinchuk M.M., LLD; Professor Petrova T.V., LLD; Professor Solovianov A.A., Doctor of Chemical Sciences; Vylegzhanina E.E., LLD; Abalkina I.G., PhD. for Economics. A number of well-known specialists in the international law, maritime and river shipping, biodiversity conservation, protection of the rights of indigenous peoples of the North were invited to analyze the situation and develop individual sections.

EPS TT was to meet the following objectives:

1. Reviewing federal regulations including documents issued by ministries and agencies, environmental regulations of the Arctic states, regulations of the Arctic-based Subjects of the Russian Federation, corporate environmental documents, provisions of the Arctic-related conventions and other international documents whether they had been ratified or not by the Russian Federation;

2. Developing proposals to amend the applicable federation regulations with the view of mitigating or preventing adverse impacts on the environment and communities of the Russian Arctic, and encouraging the cleanup of the past economic activities;

3. Developing drafts of new federal-level regulations aimed at improving the general environmental management system and ensuring ecological safety in the Russian Arctic;

4. Developing proposals to ensure participation of the Russian Federation in the preparation of new international environmental conventions and agreements, as well as accession of Russia to the applicable international agreements and conventions that are compliant with the national interests.

From November 2008 to December 2009, the EPS TT members and the corresponding experts reviewed a large amount of the Russian and international regulatory documents governing environmental protection, conservation of natural ecosystems, satisfactory environmental conditions for the people of Russia and of the Russian Arctic in particular. 12 EPS TT workshops were held during the reported period.

The intermediary results of the EPS TT work were discussed with the participation of the Russian ministries and agencies concerned (the Ministry of Economic Development of the Russian Federation, the Ministry of Natural Resources and Ecology of the Russian Federation, the Ministry of Regional Development of the Russian Federation, other agencies, major Russian corporations, and specialized research organizations.)

The EPS TT prepared the following deliverables:

1. Analytical materials to the Report to the Government of the Russian Federation concerning improvement of the environmental management system in the Russian Arctic (234 pages with annexes on 155 pages). The materials:

- Listed the main gaps in the Russian environmental management system that fail to provide effective response to adverse environmental impacts from economic activities and to ensure proper clean-up activities across the entire country and within the Russian Arctic in particular;
- Characterized the environmental management systems in the Arctic States such as the USA, Canada, Norway, Denmark;
- Assessed the consequences of implementing the main international conventions aimed at protecting the marine environment, as well as implementing other Arctic-related bilateral and multilateral international agreements, in order to address the problems of the natural ecosystems conservation in the Russian Arctic;
- Offered specific proposals to improve environmental protection system in the Russian Arctic, including by making use of the best practice in the Arctic states;
- Characterized the consequences of the negative climate changes for the natural systems and economic sectors in the Russian Arctic; provided proposals to mitigate the above consequences;
- Provided recommendations to amend the applicable international conventions.

2. Draft Report to the Government of the Russian Federation, which, based on the analysis made, summarized proposals for improvement of the environmental management system in the Russian Arctic including proposals based on the best international practice. Upon agreement with the ministries concerned (the Ministry of Economic Development of the Russian Federation, the Ministry of Natural Resources and Ecology of the Russian Federation, the Ministry of Regional Development of the Russian Federation), this report should be sent to the Government of the Russian Federation on their behalf following the consultation procedure.

3. The analysis-based Conception of the Federal Law ‘On Special Conditions for Natural Resources and Environmental Management’;

4. The analysis-based Conception of the Federal Law ‘On Special Conditions for Natural Resources and Environmental Management When Developing Oil and Gas Resources in the Russian Arctic.

The above conceptions of the federal laws have been developed in accordance with the conceptual documents of the Russian Federation (the “Guidelines to the National Policy for the Russian Arctic”, adopted by the Government of the Russian Federation in 2001 and the “Guidelines to the National Policy for the Russian Arctic till 2020 and onwards” approved by the President of the Russian Federation on September 18, 2008) and, as expected, should be attached to the above Report to the Government of the Russian Federation.

Following the preliminary consultations, all the documents prepared by the EPS TT and approved by the Project Office have been forwarded for review to the Executing Agency (the Ministry of Economic Development of the Russian Federation) on December 30, 2009. The above documents are available in Russian only at the moment and will be translated in English after being approved by Executing Agency.

According to first response from EA these documents require further revision.

Annex VII

STEERING COMMITTEE

UNEP/GEF Project - Russian Federation: Support to the National Programme of Action for the Protection of the Arctic Marine Environment

Fourth Meeting

Reykjavik, Iceland

February 04-05, 2010

STC 4/8

Item 2.7 of the Agenda

Progress Report on demo and pilot projects implementation

Prepared by:

the Project Office

COMPLETED DEMO & PILOT PROJECTS ENVISAGED IN ORIGINAL PROJECT DOCUMENT

1. Environmental remediation of Decommissioned Military Bases on Franz Josef Land Archipelago (BASES demo project). Phase I – *COMPLETED*

This report presents the results of the survey of the state of the area of decommissioned sites of the Russian Federation Ministry of Defense and demonstration work to remediate the environment of the area of decommissioned site on Alexandra Island of Franz Josef Land Archipelago.

Work is based on Contract No. CS-NPA-Arctic-1/2007 of August 29, 2007 between Non-Commercial Organization Foundation of Polar Research “POLAR FOUNDATION” (NCO “POLAR FOUNDATION”) and Institution “National Pollution Abatement Facility Executive Directorate” (“NPAF Executive Directorate”) “Environmental Remediation of the Decommissioned Military Base on Franz Josef Land Archipelago”. The contract was made within the framework of the GEF grant to finance the implementation of the Project “Russian Federation - Support to the National Program of Action (NPA) for the Protection of the Arctic Marine Environment” of July 18, 2005.

The survey was agreed with the Ministry of Defense and Rosprirodnadzor Administration for Arkhangelsk Region.

The goal of work was as follows:

1. Reconnaissance of the present environmental state of the part of area of decommissioned site of the Russian Federation Ministry of Defense on Alexandra Island including assessment of man-made degradation and levels of soil contamination to determine the scope and composition of work on reclamation and remediation of the area in future.

2. Pilot work on the demonstration area cleanup on the area of the decommissioned military base Nagurskoe.

3. Pilot work on of the demonstration area remediation on the area of the decommissioned military base Nagurskoe the use of biological products.

4. Determination of legal and organizational procedures of the release of the contaminated areas from the Russian Federation Ministry of Defense responsibility.

5. Development of guidelines for the remediation of contaminated areas of decommissioned military sites in the Russian Arctic.

Non-Profit Organization Foundation of Polar Research “POLAR FOUNDATION” is the Contractor.

State Institution “State Oceanographic Institute SOI” (management of expeditionary work) and LLC “I.K.M. Engineering”, Saint-Petersburg were involved as Subcontractors.

Field work was performed during the cruise of the Northern Hydrometeorological Service Administration’s Research Vessel “Mikhail Somov” supplying polar stations and

researches within the 2007/2008 International Polar Year Program and in the period of survey work on Alexandra Island in September-October, 2008. .

Field work and laboratory researches were based on applicable regulatory documents regulating the requirements to observations, sampling and analysis procedure.

Present state of man-made degradation of Alexandra Island

Three main regions of man-made degradation were selected on the island to conduct aerial and terrestrial survey.

