

Danish Ministry of the Environment
Feasibility Study for ACAP
Demonstration Project on
improved system for
collection, storage, transport
and treatment of mercury-
containing waste (MCW) in NW
Region of the Russian
Federation

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Completion Report

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I Cover Sheet

Danish Environmental Protection Agency Danish Co-operation for Environment in Eastern Europe (DANCEE)

Project Cover Sheet

Project Title: Feasibility Study for ACAP Demonstration Project on improved system for collection, storage, transport and treatment of mercury-containing waste (MCW) in NW Region of the Russian Federation

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Mark one category
 A. Air Pollution
 B. Water Pollution
 C. Waste
 D. Institutional Development
 E. Nature and Agriculture
 F. Other

Principal Project Manager Name: Jørn Lauridsen
Title: Project Manager
Date: 2006-2010

Signature

Authorised Organisational Official Name: Torben Kristiansen
Title: Head of Dept. Waste Management and Recycling
Date: 2010

Signature

NOTICE FOR HANDLING PROJECT DESCRIPTIONS: This is to be used only by DEPA and recipient country, Ministry of Water, Forests and Environmental Protection, for evaluation purposes. If a contract is awarded on basis of this project description, the terms of the contract shall control disclosure and use.

II Map of Location



III List of abbreviations

| Abbriviation | Explantion |
|---------------------|---|
| ACAP | Arctic Council Action Plan |
| CLRTAP-HM | Heavy Metals Protocol of the Convention on Long-range Transboundary Air Pollution |
| DEPA | Danish Environmental Protection Agency |
| FL | Fluorescent lamps |
| HELCOM | Helsinki Convention |
| MCW | Mercury containing waste |
| NEFCO | Nordic Environment Finance Corporation |
| OSPAR | Oslo-Paris Convention |

IV Executive Summary

The purpose of the Arctic Contaminants Action Program (ACAP) feasibility study is to analyse and recommend how the Russian Federation can improve the existing system for collection, handling, transportation and treatment of mercury containing waste (MCW) in order to reduce the mercury emission to the arctic hemisphere. The counterpart is the federal Rostekhnadzor and focus is given to the northwest region of Russian Federation.

Within the framework of the Arctic Council, the eight Arctic Countries have agreed on taking actions to contribute to the reduction of exposures to a number of priority pollutants, in the Arctic Region. The Arctic Council has issued an action plan on priority pollutants, including a project on "Reduction of mercury from Arctic States" ("the Arctic Contaminants Action Program (ACAP) Mercury Project"), which addresses a common concern of increasing mercury levels in the Arctic.

The ACAP Mercury Project is linked to a number of international agreements that address the mercury issue. The "Heavy Metals Protocol of the Convention on Long-range Transboundary Air Pollution (CLRTAP-HM)" is the only existing agreement that has the potential of covering all the Arctic Countries¹. Three other major agreements are the "North American Regional Action Plan on Mercury"; the "Helsinki Convention ("HELCOM")" and the "Oslo-Paris "OSPAR" Convention", together covering all of the Arctic Countries, also addressing mercury.

In addition, the UNEP Governing Council has agreed to the development of partnerships as one approach to reducing the risks to human health and the environment from the release of mercury and its compounds to the environment from the relevant sectors hereunder consumption, chloro-alkali, coal combustion and gold mining. The "Stockholm Convention on Persistent Organic Pollutants (POPs)" is another relevant convention.

The overall objective of the ACAP Mercury Project is to contribute to reduction of mercury releases from the Arctic Countries. In the first phase of the ACAP Mercury Project, preliminary assessments have been made to identify and quantify the mercury release sources, both specifically in the Russian Federation and across all the eight Arctic countries. In the report "Assessment of Mercury Releases from the Russian Federation" (2005) an estimate of the releases of mercury from the Russian territory² is presented.

During this project a questionnaire on assessment of the MCW management activities in 7 territories in NW Russia has been send out. The questionnaires have been followed-up by a mission to Murmansk, Karelia, Arkhangelsk, Komi, and Leningrad in October 2007 with the purpose to further assess the present status of MCW management in the participating territories. The roundtrip was completed by a meeting with the Federal Service of Environmental, Technological and Atomic Supervision, Rostekhnadzor in Moscow.

¹ Russia has not yet signed the CLRTAP-HM

² Recent statistical collection by Federal Rostekhnadzor indicates that the figures presented in the assessment might be too low.

The results can be summarised as follows:

- According to the *Federal law on waste* (waste law) Mercury Containing Waste (MCW) is to be regarded as hazardous waste. Private companies and public institutions must register all items purchased which contain mercury and account for how these items are disposed of after end use. Thus, if properly enforced, the rules covering collection of hazardous waste from private companies and public institutions should be sufficient to ensure environmental satisfactory collection of MCW.
- It is estimated that 25-65 % of the potential numbers of the fluorescent lamps (FL) disposed of in the NW region of Russia is collected. This indicates that the obligations for companies and public institutions are not effectively enforced.
- There are no federal legal obligations to establish collection schemes from private households and no oblasts report to have effective systems for collecting MCW from private households.

