EPPR NEW PROJECT. DEVELOPMENT OF SAFETY SYSTEMS IN IMPLEMENTATION OF ECONOMIC AND INFRASTRUCTURAL PROJECTS IN THE ARCTIC. PROJECT PROPOSAL OF THE RUSSIAN FEDERATION.

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ARCTIC COUNCIL – KAUTOKEINO SAO MEETING

EPPR NEW PROJECT

DEVELOPMENT OF SAFETY SYSTEMS IN IMPLEMENTATION OF ECONOMIC AND INFRASTRUCTURAL PROJECTS IN THE ARCTIC

PROJECT PROPOSAL OF THE RUSSIAN FEDERATION

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1. INTRODUCTION

The Arctic is an area of potential large-scale economic activities of production, processing and transportation of mineral raw materials conducted in a sensitive environment. Considerable risks of emergencies exist due to the natural and technical character of these activities.

The Arctic is a vital area, whose global character is determined by:

- availability of sources of vital mineral and biological raw materials,
- potential of large economic developments,
- considerable reserves of pristine natural areas,
- its being a climate influencing region - the "weather backroom" on a planet scale,
- its rendering a significant amount of "ecoservices" aimed at assimilating negative anthropogenic impact on the global climate system.

At the same time, the Arctic environment is extremely vulnerable as biological processes there are slow and its assimilation capacity is limited and can be rapidly exhausted.

The combination of these factors brings the issues of safe use of land and offshore Arctic areas into the sphere of international interests thus creating a crucial arena for international cooperation. Taking into consideration international obligations of the countries in the circumpolar region, safety of economic activities in the Arctic is the most important condition for realizing national economic interests and ensuring global economic growth on the basis of provision of critically important primary resources.

2. RATIONALE FOR PROJECT ELABORATION AND IMPLEMENTATION

In the northern high-latitude circumpolar regions the member states of the Arctic Council are implementing or planning significant projects in oil and gas production, hydrocarbon materials transportation, electric power engineering, etc.

The related threats to the land, water areas, living environment of the population, life support systems, and transport and social infrastructure facilities are the major risk factors for sustainable development. This is also the conclusion of the research already undertaken by the Arctic Council. It is, therefore, important to ensure industrial, technological and environmental safety in the Arctic region.

Ensuring a required level of environmental protection and living conditions, prevention of environmental disasters and technogenic catastrophes, and prevention of and efficient response to emergencies in the Arctic region are significant tasks in the context of implementation of any economic development project.

This challenge is of a comprehensive character. Meeting it requires a reasonable strategy and coordination of activities by member states, governmental authorities, and it implies close ties between the state and business within the framework of public/private partnership, active cooperation with all the parties concerned on an international scale.

3. GOALS AND OBJECTIVES

The three key goals of the project are:

1. Elaboration of recommendations and key elements of the emergency risks assessment system and the system for improving safety of potentially hazardous facilities. This should be done on the basis of pilot projects.
2. Elaboration of recommendations for establishing regional centers with international participation accumulating monitoring information and managing rapid reaction forces in strategically important spheres, which will allow implementation of efficient emergency response activities.
3. Consideration of the possibility of establishment of an integrated monitoring, prevention and prompt response system in the Arctic.

Objectives of the project include, but are not limited to:

- International promotion of advanced national experience aimed at establishing a favorable competitive environment for economic activities; ensuring efficient strategies of land use, natural resources planning and management; industrial and environmental safety.
- Elaboration of recommendations on possible joint activities with a view to enhance industrial and environmental safety in the regions of major northern transportation corridors.

In order to assist member states to improve safety of potentially hazardous facilities, as well as to promote economic and infrastructural development initiatives in high-latitude circumpolar regions within the project framework it is necessary to:

1. Take an integrated approach to emergency prevention;
2. Define minimally acceptable risks of accidents, disasters and emergencies;
3. Establish an early warning and mutual information system in regards to potential threats and emergency risks (introduction of new technologies into early warning systems related to emergency risks, such as possible industrial and technogenic accidents);
4. Coordinate joint efforts, improve preparedness for efficient and prompt response in emergencies;
5. Ensure regular and prompt information sharing;
6. Establish a venue for efficient advance experience exchange and promotion in decreasing emergency, technogenic risks on the basis of international centers.

A future integrated monitoring, prevention and prompt response system could be oriented, above all, on ensuring safety of potentially hazardous facilities and protection of population and territories from natural disasters and technogenic accidents.

Potentially hazardous facilities comprise oil and gas facilities, including those related to hydrocarbons exploration and production on the continental shelf, nuclear-power engineering facilities, product pipelines, pipelines for hydrocarbons and other materials transportation, hydrocarbons processing facilities, power facilities, population life support facilities, etc.