Area	No. of site of land survey	Surveyed territory size km^2	Description
Alexandra Island	1	0.2	Oil and lubricant storage facility in Severnaya Bay
	9	2.9	Radar station (air defense radar post, oil and lubricant storage facility)
	10		Oil and lubricant storage facility, settlement of Nagurskoe
Total:	**3**	**3.1**	

Site 01. The site is situated on the Severnaya Bay coast near the berth on which the equipment is disembarked from water crafts. There a lot of tanks and metal drums at the area. Some tanks are now used as oil and lubricants storage facility. The drums have labels of the 50’s and 80’s. The drums having labels of the 50’s are empty; those of the 80’s are partially full of oil and lubricants.

Site 09. Several facilities having the name "Radar station”, since the ruined radar facilities are the most typical structures. According to information from the helicopter crew, there was an air defense post there. The hydrometeorological station was situated near the post; however, no typical meteorological area was found there. There are several abandoned structures (one of them has a sign "ДЭС-2”, wooden elevated road, tanks the content and degree of fullness of which could not be determined. The area is littered with waste metal structures and other wastes. There are a lot of traces of oil pollution on the thawed soil.

Site 10. Oil and lubricants storage facility near the settlement of Nagurskoe (there was the test site of drums cleanup and pollution consequences, at which the experimental work was performed).

Reconnaissance survey of the current environmental state of the areas of decommissioned sites of the Russian Federation Ministry of Defense on Hoffman, Graham Bell and Alexandra Islands of Franz Josef Land Archipelago allows us to make an unambiguous conclusion on a significant level soil contamination and degradation at the area under study.

On Alexandra Island, 2.55 sq. km (82 percent) of 3.1 sq. km of the surveyed area man-made degradation are littered and suffer man-made degradation of soil and vegetation cover due to organized and non-organized vehicle traffic.

Most area covered by observation is littered with iron drums with the density from 10 to 30 pieces per hectare. The area affected by this type of contamination amounted to 3.1 sq. km on Alexandra Island

On the surveyed area, there are many ruins of technical and general purpose buildings and structures; dumps of metal scrap and domestic and construction waste; abandoned vehicles, radar stations, tanks, cisterns with oil and lubricants on racks and even aircrafts. The number of these detected and geocoded objects is 258, including

Building, technical and general purpose structure	- 55
Rack with oil and lubricant cisterns	- 18 (194 cisterns)
Reservoir, cistern	-15
Stack of 200 l drums of oil and lubricants	- 42
Dump of drums	- 38
Radar station	- 1
Vehicle	- 12
Watercraft	- 1
Aircraft	- 1
Wooden rack	- 2
Power line	- 14 sectors (5 km)
Industrial, construction and domestic waste dump	- 34 (125.2 thousand sq m)
Construction material and equipment storage yard	- 5
Traffic lane for vehicles	- 16 sectors (6.7 km)

It should be taking into account that reconnaissance survey was performed in autumn in the initial phase of snow cover formation, that is why even for the surveyed territories the man-made disturbed areas are apparently significantly larger in size than the above, and with account of non-surveyed areas are multiple larger than those presented in this report.

This is also completely true for the number of geocoded objects.

The study of soil quality based on Rospotrebnadzor normative documents SanPiN 2.1.7.1287-03, GN 2.1.7.2041-06 and GN 2.1.7.2042-06 allows to classify the level of contamination at all sites of geoecological testing on Alexandra Island as hazardous and extra-hazardous.

The assessment according to international standards (Neue Niederlandische Liste) showed that the contamination with oil products at the sites of testing 2-6 times exceeds

the intervention level, while the average total content of polycyclic aromatic hydrocarbons 2-8 times exceeds the allowable concentration.

The results of the study of the technical liquids showed that none of the specimens is a product based on organochlorine compound; the total content of PCBs in all samples did not exceed several hundreds of micrograms per kilogram of the product. Such a level of the content of organochlorine compounds is allowable for oil and can be explained by the pollution of oil products during their production, canning, transportation and long-term storage.

Even an accidental spill of these oil products cannot cause hazardous soil contamination with of organochlorine compounds. It is confirmed the levels of PCB content in soil specimens (maximum – 12 allowable concentrations, 0.24 mg/kg), not reaching the intervention level (1.0 mg/kg) in any soil samples even in the most contaminated with spilled oil products. At the same time, the petroleum hydrocarbon content multiply exceeds the intervention level. The analysis of the results has not revealed any similarity of the qualitative PCB composition in contaminated soils with that contained in technical liquids stored in the vicinity of the same site. This shows the presence of different sources of soil contamination both local (release of PCB-containing paint chips from drum and rank surfaces due to corrosion) and associated with PCB intake with atmospheric precipitation and dry precipitation due to long-distance atmospheric transport in the period of their large-scale production.

Environmental remediation on the area of the decommissioned military base Nagurskoe

Demonstration work on collection and disposal of empty drums with oil and lubricant residues and cleanup of soil from oil and lubricant residues with the use of biological products decomposing these pollutants was conducted on the area of the decommissioned military base Nagurskoe on Alexandra Island. Work was conducted from September 18 to 20 without regard to the time of loading and unloading of equipment. Delivery and evacuation of equipment and team of specialists was conducted with the use of Northern Hydrometeorological Service Administration’s Research Vessel “Mikhail Somov”.

Three test sites were selected to implement the demonstration project, however, the areas of test sites 2 and 3 only were cleaned up due to the impossibility to work on the test site 1 (oil and lubricant drums are itemized on the balance sheet of the frontier post).

Test sites 2 and 3 are situated on site 10.

The work layout included the following:

- clean up of the demonstration site from waste metal;
- collection of empty and partially filled with oil and lubricant residues drums from one or several sites (the total area is not more than 1 ha);
- oil and lubricant residues drainage into the cisterns available on the area;

- cleanup of the drums with a special equipment providing the cleaning fluid regeneration;
- compaction of empty drums;
- packaging of compacted drums, delivery by Research Vessel “Mikhail Somov” and transfer of waste metal to a waste metal disposal organization;
- treatment of cleaned areas with cultivator;
- introduction of two types of biological products decomposing organic pollutants on cleaned areas.

After the selection of trial cleanup sites, oil and lubricant drums were removed from the sites and compacted in trial mode with the use of a special hydraulic press with a pressure of 12 tons, control soil samples were collected from the areas to be cleaned up with biological products and two different commercial biological products Devouroil and Petrotreat and biogenic matters required for their use were introduced on these sites. A part of areas treated with the biological products were covered with special films to provide a better thermal regime for the biological products. A small number of compacted and non-compacted oil and lubricant drums were transported to Arkhangelsk by Research Vessel “Mikhail Somov” after the completion of work. The drums were stored at the Northern Hydromet Administration’s base. Unbroken drums are planned to be used for future tests of equipment that will be used for compaction in future. Compacted drums were sold for scrap to LLC “Arkhangelsk Metel’ Group” base.

After the completion of drums disposal, the following main conclusions can be made:

High power pressing or compacting equipment is required to compact most drums since the thickness of drum walls may reach 2 mm. Equipment with pressing force of at least 24 tons is desirable to be used.

The drums should be washed and recycling water cleaned up in a room with positive temperature since the drums are full of a frozen mixture of oil and lubricant residues and water.

To clean up drums, burning of oil and lubricant residues is probably more efficient with the use of special equipment maintaining a sufficiently high temperature of burning and low level of pollutants in gases. When using this method of drums clean up, the level of pollutants in combustion gases.