This first study was reported on a workshop in Moscow in February 2009, and was intended to be followed by a Feasibility study of the prospects for a Demonstration Project.

However despite several attempts from the project manager, the Feasibility Study and the Demonstration Project were never started of reasons unclear to the project management.

1 Project context

A multiple step procedure has been conducted within the ACAP Mercury Project Steering Group (ACAP Mercury Project SG) in order to identify and select potential demonstration projects within prioritised mercury release source categories. Three potential projects were selected and investigated more in detail ("Evaluation of potential demonstration projects", September 2005). Out of the three evaluated projects, the project on "*Collection of mercury-containing waste in NW Russia*" obtained the broadest support from the members of the ACAP Steering Group (ACAP SG) and was therefore chosen for the Demonstration Project. The two other projects addressed "*reduction of mercury releases from a coal-fired utility plant*" and "*reduction of mercury releases from a mercury recovery plant*". The latter may be interrelated with the Demonstration Project, since an environmentally safe recycling of mercury may be an integrated part of a well-functioning system for collection of mercury-containing waste.

The background for selecting the project on mercury-containing waste in North West (NW) Russia for potential implementation of the Demonstration Project was:

- 1 A wish to promote an environmentally safe system for collection, storage, transport and treatment of mercury-containing waste in the NW Region of the Russian Federation with many tons mercury release reduction potential in the long-term perspective,
- 2 To respond to an identified lack of collection, storage and transport capacities in some of the subjects of the NW Russian region together with unutilized treatment capacities, and
- 3 The explicate expression of interest from NEFCO in an investment project on collection of mercury-containing waste (MCW) in the NW Russian Region.

A pre-feasibility study³ of the current situation concerning MCW within the NW Region of Russia points to a need for complex and multidimensional solutions in order to provide efficient and sustainable improvements to existing systems for collection, storage, transport and treatment of MCW. It was therefore a wish that the prospect for a Demonstration Project would be assessed and de-

³"Management of mercury-containing waste in the NW region of RF - preliminary assessment", February 2006

scribed in a *Feasibility Study*, building further on the relevant assessments and analysis already carried out.

In relation to the MCW analysis to be carried out, it was expected that the Feasibility Study would address also existing problems related to Polychlorinated Biphenyls (PCB) and Obsolete Pesticides. It was therefore assumed that the Feasibility Study on MCW will take into account ongoing ACAP activities on PCB and Obsolete Pesticides in the NW Region of Russia ensuring coordination and synergies.

2 Project Outputs and Activities

The project contains the following activities and outputs:

Table 1: Activity - output scheme

| Activity | Outputs | % Finished Draft | % Finished Final |
|--|----------------|------------------|------------------|
| 1. Establishment of project organisation | Organisation | 100 % | 100 % |
| 2. Questionnaire preparation | Questionnaire | 100 % | 100% |
| 3. Questionnaire submittal | Sending | 100 % | 100 % |
| 4. Questionnaire report | Report | 100 % | 100 % |
| 4. Roundtrip | Trip | 100 % | 100 % |
| 5. Trip report | Mission Report | 100 % | 100 % |
| 7. Baseline | Report | 100 % | 100 % |
| 8. Workshop discussion report | Report | 100 % | 100 % |
| 9. Workshop | Report | 100 % | 100 % |
| 10. Feasibility study | Report | | |
| 11. Demonstration project | Trips | | |
| 12. Completion | Report | 100 % | |

3 Project Inputs

The following visits have been made by staff members during the project:

- Jørn Lauridsen, Tatiana Shipitsyna, Anders Richelsen Roundtrip to Murmansk, Karelia, Arkhangelsk, Leningrad, St. Petersburg, Komi and Moscow 22.10 to 1.11.2007
- Jørn Lauridsen, Tatiana Shipitsyna, Kick Off meeting in Moscow, 1.11.2007
- Jørn Lauridsen, Tatiana Shipitsyna participation in workshop in Moscow, 20.2.2008
- Jørn Lauridsen ACAP meeting in Stockholm, 17.3.2009

4 Financial Statement

The progress of the project has followed the original plan, except that the project was supposed to start May 2006 and in stead started by October 2007. Furthermore, the contract was changed so that COWI had to transfer 27,500 DKK from seminar and an additional 72,500 DKK from the original COWI contract to Ecobezopasnost. DEPA then identified 100,000 DKK also for Ecobezopasnost, so that they in all received 200,000 DKK, which were used for participation in the roundtrip and paying expenses in connection with the seminar.