Hazardous factors are conditioned by:

- environmental processes and phenomena: tectonics, endogenous geodynamics, hydrometeorological conditions;
- technical reasons;
- economic and business activities including transport.

The following components are crucial within the project framework:

1. Improvement of monitoring systems of potentially hazardous facilities and the territories under active industrial exploration, including mineral resources exploration and production facilities on continental shelf;
2. Improvement of industrial and environmental safety in the course of development of hydrocarbons on the Arctic continental shelf and hydrocarbons transportation (taking into consideration lack or availability of experience, resources and means of ensuring the declared safety level).
3. Establishment of regional centers with international participation accumulating monitoring information and managing rapid reaction forces in strategically important spheres, which will allow efficient activities in emergencies.

Work on these components imply possible elaboration of legal regulations and management tools with due consideration of the best international practice including setting the status and structure of regional situational centers.

Project implementation will enable to work out proposals by the Arctic Council related to assessment of natural and technogenic risks, elaborate invariant scenarios of ensuring safety and, if necessary, of quick response at three decision-making levels, i.e., the strategic level (planning and design of economic and infrastructural facilities), the level of construction and development and the level of their operation.

Project implementation will also contribute to achieving significant social effect in the following fields:

- improvement of safety of population and territories;
- reduction of the negative perception level of economic development by different social groups via transparent control procedures of the safety of economic projects;
- sustaining favorable social and psychological climate by continuous informing population of the situation at hazardous facilities located in the vicinity of their residence, as well as of necessary conditions and outlooks for advance life quality, public and environmental safety improvement.

A number of federal governmental and administrative agencies in the Russian Federation currently participate in elaboration and further implementation of the concept of "Development of safety ensuring systems within the framework of economic and infrastructural projects implementation" on the principles of the public/private partnership. They are, for example, Ministry for Civil Defense, Emergency Management and Natural Disasters Response, Ministry of Transport, the Federal Service for Environmental, Technological and Nuclear Supervision (Rostekhnadzor), the Ministry of Natural Resources, the Ministry of Economic Development and Trade, as well as such major Russian companies as OAO Gazprom, OAO Lukoil, OAO Norilsk Nickel among others.

4. ORGANIZATION OF WORK AND PROJECT IMPLEMENTATION

The concept of "Development of safety ensuring systems within the framework of economic and infrastructural projects implementation" was submitted in 2007 by the Russian Federation to Emergency Prevention, Preparedness and Response (EPPR) Working Group of the Arctic Council and was approved by the group in August 2008.

The project is aimed at presenting the Russian Federation initiative to build a global environmental and technogenic accidents prevention system, ensuring preparedness for implementation and promotion of the best practices in this sphere with participation of international organizations. These best practices would include the progress achieved in regulatory control, as well as voluntary obligations of economic agents aimed at improving technological, industrial and environmental safety.

Russia is interested to learn from foreign experience and expertise. The project would therefore include:

- Assessment of an integrated emergency and environmental accident risk.
- Elaboration of methods with due consideration of national and foreign experience.
- Preparation of scientific reports specifying results of integrated risk assessment for different regions.
- Participation of foreign partners in experience sharing, in methodical support for integrated territorial risk assessment in order to coordinate the assessment results in different countries, if possible.

In order to arrange financial interaction among the project participants, i.e., the member states of the Arctic Council and private companies, the Trust Fund to finance and coordinate these activities is expected to be established under the supervision of the World Bank with participation of the interested parties. This proposal was presented by the Russian delegation during the Arctic Council Senior Officials meeting in April 2008 in Svolvaer.

Based on above, it is expected that the Trust Fund resources could be used under the supervision of the World Bank for the following purposes:

1. Assessment of emergency regulations and strategies in Canada, Norway, the US and other Arctic countries. Particular emphasis should be given to existing regional international centers in these countries.
2. Assessment of the current Russian emergency regulations and strategies, and harmonization of these strategies with the international requirements and recommendations, and improvement of the international legal instruments.
3. Taking into consideration findings under (1), elaboration of a concept and design of model regional international centers in the Russian Arctic in the regions with possible intensive resource exploration and exploitation.
4. Independent assessment of the key components of economic development projects planned or implemented in the Arctic zone of Russia (this assessment should be carried out by international experts to ensure the required level of safety and minimizing emergency risks).

5. PRACTICAL ACTIVITIES WITHIN THE PROJECT IMPLEMENTATION FRAMEWORK

At the first stage, the project will be focused mainly on territories with a high potential for energy resources exploration and the regions strategically important for stable power supply in the Russian Federation.