The efficiency of biological products for cleaning up contaminated soil can be estimated on the base of analysis of the samples collected at the test site. The first samples were collected before the start of work in 2007. The control survey was performed in October, 2008 during the expedition for additional study of the site territory on Alexandra Island. The samples were analyzed in a laboratory of N.N.Zubov SOI.

Averaged data on petroleum hydrocarbon content for test site 2 points 45 – 48 and 65 and test site 3 points 58 – 60 are given in Table 1.

TABLE OF AVERAGED VALUES OF PETROLEUM HYDROCARBONS CONTENT IN SOILS (in mg/kg) OF TEST SITES IN 2007 AND 2008

YEAR	Test Site 2 (mg/kg)	Test Site 3 (mg/kg)
2007	3540	19150
2008	800	6130

The above table shows that concentration of petroleum hydrocarbons decreased in 2008 in comparison to 2007 by 4.5 times at test site 2 and by 3 times at test site 3.

Apparently 1.5 times higher decrease in contamination level was due to the effect of the biological products. At the same time having such representativeness of results a 1.5 times difference may be considered insignificant.

Following the results of the experiments on soil cleanup using the biological products, the main conclusions are as follows:

- Biological products decreasing the soil contamination level should be used at the sites having high local soil contamination with petroleum hydrocarbons provided that it can be guaranteed a high effect of biological products, i.e. such areas should be defended either with natural obstacles or artificial borders to avoid washout of biological products and biogenic matters introduced on these sites
- Biological products should be introduced in the beginning of the warm season if possible to provide the maximum possible time of action.
- To increase the effectiveness of the biological products application, various covers should be used such as special films or stationary polycarbonate greenhouses to provide the maximum possible soil warming.
- Special and apparently small in area test areas can be established where, taking into account all above activities, contaminated soils collected from other sites and delivered to the test site can be biologically cleaned up.
- It is preferable to use specialized biological products adapted to the maximum to the use in the Far North. Biological base of such products should be microorganisms cultivated from the strains bacteria which are natural biodestructors of petroleum hydrocarbons in soils of Transpolar regions.

Legal and organizational procedures for the release of cleaned up areas from the RF Ministry of Defense responsibility

In 1960s-1970s, based on the applications made by the Ministry of Defense, some land plots allotment was authorized by the Arkhangelsk Region Executive Committee of the USSR for deployment of military units on Franz Josef Land Alexandra Island:

These plots were used by the Ministry of Defense in accordance with their intentions till the early 90's of last century.

The 1990's Armed Forces' reforms contributed to the reduction of military units deployed in the Arctic region. At the same time, the property, weapons and military hardware reached their service life as well as and wastes of various classes of hazard could not be removed due to the high cost of their removal, absence of the Ministry of Defense's ice-class vessels and appropriate mooring facilities on these islands. Abandoned barracks and quarters of also reached their service life and were taken off the books. Until now the land plots have not been transferred to the balance sheet of the Arkhangelsk Region executive authority.

Due to a further absence of demand for these land plots on Franz Josef Land the RF Government organized their commercialization. In this context, the RF Government adopted by its Decree No 571-p of April, 1994 a RF Ministry of Natural Resources proposal on the establishment of the Ministry of Natural Resources' federal nature reserve Franz Josef Land.

The requirements of the RF Government Decree are the basis to start work on releasing the land plots transferred earlier to the RF Ministry of Defense situated on Franz Josef Land from the "defense and security land" category.

In accordance with the RF Ministry of Defense procedures, applications to change the target purpose of the land plots situated on Alexandra Island (release from the "defense and security land" category) are made by the Chief of the RF Ministry of Defense Billeting, Facilities and Installation Service.

The needed documents and the above applications are prepared by the Air Force General Headquarters which will be submitted for signing by the Chief of the RF Ministry of Defense Billeting, Facilities and Installation Service through the RF Ministry of Defense General Apartment Management Administration. The Air Force Commander-in-Chief appoints the respective commission to obtain needed concurrence with interested military command structures and organizations preparing the appropriate materials.

In accordance with the effective procedure, contaminated areas should be cleaned up by the Russian Federation Ministry of Defense upon which these areas can be transferred to other entity.

Based on work results and experience obtained, the guidelines for the remediation of contaminated areas of decommissioned military sites in the Russian Arctic have been developed taking into account the effective regulatory framework and current state of such sites. The wording of the guidelines is given in the report.

Conclusion

Reconnaissance survey of the current environmental state of the area of the decommissioned site of the Russian Federation Ministry of Defense on Alexandra Island of Franz Josef Land Archipelago allows us to make an unambiguous conclusion on a significant level of soil contamination and degradation at the area under study.

Man-made degradation of the territory is mainly represented by four types.

First – organized (stored) and non-organized accumulation of drums and cisterns (empty and full of oil and lubricants) on the coast, near the frontier post Nagurskoe, in vicinity of abandoned military base as well as along the road from the coast (anchorage for vessels) to the frontier post Nagurskoe.

Second – abandoned military, transport and other equipment in vicinity of the decommissioned military site. Some abandoned equipment contains technical liquids containing PCB and heavy metal.

Third – damaged pipelines from the coast (anchorage for vessels) to the frontier post Nagurskoe and to the decommissioned military site.

Forth – ruins of structures of the former frontier post Nagurskoe, decommissioned military site, construction and domestic waste.

The level of contamination at all sites of geoecological testing on Alexandra Island can be regarded as extra-hazardous.

The results of the demonstration project on cleanup of the area from empty drums with oil and lubricant residues showed the following:

- Equipment with pressing force of at least 24 tons should be used for compacting drums;
- Oil and lubricant residues should be either burnt in incinerators to clean up the drums from oil and lubricant residues for preventing environmental pollution or the drums should be washed in a specially equipped room at a positive temperature;
- Soil reclamation on Alexandra Island is highly difficult due to a large number of stones and absence of soil cover as such. In the course of cleanup soil can be treated to reach the state close to that in non-degraded areas of the island;
- Taking into consideration the geographical situation of the sites location, work should be carried out in the period of maximum positive temperatures, e.g. in August and the first decade of September.

The experience of implementation of the demonstration project showed that during implementation of a full-scale project on remediation of the area of decommissioned site of the Russian Federation Ministry of Defense in high-altitude Arctic region, specialized and possibly unique process layout should be used, especially for disposal of hazard and extra-hazard wastes and further remediation of degraded lands.

So a series of pilot projects to test various technical solutions aimed at handling of wastes and contaminated soils are to be implemented along with the development of a full-scale project on remediation of these areas. In particular, the technology of handling drums with oil and lubricant residues should be updated till the level ensuring their complete and safe disposal.

In conclusion, it can be noted that 2007-2008 experimental project on survey and cleanup of the area of decommissioned sites of the Russian Federation Ministry of

Defense on Alexandra Island has resulted in obtaining a large amount of unique information and working out the components of the procedures that can be used for planning and performance of further work on cleanup of the area of this site and similar ones. For organizational, resources' and engineering support of further work on cleanup of contaminated areas of the archipelago, close cooperation is needed with the Ministry of Defense, FSS Frontier Service of the Russian Federation, the Ministry of Economic Development, Roshydromet, Ministry of Natural Resources and Ecology of the Russian Federation and other interested agencies as well as the use of international experience and expertise to provide a needed technical level of disposal of hazard wastes and remediation of contaminated lands.