After the finalising the workshop and the resulting reports, only status reports have been prepared. The feasibility study and demonstration projects were never initiated

Table 2 Final overall budget per 24.3.2010

| DKK | Budget total | Expenditure per 31.3.2009 | Expenditure 1.4.2009-24.3.1010 | Remaining total per 24.3.2010 |
|--------------------------------|------------------|---------------------------|--------------------------------|-------------------------------|
| | A | B | C | A-(B+C) |
| Fee, expatriate experts | | | | |
| Jørn Lauridsen | 442,927 | 364,015 | 34,523 | 44,389 |
| Anders Richelsen | 200,261 | 109,279 | | 90,982 |
| FP- Jørgensen | 104,836 | 73,766 | | 31,070 |
| Fee, subtotal | 748,024 | 547,060 | 34,523 | 166,441 |
| Fee COWI Moscow | 209,194 | 108,377 | | 100,817 |
| Reimbursable | | | | |
| Ecobezopasnost | 200,000 | 79,262 | | 120,738 |
| Reimbursables Expatriates | 98,184 | 74,255 | 4,160 | 19,769 |
| Reimbursables locals | 44,376 | 21,087 | | 23,289 |
| Reimbursable, subtotal | 342,560 | 174,604 | 4,160 | 163,796 |
| Contingencies | | | | |
| Total | 1,299,778 | 830,041 | 38,683 | 431,054 |

The overall final budget that after having carried out the first phase of the project including the workshop in Moscow in 2008, not much has happened, and the biggest part of the money for the second phase has been preserved.

5 Impact Assessment

The mercury containing waste issue, in NW-Russia has been described in a pre-feasibility report⁴. In the Seminar discussion report, 5 scenarios were presented, and discussed. The main conclusion and recommendation was to centralise the treatment of mercury containing waste (MCW) in NW-Russia as far as possible, as the more expensive part of the mercury waste handling and treatment is the treatment facility. This recommendation was to be further evaluated in the feasibility study, but already at the workshop several obstacles were found to the centralizing idea (e.g. Murmansk has two treatment plants, and want to keep them, the company "Mercury" already collect MCW in St. Petersburg and Leningrad, but also in Pskov and Karelia (and others), but also other companies collect and treat MCW in that area. Furthermore, Komi and Archangels had other systems. Most positive for a new overall system seemed to be Archangels.

What could be acknowledged in these centralising discussions was that Russian Oblasts may be as independent as independent countries in other part of the world in waste matters and even if it may make sense to centralise waste handling and treatment from Moscow, this is not supported by the legislation.

⁴ Management of mercury-containing waste in the NW region of RF - preliminary assessment", February 2006

6 Recommendations

It might be advantageous if an overarching legislation could be implemented in the Russian Federation covering waste handling and treatment. In that way co-operation around the often very expensive waste treatment facilities might be established. As an example of this the 7 oblast involved in the MCW-project, could gather and discuss how it would be most practical to implement a central system for collection, transport, treatment and disposal of MCW. The advantage of this would even improve, if other waste categories could be included as well, to bring down collection, transport and treatment costs.

7 Lessons Learned

Again - all waste treatment is driven by legislation and enforcement.

Appendix A: List of Reports

| Document list/check/distribution: | | | | | | | | |
|-----------------------------------|------|---|------------|---------------------|---------|---------------|--------------------|----------------|
| Doc. no.: 64555- | Rev. | Document title | Date | Prepar. by:/init | Checked | | Appro. by/init. | Distributed to |
| | | | | | Extent | Init. | | |
| 01 | 02 | Report on questionnaire- MCW collection storing treatment in NW Russia | 28.9.2007 | TPS | | JMN | JQL | DEPA |
| 02 | 01 | Mission Report Oct 2007 | 21.11.2007 | TPS | | ARI | JQL | DEPA, ACAP |
| 03 | 02 | Baseline Report - Final draft 31.1.2008 | 31.1.2008 | JQL | | ARI, TPS | JQL | DEPA, ACAP |
| 04 | 02 | Seminar Discussion Report - final version | 31.01.2008 | JQL | | ARI, TPS | JQL | DEPA, ACAP |
| 05 | 01 | Minutes of the ACAP steering group Meeting on Mercury Waste Treatment Project | 25.2.2008 | MKL | | JQL | MKL | DEPA, ACAP |
| 06 | 01 | Action Plan MCW NW- Russia draft 16.1.2009 | 16.01.2009 | JQL | | FPJ, TPS, CRL | JQL | DEPA |
| 07 | 01 | Status Report MCW NW- Russia draft 1.4.2009 | 1.4.2009 | JQL | | FPJ, TPS, CRL | JQL | DEPA |
| 08 | 01 | Completion Report | 24.3.2010 | JQL | | JMN | JQL | DEPA |