At this stage, the project will comprise, *inter alia*, the following activities (pilot projects):

5.1 Establishment of monitoring systems in the port of Varandey

The existing production environmental control and monitoring system which is being elaborated at Varandey oil export terminal (Nenets Autonomous Okrug, Russia) consider such influencing factors, as sources of anthropogenic impact upon environment on the part of the terminal facilities with their impact zones and the environmental monitoring of the environmental components, i.e. open air, water ecosystems, avifauna, theriofauna, soil and the geologic environment.

The system is elaborated for the offshore terminal component and for the onshore component and sets the goals and objectives, and provides the facilities for production environmental control and environmental monitoring.

The result will be manifested in the following:

- regulations for pollutant discharges control during operation of onshore and offshore terminal facilities, specifying the sources of discharges, location of control stations, controlled parameters and control frequency, sample methods, lab and field research methods, as well as measurement techniques.
- regulations for production environmental monitoring of the air, monitoring of water ecosystems with due consideration of the interests of the fishing industry in the Nenets Autonomous Okrug and the Barents Region in general; monitoring of avifauna and theriofauna; monitoring of soils and the geologic environment. Regulations also specify control stations, parameters and frequency of observation, sample methods, the legal base for measuring.

The monitoring system in Varandey is a Russian part of monitoring ecological situation in the Barents Sea in general. As one of the major tasks of environmental monitoring in the Barents Sea in general is prompt tracking of oil spills on the sea surface and forecast for potential direction of their drifting, the system implies satellite monitoring during terminal operation. The data obtained from on-line satellite monitoring can be used for tracking of cases of water contamination with petrochemicals resulting from routine operations or emergency discharges in the course of sea terminal and auxiliary water-borne vehicles functioning.

Project participants are advised to take efforts aimed at coordinating their national monitoring systems at their national facilities with the Russian one to exchange information with a view to provide information on trans-border emergency risks in the Barents Sea and other Arctic regions. First of all, this proposal could be of interest to Norway, the USA, as well as to Finland, Sweden and Canada. The financial contributions of the member states is supposed to be determined by the scope and nature of their participation in the project.

5.2 Komi Republic

In view of the sad experience of the 1994 oil pipeline accident in the Komi Republic, the high priority in the production activities is not only mitigation of consequences of possible spills, but their prevention.

The safety systems which are being elaborated in Komi are aimed at:

- collection, accumulation, processing of information on the sources of negative impact, the state and contamination degree of the environmental components in the affected areas;
- building and maintenance of databases of the sources of discharges and emissions, waste generation and storage;
- analysis of the current technogenic and environmental situation and forecasting its development;
- introduction into practice offshore facilities monitoring hydrocarbon exploration, production and transport to obtain data on critical loads upon these facilities, in particular, in the ice conditions and to prevent destruction of these facilities;
- proper public information about current situation, trends and forecasts for emergency threats and risks development in the region.

The system should ensure control over sources of discharges and emissions, as well as conducting regular comparable monitoring analysis and measurements of the state and contamination degree of environmental components, i.e. open air, surface waters, soil cover, and ground waters.

Besides, the following activities are conducted: improvement of gas and oil collection and transportation systems, prompt repair of pipeline transport and production facilities, application of corrosion-resistant equipment, troubleshooting and condition survey of equipment, pipelines and offshore facilities, inhibitory protection, corrosion monitoring, introduction of the information and analytical system for field pipelines operation.

The results of the pilot project implemented in the Komi Republic including working out a proposal concerning establishment of a specialized information and rescue center can be used as a model project to be implemented later in the Khanty-Mansi, Nenets, Yamalo-Nenets and other regions of Russia and elsewhere in the Arctic.

Participation of member states in this event is possible in the form of sharing practical experience in the sphere of creating monitoring systems with similar tasks and establishing specialized information and rescue centers on the territories.

5.3 International Workshop in Dudinka

Within the framework of elaboration of the concept of establishing a specialized information and rescue center in the port of Dudinka, an international workshop dedicated to the issues of emergency prevention and response in the Arctic conditions was held there on 1-3 September 2008. It was organized by Emergency Prevention, Preparedness and Response (EPPR) Working Group with Russia and Sweden as the main contributors.

The organizers from the Russian side were Emercom of Russia, minicipal administrations and the company ”Norilsk Nickel” (within the framework of public/private partnership). Representatives from the Ministry of Foreign Affairs of the Russian Federation and Ministry of Transport of the Russian Federation also took part in the workshop.

Reports were presented on the following topics: emergency prevention and coordination of emergency responses in Arctic; medical problems in the work of rescuers and fire fighters in low temperature conditions; mitigation of emergency situation of ecological nature in Arctic, including large oil spills.

52 specialists took part in the workshop. Written reports were presented by experts and organizations of Russia, Sweden, Finland and Canada.