2. Indigenous Environmental Co-management (COMAN demo project) – *COMPLETED*

The Demonstration project “Environmental co-management of extracting companies, authorities and the small-numbered indigenous peoples of the North” is the part of the UNEP/GEF project “Russian Federation: Support to the National Program of Action for the protection of the Arctic Marine Environment” and is carried out by the Batani International Development Fund for Indigenous Peoples of the North, Siberia and the Far East with the participation of RAIPON and a foreign partner, UNEP/GRID-Arendal.

The main purpose of this demonstration project, which is conducted in three model regions – Yamal-Nenets and Nenets Autonomous areas and Republic of Sakha (Yakutia) – is the following:

(a) Creating conditions for joint management of environment protection by executive power bodies, local government bodies, extracting companies and the indigenous peoples of the North at places of traditional habitat and economic activity of these peoples.

(b) Development of administrative, economic, financial and social mechanisms of environmental co-management by establishing, for example, coordination councils or other bodies, serving as a forum to identify and solve potential conflicts between the indigenous population, industrial companies, executive power and local government bodies and other interested par-ties.

This demonstration project is designed to demonstrate how it is possible to create stable co-management practices with the indigenous communities in the context of current economic and social conditions in the Russian Federation.

To do this, the Batani Fund conducted the following activities in the three model regions to provide for results given below:

Phase 1: (initial): January 25, 2008 in Moscow an introductory seminar (coordination session) was held, aimed at achievement of a common understanding of objectives and expected results by the project executive team, the directorate of the UNEP/GEF Project, executive and supporting organizations and also by all interested participants of this demonstration project. This initial activity was necessary for the successful realization of the whole project.

Phase 2: Analyses of environmental co-management practices was conducted and recommendations were developed on how to improve them in the three model regions (this included seminars, results overviews, problems identification and prioritization). Activities included:

- the efficiency analyses of organizational framework and functioning principles of the traditional nature use territories,
- other existing mechanisms and principles of the interrelation between indigenous organizations, state management bodies, local government bodies and industrial companies in seeking solutions to nature use issues

- identification of current and potential conflicts' reasons in environment protection and nature resources use and
- development of recommendations to solve these problems.

Phase 3: Regional consultations were held in an attempt to accommodate interests and co-ordination of actions of the interested parties participating in environmental co-management. The main result of this phase of the project was the development of the main principles and methods on solving issues of co-management and the adoption by all participants of a common process and beginning of work to form institutional mechanisms to govern the relations between indigenous peoples, state bodies and private business. As a result of the project's third phase, the model of the Ethno-ecological Council was established. The ethno-ecological councils will serve as the forum to identify and solve potential conflicts between the indigenous

population, companies, executive authorities, local government bodies and other interested parties. Development has started on joint action plans for executive bodies, local government bodies, companies and indigenous communities, which will secure efficient co-management at places of traditional habitat and economic activity of indigenous peoples.

Phase 4: In the model regions the round tables were held to summarize results of the Project and following their recommendations, joint action plans were prepared for the executive power bodies, local government bodies, companies and the indigenous communities. These plans will guide co-management by balancing interests of all parties and lead to the preservation of the traditional way of life and habitat of the small-numbered indigenous peoples.

On 5 December 2008 a Round table was held at the Russian Federation State Duma. Participants included representatives of federal executive bodies and other parties interested in the project's results.

The main results of the Demonstration project in the three model regions

- Development of draft rules and methods regulating relations between the small-numbered indigenous peoples of the North, industrial companies, authorities and other interested parties on the basis of recommendations to develop federal and regional legal framework.
- Development of the common concept and structure of environmental co-management in the traditional habitat of the indigenous peoples of the North reflected in recommendations and publications of the project.
- Development of the ethno-ecological council model as a forum/site, where opinion of indigenous peoples is to be heard and potential conflicts can be solved before they become an obstacle to development or issues requiring political decisions. The ethno-ecological councils have been already established in Yamal-Nenets Autonomous area (YANAO) and Republic of Sakha (Yakutia), creation of the same body is planned in Nenets Autonomous area (NAO).

- Recommendations are developed and published on common principles and procedure for establishing and changing or eliminating TTPs and also the authority and functions of federal and regional bodies regarding TTPs.
- Analyses and development of methods evaluating the effect of industrial development on the indigenous peoples and their territories.
- Development and trial run of methods to train indigenous peoples to register and use traditional knowledge for mapping TTPs and conducting ecological monitoring.
- Development of plans and recommendations on taking into account interests of indigenous peoples in programs for industrial development in order to provide balance and stability in the three model regions.
- To demonstrate various approaches to the problem of environmental co-management in the three model regions, the trial run was held of methods helping informed, scientifically and legally grounded interrelation of interested parties under industrial development of the indigenous peoples' traditional settlement territories. Publication is held of recommendations to implement environmental co-management, which can be used in other regions of the Russian Federation.
- Ideas, methods and practical experience of the Demonstration project's consultants were used in work over the draft federal law "Protection of original habitat, traditional way of life and traditional nature use of the Russian Federation's small-numbered indigenous peoples", which found reflection in recommendations of the resulting round table held at the State Duma of the Russian Federation December 5, 2008.

Period of implementing the demonstration project: from 15 November 2007 to 15 November 2008, prolonged till 15 February 2009.

The final report has been published in Russian and English.

3. Remediation of the Environment through the use of Brown Algae (CLEANUP pilot project) – *COMPLETED*

The pilot project Cleanup of Arctic Marine Environment Using Biological Filtration Potential of Brown Algae demonstrates an innovative method

of cleanup of marine environment from oil pollution. This method is based on biological filtration potential of a symbiotic association of brown algae and hydrocarbon oxidizing bacteria. The new technology has been implemented at the experimental plantation of algae in Olenia Bay of Barrens Sea. Two main sources of oil pollution in this basin are Nerpa ship repair yard, which has a submarine dismantling dock, and naval ships anchored in the open-sea part of the bay.

The innovative method of seawater cleanup was tested between November 2007 and October 2008. The experimental plantation consisted of engineering structures with horizontal cable ropes stretched on the water surface, which provided the substrate for *Fucus vesiculosus*. These ropes supported 5-meter-long vertical slings, which served as substrate for *Laminaria saccharina* thalluses and epiphyte hydrocarbon oxidizing bacteria, at the depths of 0.5-5 meters. The floating structure had the area of 0.5 ha and was attached to artificial anchors at the depth of 15-25 meters. Several major anthropogenic oil spills occurred in Olenja Bay during the project implementation period. Fucus algae at the experimental plantation directly contacted with oil film for a long time, serving as slick bars and cleaning water surface.

Simultaneously with the tests performed in situ at the plantation, several experiments were conducted in high seas and in the laboratory of biological station of Murmansk Institute of Marine Biology, located in Dalnie Zelentsy village on the coast of Barents Sea. These experiments demonstrated the potential of fucus algae to clean seawater from oil pollution.

Project results can be briefly summarized by the following conclusions:

1) The proposed plantation design and biological filtering method can be implemented all year round.

2) Sanitary algae plantation contains oil pollution and adsorbs oil products. The absorbed oil products are metabolized and neutralized by symbiotic association of algae and epiphyte bacteria.

3) The activity of hydrocarbon oxidizing bacteria (epiphytes of brown algae) increases in the presence of oil products, which is an important factor to consider during the plantation inception stage.

4) An original finding of this project is identification of five species of dominant epiphyte bacteria, which neutralized oil products on the surface of algae.

5) Individual modules of sanitary algae plantation can be effectively used for containment of oil films and sustainable development of aquaculture in Barents Sea.

6) Baseing on both in-situ measurements and laboratory experiments, we showed that one hectare of biofiltering plantation may neutralize about 100 kg of oil products per week.

7) Valuable bioactive substances can be extracted from laminaria harvested at the sanitary algae plantation.

8) The prototype plantation, implemented in Barents Sea, can be also implemented in other seas provided that certain modifications are made to take in account specific regional abiotic and biotic factors.

Based on the results of this pilot project, project authors filed a patent application “A method of purification of coastal seawater from oil films and oil products, dispersed in the surface layer” and obtained the patent № 2007106573/13 (007130). The results of this pilot project are extensively illustrated by photographs.

ADDITIONAL DEMO & PILOT PROJECTS

As it was stated in the initial Project Document several additional demonstration and pilot projects would be designed by the PO in close cooperation with local administrations with purpose of possible expansion of the donor base for the Project. A number of projects were introduced by the PO and approved at the Steering Committee meetings or via electronic communication. At the moment three of them are completed, other three are commenced and two projects are not started yet.

COMPLETED PROJECTS

4. Developing Bioremediation Technology for the Cleanup the Oil-Contaminated Onshore Sites in the Arctic (BIOREMEDIATION pilot project) – *COMPLETED*

Author: Limited Liability Company "NavEcoservis" (OOO "NavEks") - 183038, Murmansk, Tralovaya st. 71;

Basis: Contract No.SS-NPA-Arctic-05/2008 dated 01.07.2008 (the Contract);

Executive Summary:

In Russia, development of oil and oil products extraction and transportation activities is concentrated mainly in the Far North regions. In this context, these economic activities shifted the entire man-induced load to the locations with the cluster of oil processing and handling facilities. Murmansk Oblast is one of the oblasts with the burgeoning transport infrastructure for oil and oil products.

Over the last 6 years, Murmansk Oblast has seen a dramatic increase (several times) in the scope and scale of transportation, handling and storage of oil and oil products. The growing oil traffic by sea, rail and road has increased the probability of accidents and contingencies that may give rise to emergencies.

The growing risks of emergencies associated with oil and oil products spills (the Oil Spill Emergencies) in Murmansk Oblast, as well as in the waters of the Kola and Kandalaksha Bays, indicate that there is a need to develop environmental safety measures to both prevent and manage the most probable and highest possible Oil Spill Emergencies.

The international experience of responding to oil spills has shown that in the context of the Arctic seas, the equipment-based spill response is only capable of collecting from the environment 20-30% of oil spilled in the accident depending on the type of oil, the remoteness of the spill from the coast and degree of contamination of the shoreline. Collecting oil products from the shoreline is the most time-consuming and resource-intensive activity.

Carried out as part of the Study, the analysis showed that neither Murmansk nor Murmansk Oblast has any available sites (sludge storage pits), including sludge dumps to accommodate oil-contaminated soil or slime.

A major focus of this work is to study biological methods to mitigate the consequences

of environmental emergencies related to spills of oil and oil products in the protected areas of Murmansk Oblast.

The final report presents:

- The results of the analysis of the Russian and international experience in bioremediation of soils polluted by oil products at low temperatures;
- Results of a range research station and equipment selection; plan of the range research station site;
- Results of the field studies and laboratory essay of the samples;
- Results of the review of the sample laboratory essay findings;
- Summary of the development and presentation of the draft Guidelines for Bioremediation of Oil-Contaminated Soils in the Arctic;
- Summary of the workshop, which was carried out to discuss the Study results, draft Guidelines for Bioremediation of Oil-Contaminated Soils in the Arctic and dissemination of best practices.

The results of the studies suggest that bioremediation of oil-contaminated soils in the Arctic is a promising method. This conclusion is also confirmed by the meeting that discussed the results of work implemented under Contract No.SS-NPA-Arctic-05/2008, which was held on June 16, 2009 in the Murmansk Oblast Committee of Natural Resources Management and Ecology.

One of the main achievements of this work is the application of special technological approaches and engineering solutions to bioremediation, enabling the continuation of the oil products biodegradation process of throughout the calendar year.

The experiment proved that it was possible to use biological products in the Arctic. For the Murmansk region conditions when pollution level reaches 5% it may take up to 3-4 years for the total clean up of the soil. Without biological products use it may take much longer.

The draft "Guidelines for Bioremediation of Oil-Contaminated Soils in the Arctic" is the first such document, which was adopted by Murmansk Oblast to guide bioremediation processes, including approaches based on technological innovations.

5. Cleanup of the Bay of Tiksi seafloor from sunken logs and shipwrecks (TIKSIBAY pilot project). Phase I. – *COMPLETED*

Author: Open Joint Stock Company “Tiksi Sea Port”, with the registered address: the Russian Federation, 678400, Republic of Sakha (Yakutia), Bulunsky Rayon, Tiksi, 1 Morskaya st.

Basis: Contract No.CS-NPA-Arctic-07/2008 dated 01 July 2008

INTRODUCTION

Tiksi is Yakutia’s sea gate. It was established in 1934 as part of the Northern Sea Route Initiative. It is located on the coast of the Bay of Tiksi and Gulf of Bulunkan.

The Bay of Tiksi is of great fishery importance and is nursery grounds. Kirillin F.N., the famous Yakut ichthyologist, wrote in his work "Fish of the Bay of Tiksi”, (1951, published by Tomsk State University (p. 155 - 162)), that the marine waters of the Bay of Tiksi are home to 14 species of fish fauna: sturgeon, herring, Siberian white salmon, whitefish, Arctic cisco, garganey, lake herring, Coregonus muksun, grayling, and smelt. There are also such fish as flounder, cod and Myoxocephalus quadricornis labradoricus. Of these 6 species - sturgeon, Siberian white salmon, whitefish, garganey, lake herring, Coregonus muksun - are valuable whitefish species of fish.

More than 70 years of man-induced impacts on the Bay of Tiksi resulted in many environmental problems, some of which have not been addressed so far.

Leftovers of the earlier round wood rafts, sunken logs, strapping steel wire and steel wire ropes and half-sunk skeletons of ships and wrecks that are still in the bay, decaying and rusting, emit harmful substances (organic, biogenic, etc.) and these lead to loss of all forms of plankton (bacterioplankton, phytoplankton, zooplankton) and zoobenthos, and hence, to the potential loss of the principal nursery grounds of valuable northern species of fish populations.

The extraction of nutrients from sunken logs is a very long process. The loss of the existing ecosystem is the problem of regional importance, affecting the entire system of the World oceans and seas with all the ensuing consequences.

The 1990 study of sediment samples from the Bay of Tiksi showed that the sediment condition was such that it would not only result in the disturbance of biotic community, but would also lead to the extinction of some of its species.

Further contamination of the Bay of Tiksi waters may result in the disturbance of biotic community and in the extinction of some of its species. The loss of the feeding function of the largest fishery, which is also the nearest fishery to the Lena spawning grounds, will result in a reduction of stocks of the valuable species and the withdrawal of fish from the region. There is a direct threat to human life and health, particularly among the indigenous peoples of the North.