It was recommended to Emercom of Russia together with interested federal ministries, committees and companies to establish a specialized authorised body of federal Emercom of Russia - Arctic Authority - to strengthen emergency situations monitoring and forecasting system, to establish in the region a Comprehensive Emergency Rescue Centre (or centres) for the purpose of improving emergency prediction system, raising emergency response efficiency. Establishment of such a body could contribute to interaction and teamwork efficiency. Foreign partners are to be invited to take part in the activities.

Detailed recommendations of the workshop will be presented to the Arctic Council member states.

5.4 Rescue Center in Naryan-Mar

In order to test the production and environmental monitoring system at oil export terminals and to coordinate interaction of regional forces and means within the framework of the planned establishment of an information and rescue center in Naryan-Mar, a large-scale international exercise with the use of the forces and means of Emercom of Russia in partnership with the Federal State Institution "Gosmorspassluzhba" under the Ministry of Transport of the Russian Federation was held on September 30 – October 4, 2008 in the vicinity of the Varandey oil export terminal.

Varandey oil export terminal is a unique facility composed of different units including Permanent Marine Ice-resistant Oil Shipment Platform in the Barents Sea 22 kilometers from the shore with the capacity of handling 12 million tons of oil per year. It is designed for year-round oil shipment by sea to Europe and the USA.

The main goals of the exercise were coordination of forces and means during emergency response operation accompanied by fire, human casualties and oil spills in the sea and on shore. An assessment of terminal equipment and possibilities to attract regional forces and means in accordance with the Regional plan of emergency oil spills response in the Western Arctic was made, while the personnel of the Varandey oil terminal was trained to act efficiently during oil spill emergency localization and response.

The exercise participants faced research tasks of analyzing the conditions and peculiarities of emergency oil spills response in the Arctic, organization of the works aimed at oil decontamination of the coastline and the water area in the ice conditions. The outcome of the exercise was analyzed at the consequent conference in Naryan-Mar.

Observers from Norway, the USA, Sweden, Denmark and Canada participated in the exercise. Foreign observers noted the scale and comprehensive character of the exercise. They stressed the openness of the Lukoil company that had demonstrated high technical level of modern equipment and effective coordination of forces during the exercise and marked the readiness of the company to mitigation of emergency situations. The importance of such an exercise for other oil-producing countries was also pointed out.

6. PROJECT FINANCING

The project is implemented in the Russian Federation within the framework of public/private partnership and implies elaboration of efficient interaction tools for public and political associations and international organizations.

The events and project components are financed by the economic entities participating in the territorial development and exploration projects, the organizations and organization departments under the federal executive bodies and the executive bodies of the Russian regions authorized to solve the issues of protection from natural disasters and technogenic accidents.

The amount of project financing by the Russian Federation from different sources comes to about € 2 million in 2008. On its part, Russia is ready to provide further adequate financing of the project.

Probable participation of the countries-members of the Arctic Council, i.e., the USA, Canada, Norway, Sweden, Finland, Denmark is expected to come to the comparable amount. For each participant the financial contribution will be determined by particular events (pilot projects), the nature and scope of its involvement.

It is proposed to accumulate additional funds, beyond the financing by the Russian Federation, in the Trust Fund of the World Bank.

These funds are expected to be allocated, first of all, for making independent assessments of all project components and elements by international experts, elaboration of a model concept for a regional situational center, ensuring presence of international observers and participation of special rescue forces in joint trainings and exercises, elaboration and implementation of plans for international rescuers interaction.

7. KEY RESULTS OF THE PROJECT

The project results will ensure:

- assessment of the real emergency risk and threat level in the regions of intensive business activity;
- efficient targeted planning of actions aimed at decreasing the risk of and preventing natural disasters and technogenic accidents at the regional and national level within the framework of public/private partnership;
- enhancing efficiency of use of forces and means for emergency prevention and prompt response;
- decrease of economic losses and environmental damage caused by emergencies;
- enhancement of economic efficiency of scientific research;
- improvement of protection and safety level at potentially hazardous facilities;
- elaboration of international requirements ensuring condition for safe hydrocarbons production and transportation, and development of efficient forms of power engineering;
- increase in functioning stability of life support systems in emergency conditions;

- availability of effective tools of risk management on the basis of situational centers and preventive response measures.

8. CONCLUSION

Ensuring safety during implementation of economic and infrastructural projects is of crucial importance for sustainable development of the Arctic areas, emergency preparedness and environmental safety of the countries located in the Arctic region and international cooperation in this sphere.

Economic exploration and development of high-latitude territories and involved risk factors of negative environmental impact require coordinated efforts by all member states concerned. Such coordination will be instrumental for sustainable development and further international cooperation in the Arctic.