In accordance with the Terms of Reference (TOR) of the Project, the main purpose of this activity was to protect the biosphere in the marine and coastal zone of the Bay of Tiksi and the Gulf of Bulunkan from man-induced pollution.

Prior to commencement of the work, domestic and foreign experience in the cleanup of the water area was analyzed.

The analysis covered a number of federal and regional programs, technologies and methods aimed at improving the water environment:

- The Revival of the Volga Federal Program;
- The Krai Program "The Cleanup and Pollution Abatement Activities in the Marine Waters and at Ports of the Primorsky Krai";
- The Targeted Program "The Cleanup of Rivers and Canals in St. - Petersburg" and the scheme of bottom-cleaning operations;
- The Sectoral Program "the Cleanup of the Volga River from Sunken and Abandoned Craft";
- The cleanup of water bodies in Western Europe through the removal and flotation of contaminated soil at the specialized hydrocyclones, etc.;

The study of the sunken logs lifting experience helped arrive at the conclusion that clamshell dragging or trawling would be the most rational and effective method for the pilot project.

When cleaning up the bay water from wrecks, the Project reviewed several technological approaches to vessel lifting, transportation and cutting of sunken vessels. Each case could be addressed by applying a specific method or a combination of those techniques that are most consistent with the technical possibilities and conditions of vessel salvaging. The choice of technology was influenced by various factors. The most important of these included the integrity of the target and its location, as well as natural conditions that influenced accessibility of the targets and the way they could be approached.

The cleanup technology was defined by the Port Technical Council, which was guided by the data from the engineering and underwater survey and ensuing recommendations.

The main salvaging technologies included:

- Lifting and transportation while maintaining the integrity of the hull;
- Cutting in-situ and raising the hull parts;
- Dragging and gradually cutting the hull by its components.

The Project entered into an agreement with the Federal State Organization "The State Nature Reserve Ust’ - Lensky" to conduct two studies: (i) "The Pre-Cleanup Assessment of the Pollution Levels of the Bay of Tiksi Water Area from Man-Induced Impacts"; and (ii) "Study, Analysis and Assessment of the Environmental Status of the Bay of Tiksi and the Gulf of Bulunkan as a Follow Up of the Cleanup Operations".

Work Stages

Stage 1

1.1. At the first stage, the Project analyzed the existing domestic and foreign experience in the water area cleanup operations, prepared the design documentation, and trained the Port technical personnel in the safety and quality of the cleanup operations in the bay.

The Project also carried out the depreservation and repair and restoration works on small vessels, lifting equipment and small tools and equipment such as:

- The RBT "Wave" Tower Boat - 1 unit;
- The Ganz Floating Crane - 1 unit;
- The Pontoon (seaborne barge) - 2 units;
- The SOKOL" Gantry Crane - 2 units;
- The Ganz Gantry Crane 2 units;
- The RDK Crawler Crane - 1 unit;
- A Forklift - 2 units;
- The Terberg Port tractor- 1 unit;
- A Roll-trailer - 5 units;
- The TT-4 Skidders - 1 unit;
- The Nissan Condor Truck with a handling crane "" - 1 unit;
- The Kubota Diesel generator welder;

The works were carried out with the following machines and handling equipment:

- The RDK-250 Crawler crane;
- A Nissan Forklift;
- The GANZ Gantry crane;

The machines options were based on the technology selected to cleanup the seafloor of the Bay of Tiksi from sunken logs and wrecks.

1.2. The Project assessed the pre-cleanup pollution levels in the Bay of Tiksi. Based on the Goodnight - Wheatley index and Woodywiss F. Biotic index, assessment of the pre-cleanup pollution levels in the Bay of Tiksi for water zooplankton and zoobenthos indicators showed that:

- The quality of waters in the Gulf of Bulunkan was worse than in the open waters of the Bay of Tiksi;
- The water saprobity class was defined as mezasaprobity;
- The water quality prior to the cleanup operations was determined as moderately contaminated.

Stage 2

From August 1 to October 2, 2008 (the navigation period) the seafloor of the Gulf of Bulunkan was dredged with a grappler installed on the floating crane to lift the sunken logs, load them onto a pontoon or seaborne barge, and transport the logs to the onshore offloading point. The barges were towed by the VOLNA RBT harbor pusher tug. On the shore, the logs were unloaded, graded and stacked.

From August 12 to 23, and September 1 to 11, 2008, the following wrecks were handled:

- IBE - 406 "(sea barge - platform);
- L – 1311 (dry cargo lighter);
- Murmanets (sea tug);
- Hero ASYAMOV (estuary launch);
- AUGA (cargo ship)

Concerning these wrecks, the Project carried out the following activities:

(a) It conducted underwater survey;

(b) It repaired damaged hulls of the sunken vessels by welding 5 watertight patches in order to lift them to the surface;

(c) The Port Technical Council defined and approved the methodology for lifting the wrecks:

- The Wrecks "IBE - 406", "Hero ASYAMOV", the motor vessel "AUGA" would be lifted in one piece by setting them afloat and towing them to the repair or cutting site;
- Sunk near the coast, the Murmanets sea tug and L – 1311 dry cargo lighter would be dragged along the seafloor with traction hoists and crawler cranes since the hulls were severely damaged.

Phase 3

From July 27 to August 11, 2009 (the navigation period) the seafloor of the Gulf of Bulunkan was dredged with a grappler installed on the floating crane to lift the sunken logs, load them onto a pontoon or seaborne barge, and transport the logs to the onshore offloading point. The barges were towed by the VOLNA RBT harbour pusher tug. On the shore, the logs were unloaded, graded and stockpiled.

The third phase activities, scheduled under the Contract for the winter period, were carried out in the 2009 navigation season due to the fact that the continuous snowstorm (December 2008 - January 2009) and rather warm – for this period - weather prevented the normal growth of ice in the Gulf of Bulunkan. To bear heavy machines (the RDC crawler crane in this case) the ice cover in the gulf should be sufficiently thick. Since it was not possible to take the trawler crane onto the ice and do the trawling in January-February 2009, the Project Directorate was consulted and this activity was shifted to the summer season of 2009.

Phase 4

Based on the results of the activities carried out at the key stages of the pilot project "Cleanup of the Bay of Tiksi Seafloor from Sunken Logs and Wrecks", Stage 4 conducted another study of the water quality in the Bay of Tiksi and the Gulf of Bulunkan. Following this, the Federal State Organization "The State Nature Reserve Ust' - Lensky" carried out a comparative analysis of the water contamination before and after the cleanup, as well as assessment of the environmental status of the bay waters.

From the "Study, Analysis and Assessment of the Environmental Status of the Waters in the Bay of Tiksi and the Gulf of BULUNKAN" Report one may conclude that the cleanup operations (removal of sunken logs and metal pieces such as chains, pieces of wire rope, and wire that were used when rafting timber to Tiksi in 1960 - 1985) had positive effects on the environmental status of the water area.

The Pre-Cleanup and Post-Cleanup Report data concerning the seafloor of the Gulf of BULUNKAN suggest that the amount of pollutants, in particular phenols, was reduced due the reduction in the amount of decaying wood, a source of phenols. The comparative analysis of the quantitative characteristics of zooplankton in 2008-2009 demonstrated a trend towards the changes in the values of density of the community and biomass after the clean-up operations on the seafloor of the Gulf of BULUNKAN. The density of communities in the sampling period of 2008 changed from 0.87 mg / l in October to 0.36 mg / l in August. Maximum values were observed on 10.08.2008. In 2009, following the cleanup of the seafloor from sunken logs, the change values were in the range from 0.89 mg / l in October to 0.86 mg / liter. On 25.08.2009, the study recorded the highest values of the community density. Against the background of the general increase in values, this indicates a relative improvement in the environmental status for the existence of benthic organisms.

Assessment of the Pre-cleanup and Post-Cleanup Water Pollution Levels in the Bay of Tiksi

Prior to the cleanup of the seafloor in the Gulf of Bulunkan (1 August 2008), the Project carried out hydrobiological monitoring of the zooplankton and zoobenthos in the waters of Bay of Tiksi and the Gulf of BULUNKAN. The water pollution levels (water quality based on hydrobiological indicators) was assessed through the use of the Goodnight - Wheatley index and Woodywiss F. Biotic index for water zooplankton and zoobenthos and the oligohet ratio to the overall number of zoobenthos organisms.

The long-term monitoring showed that the Gulf of BULUNKAN as compared to the Bay of Tiksi is characterized by lower values of abundance, biomass and species composition of zooplankton (9 species versus 20). This is due to man-induced pollution, low oxygen content in winter and high levels of sulphides and chlorides. The species composition of blue-green and green algae is poor, dominated by diotom species of algae. The scientific study of the samples of zooplankton and zoobenthos showed that water is of moderate contamination. The water saprobity class was defined as mezasaprobity, i.e. there is pollution.

Environmental degradation in the shallow waters of the Gulf of BULUNKAN as compared to the Bay of Tiksi was caused by a combination of various detrimental

factors. The biggest contribution to the water pollution is phenols accumulating from rotting sunken logs and wood residues. According to the characteristics of the bottom-dwelling biocommunity obtained in the course of the monitoring period (August to October), all the Gulf samples showed that water (water purity grade) was moderately polluted, while water in the Bay of Tiksi was clean. In other words, the quality of water in the Gulf of BULUNKAN was worse than that of the open water area of the Bay.

The purpose of the cleanup operations was to determine the effect of the effort to trawl out the decaying timber over one season on the subsequent status of the Bay water. The 2008 seafloor trawling was launched in the shore area of the southeastern part of the Bay. In 2009, trawling continued in the shore area 400 m wide, in the western part of the Bay up to the Cape of Ice (the works were completed on 8 August 2009).

The seafloor cleanup operations (the diagram is attached) were carried out on an area of over 500,000 m2 (0.56 km2). All in all, 41 shifts produced 1,900 m3 of logs lifted from the seafloor. Most of it (over 80%) was rotten causing biological contamination of water, in particular with phenols. In addition, the cleanup operations lifted from the seafloor 22 tons of steel wire, wire ropes and chains taken onshore for recycling.

We may calculate accumulation of the decaying timber per square meter of the seafloor by dividing the amount of the timber lifted (1,900 m3) by the seafloor area cleaned up (560,000 m2) to receive 0.0034 m3/m2.

Thus, in order to lift 1 m3 of logs from the seafloor, it will be necessary to trawl about 300 m2 (294 m3 is an area of 20*15 m). This will require up to 100 cycles of the lift-lower movements of the clamshell. In other words, the seafloor cleanup operations were very intensive.

Upon the completion of the seafloor cleanup operation, the Project carried out another hydrobiological and hydrochemical analysis of the water samples taken at the site of the cleanup operation in the Gulf of Bulunkan, as well as at the site of the operations in the Bay of Tiksi. It was found that organisms of the Arctic Ocean have a wide tolerance range. They are rather adaptive to quick changes in water temperature and mineral content. But the same organisms are very sensitive to man-induced pollution including sulfide and chlorine one.

Entering the coastal waters, pollutants have a repelling impact on the fish and change the conditions of fish feeding, wintering and spawning. They also contribute to high concentrations of fish shoals within a limited area, while keeping the fish from the fodder organisms making it difficult to use the feeding resources and reducing the biological productivity of the water body as a whole.

Direct poisoning of water with toxic pollutants and industrial waste, reduced aeration of the water body due to the freezing up or man-induced contamination with oxidizing organic pollutants, in particular caused by the accumulation of decaying vegetation, timber or development of toxic microorganisms may generate fish kill conditions or kill fish outright because of insufficient amount of oxygen in the water of the Gulf of Bulunkan. Water is especially oxygen-poor in winter and as ice cover grows thicker. The thicker the ice cap is the less the amount of water in the bay and this contributes to the

concentration of organic, biogenic, and polluting substances in the bay. Also, the Lena River carries less fresh oxygen-rich water into the Bay of Tiksi and Gulf of Bulunkan. Decomposition and decaying of the sunken logs intensifies generation of pollutants and uptake of oxygen.

The comparative analysis against the 2008 initial studies showed improvement in the water quality demonstrated clearly by an overall increase in the density of communities and biomass of both zoobenthos and zooplankton. The analysis also found that following the cleanup the bay seafloor amount of pollutants, in particular phenols, was reduced due the reduction in the amount of decaying wood, a source of phenols. The analysis yielded the following conclusions on the results of the cleanup operations:

- There has been a relative improvement in the environmental conditions for the benthic organisms existence demonstrated by an increase in their overall count;
- Concentrations of pollutants tend to decrease with a distance from the Lena river delta branches to the sea and with the increasing depth of the sea. In some periods, volley discharges of pollutants in the river runoff at the mouth of the Lena River, including sulfides and chlorides, lead to fluctuations in the abundance and biomass of zooplankton and the mobile benthos. These data indicate that contaminated river water may have an impact on the coastal shallow part of the Laptev Sea shelf;
- The cleanup operations demonstrated the need in cleaning the seafloor from decaying timber, even if such an operation is small scale and carried out for a short period of time.

CONCLUSIONS

1. The trawling of the seafloor in the Gulf of Bulunkan and the good results of the water quality analysis following the cleanup operations indicate that the clamshell trawling and the respective machines and equipment were the right choice.

2. The preparatory work on the hulls of the wrecks was carried out in accordance with the terms of the Contract. The quality of work suggests that it would be possible to reduce time and complexity of work concerning the lifting and disposal of wrecks.

3. The improved water quality, having resulted in an overall increase in the density of communities and biomass of zoobenthos and zooplankton only after one season of the cleanup operations suggests that such work should also be continued at the second phase of the Contract.

4. The future expansion of the cleanup seafloor area (the second phase of the Contract will cover up to six hundred thousand square meters) towards the central part of the Gulf of Bulunkan, from the entrance gate to the former site of intensive raft accumulation site, would increase the amount of the decaying timber to be lifted from the seafloor due to the high rate of sunk timber accumulation in this area. The timber to be lifted may amount up to 2,500 – 3,000 cu. meters.

5. Future cleanup operations will lead to significant improvements in the environmental status of the Bay of Tiksi and the Gulf of BULUNKAN basins.

6. Providing local (indigenous) people with firewood from the logs so lifted will help conserve forests since there will be no need for felling forests. The local population used to gather timber for construction and firewood from rafts crashed by bad weather but after the termination of the timber rafting people started cutting down larger quantities of trees in the forest-tundra.

7. Intensive decaying of the sunken logs (more than eighty percent of the total amount of the sunken logs), particularly of the inner middle part of logs, leads to dangerous and toxic chemical contamination of water, which is clearly seen in the photographs. Chemical contamination of water has a negative impact on wintering, feeding and spawning of the most valuable commercial species of the Arctic fish. This requires not only the continuation of cleanup operations, but their intensification.

8. Developed and tested at the port, the clamshell trawling method can be applied in other Arctic regions in shallow fisheries and "fattening" water bodies.

9. As a result of the preparatory work on the wrecks they are ready for lifting and recycling during the second phase of the Project.

6. International Training Workshop on Environmentally Safe Management of Hazardous Wastes, Including Occupational Health and Safety Issues – the International training workshop was held in Moscow on July 20-23, 2009.

In accordance with decision of the UNEP/GEF Project Steering Committee the Project Office in coordination with US Environmental Protection Agency (USEPA) and with assistance of the Ministry of Natural Resources of the Russian Federation (MNR of Russia) and ACAP Secretariat held International Training Workshop on Environmentally Safe Management of Hazardous Wastes, Including Occupational Health and Safety Issues. The purpose of the training was to increase trainees' knowledge on the latest methods of ensuring environmental safety in operations involving handling of hazardous waste, including issues of occupational health. A special attention was paid also to the issues related to removal of drums containing residues of hazardous materials, all aspects associated with handling outdated pesticides, reclamation operations, etc. Follow this link to see a training programme …

Specialists from Russian Arctic regions as well as from federal and local agencies, representatives of aboriginal minorities and NGOs directly involved in hazardous waste products collecting, their handling, transportation and management were invited to participate in the workshop.

The training was delivered by qualified specialists of the Russian Ministry of Natural Resources, RosTechNadzor, and RosPotrebNadzor (Russian Consumers Inspectorate), as well as by professionals representing organizations specializing in the practical aspects of waste handling. The training complied with the RF Government Resolution No.340 of May 23, 2002, with the associated program approved by the RF Ministry of Natural Resources and endorsed by RF Ministry of Education (RF MNR decree No. 868 of December 18, 2002), and finally with the decree No.793 of November 20, 2007 ('On Training and Certifying Managers and Specialists of Organizations Specializing in Ensuring Environmental Safety') issued by RosTechNadzor (Russian Environmental, Technological and Nuclear Inspectorate).

Invited USEPA experts made sound input in the workshop by supplemented the seminar with theoretical lectures and practical exercises on occupational health issues and environmentally safe handling of waste in accordance with USEPA generally accepted procedures. They also provided necessary for exercises teaching materials and familiarized trainees with up-to-date environment controlling and monitoring instruments, personal protective equipment, with basics of hazard recognition, site entry and reconnaissance strategies and other. Outside exercises on the test site of garbage-disposal plant (GUP "Ecotekhprom") were held in the course end. During these exercises the trainees could mastering theoretical knowledge received in a classroom.

Participated the workshop (32hours course) and passed an examination students obtained Russian and USEPA certificates for hazardous waste handling.

7. Environmental Remediation of the Former Military Site near Pokrovskoye Settlement (Onezhsky District of Archangelsk Region of the Russian Federation) (**ONEGA-BASE pilot project)** – contract signed, advance payment done, project implementation has been started already.

The purpose of this demo project is to demonstrate a cost-efficient methodology of an environmental remediation of disused military sites and handover thereof to civil use. This first case can then be used for remediation of chemically contaminated areas in coastal areas at a larger scale and consequently diminishing the impact of Russian sites on the international Arctic waters. Approved by StC members.

A contract has been signed with a bid-winner for the project implementation OOO "GORST", which is an environmental company with good reputation and based in Arkhangelsk. This pilot project is funded 50:50 by NPA-Arctic and by local authorities (Arkhangelsk Committee for Ecology). This was a first triple contract prepared and signed by NPA-Arctic Project. Work under this contract was started in September at the risk of contractor – even before all formalities with the contract were finalised. At the moment OOO "GORST" made already distinct progress even under unfavourable weather conditions which are prevailing in Archangelsk region during autumn and winter seasons. They mobilised all necessary for the pilot project implementation machinery and started already operations on residual oil (mazut) excavation from a pond and garbage disposal.

The first tripartite contract was designed by PO for this pilot project and signed by all interested parties. This demo project is funded 50:50 by NPA-Arctic Project and by the Committee for Ecology of Arkhangelsk Region (a part of Arkhangelsk regional administration).

8. Cleanup of the Bay of Tiksi seafloor from sunken logs and shipwrecks (TIKSIBAY-2 pilot project). Phase 2 - contract signed, advance payment cannot be paid – waiting for getting a tax-free status for a contractor but project implementation has been started already at risk of the contractor.

The pilot project objectives is finalisation of cleaning works started during Phase 1 of the demo project and fulfilment of basic hydro-biogeochemical survey with the purpose of understanding of the ecological situation in the Tiksi bay follow up by methodological recommendations for its remediation. The project is fully supported by Iceland.

9. Development of technology of clean up from hazardous waste of the area of decommissioned sites of the Russian Federation Ministry of Defense in the Arctic by the example of Alexandra Island of Franz Josef Land Archipelago (BASES-FJL-2 pilot project). Phase 2. – A contract signed with bid-winner NGO "Polar Foundation" who successfully fulfilled the Phase 1. An advance payment cannot be paid yet – PO is waiting for getting a tax-free status for implementation of this project

but some preparatory works under the project has been started already at risk of a contractor.

This demo project addresses serious environmental security threats posed by large contamination sources located at three abandoned military sites in Franz Josef Land. Basing on the Phase 1 outcomes the project objective is to develop elements of infrastructure that will address these contamination threats and reveal in practice the whole chain of operations for collection, cleaning, compaction of metal drums follow up with safe destroying of hazardous contents of the drums and removing them from archipelago with subsequent recycling in mainland. At least 1000 of drums have to be cleaned, compacted and transported to Arkhangelsk City for recycling. The project is partially supported by EPA USA.

ADDITIONAL DEMO & PILOT PROJECTS – NOT STARTED YET

10. PESTICIDES. Demo project on obsolete and prohibited pesticides destruction in Russian Federation – delay with the project commencing due to process of state expert examination and licensing of equipment for destruction of pesticides according to Russian standards is to be finalized by the end of the 1st quarter 2010. No contract is signed yet. Repeated tender is needed because a project proposal received after first tender did not include any working plan.

The objective of the demo project is to demonstrate elimination of outdated pesticides, which includes repackaging of pesticides into the UN-approved bags, transportation of pesticides to the incineration place, obtaining permits for transportation and temporary storage, equipment evaluation for the environmentally sound destruction of pesticides, chemical analyses of pesticides designated for destruction; monitoring and evaluation of air emissions and discharges and similar activities. Partially supported by EPA USA

11. RITEG-KONDRATIEV. Localisation and removal from a thermokarst crater of two radioisotope thermoelectric generators (RITEGs) of GONG type at the Kondratiev navigation beacon site in Ust'-Yanski Ulus of Republic of Sakha (Yakutia). – Tender was announced. It is expected that application from consortium of the interested companies will be received before to the end of January 2010.

This project was approved by the 2nd meeting of the Steering Committee. Objectives: to determine the depths of two RITEGs which are buried near Kondratyev navigation beacon site and to dig up both RITEGs from a thermokarst crater to the surface for following removal to the special storage. Project document, tender dossier and ToR all were prepared by the Project Office.