

STATUS REPORT #21

Reduction/Elimination of Emissions of Dioxins and Furans in the Russian Federation with focus on the Arctic and northern regions impacting the Arctic

September 2014

1. PSG Members

The Project Steering Group (PSG) is lead by Sweden and is currently constituted by representatives from Norway (donor), Russia, Sweden (donor) and NEFCO (donor)

- Åke Mikaelsson Swedish EPA, SE PSG Chair
- Niklas Johansson, Melica Biologkonsult, SE Key Expert
- Inger Karin Hansen, Norwegian EA, NO Key Expert
- Dimitriy Kuznetsov, Polar foundation RU
- Amund Beitnes, NEFCO
- Henrik Forsström, NEFCO

2. Project Background and General Achievements

The first Steering Group meeting was held on 11 – 12 March 2002 in Moscow. During phase I and II the coordination in Russia was executed by the Centre for International Projects. The Russian Cleaner Production and Sustainable Development Centre has had a certain role in coordinating activities on Cleaner Production in collaboration with TEKNA (Norway).

The Project consists of three phases, whereof the first was completed in August 2005 and the second in September 2008. The Phase I and the Phase II Report is on the current ACAP website. Preparations for Phase III have been initiated and are currently directed on the Vorkutinskiy Cement plant in the Komi Republic.

2.1. Phase I

In the first phase, data were collected, the UNEP Toolkit was translated into Russian and a fact sheet on polychlorinated dioxins and furans was produced. A workshop was arranged in Stockholm where Swedish specialists on sampling and analysis of flue gases invited to present theoretical as well as practical blocks also including hands-on training. Scientists from four Russian laboratories attended the workshop. In Russia, emission inventories were carried out based on UNEP Toolkit estimations at the 61 sites investigated (21 in Arkhangelsk, 19 in Komi and 21 in Murmansk) but also on 11 chemical analyses of flue-gas samples at 4 sites. Based on this dioxin emission inventory a priority list of emission sources was produced.

2.2. Phase II

Based on the results of the PCDD/F emission inventory in Phase I a more comprehensive review was carried out. The project also explored different options for implementation of BAT and BEP requirements, *e.g.*, legislation prescribing technical measures for reduction of dioxin emissions, setting limit values, voluntary commitments by industry, *etc.*

Another important part of Phase II was to give concrete recommendations for actions based on findings on how technical processes but also matters concerning information, education and organisation at individual enterprises could be improved in order to decrease formation and release of environmental pollutants such as POPs.

The initially selected facilities were:

- Kotlas Pulp & Paper Plant, Koryazhma (Arkhangelsk oblast)
- Vorkutinskiy Cement Plant (Komi republic)
- Syktyvkar Timber Mill (Komi republic) (Cleaner Production program only)

In addition to this, the inclusion of the Murmansk Municipal Solid Waste Incinerator Plant to the list of possible pilot facilities was also considered since the plant had been ranked as a very significant source of dioxins in Phase I.

2.3. Phase II

Based on the recommendations for possible Phase III pilot projects identified in the Phase II, the Project Steering Group together with NEFCO agreed on a plan for reduction of the emissions of dioxins and dust as well as a Cleaner Production training programme at Vorkutinskiy cement plant (Komi republic).

Based on the same recommendations, NEFCO contracted a consultant to investigate further activities at the Vorkutinskiy cement plant. This first study was conducted in June 2011 and resulted in an interim report "*Study for a Demonstration Project targeting Dioxins and other pollutants at the Vorkuta Cement Plant*". The report includes possible actions to reduce dioxin emissions complementary to the actions currently planned at the enterprise for reduction of dust emissions.

A second visit to Komi was made in July 2013 and a feasibility study, funded by NEFCO, incl. sampling, analysis and the drafting of an action plan for Phase III activities were prepared through NEFCO (see sections 3 and 4.1. below).

3. Current activities and expected deliverables during 2014

During 2011-2014, the PSG Dioxins has concentrated its efforts only to Activity 1, "Implement emission reduction actions at the Vorkutinskiy cement plant", see section 4.1. below.

In close cooperation with the Vorkutinskiy Cement Plant as well as with the environmental authorities in Komi republic, the PSG Dioxins and NEFCO during the spring and summer of 2014 prepared three assignments for consultants, aimed at promoting emission reduction actions at the Vorkutinskiy Cement Plant:

- a) Sampling and Analysis of targeted pollutants at the Vorkuta Cement Plant in the Komi Republic
- b) Phase 2 of the Feasibility Study for dioxin mitigation and other environmental pilot measures at the Vorkuta Cement Plant in the Komi Republic
- c) Seminar in Syktyvkar on "Environmental Requirements for Using Waste as Fuels the Cement Industry"

On 27-29th of August 2014, the Seminar was successfully conducted, with representatives from the Federal Environmental Supervision Service (Rosprirodnadzor) in the Komi Republic, the Ministry of Nature Resources of Environment of the Komi Republic as well as representatives

from Finish Environment Centre, the Norwegian Environmental Agency, the Swedish EPA and parts of the BEAC WGE Subgroup for Hotspots Exclusion (SHE).

During October 2014, the PSG Dioxin expects the Sampling and Analysis Assignment to give information of the actual emissions and during November 2014, the Feasibility Assignment to give advice on relevant action projects and related investments. The Action Plan that will be prepared, incl. the possible installation of a cooling tower for exhaust gases, is presumed to be subject inter alia to PSI funding and submitted during late 2014.

4. Planned activities

4.1. Phase III activity – Implement emission reduction actions at Vorkutinskiy Cement Plant

Since 2011, the PSG Dioxin and NEFCO keep a dialogue with the Plant representatives and with the Ministry of Nature Resources and Environment of the Komi Republic as well as with the representation of the Federal Agency for Supervision of the Use of Nature Resources (Rosprirodnadzor) in the Komi Republic to assess the feasibility of further actions.

If feasible, Vorkutinskiy Cement Plant could be the first Phase III object of the Dioxin project, possibly as a component of the IHWMS.

4.2. Up-date information on potential pilot objects identified in Phase II

In parallel to its activities at the Vorkutinskiy Cement Plant, possible actions at other objects identified in Phase II (Kotlas PPM, Syktyvkar Timber Mill, Murmansk Solid Waste Incineration Plant) will be considered. An up-grade of the studies from 2006, incl. contacts with experts and owners is planned for 2014 and if deemed viable, Terms of References for pre-feasibility studies or feasibility studies will be prepared.

4.3. Broadened inventory of other emission sources than those inventoried in Phase II

Furthermore, the PSG Dioxin will consider additional phase II projects from other parts of Russia than those studied in the phase II inventory in 2006 and e.g. UNEP tool-kit studies could be initiated at potentially relevant facilities not examined before. The PSG Dioxin welcomes suggestions from the WG and other bodies on these issues.

4.4. Promote implementation of control technologies

Based on the foreseen legal reforms, inter alia connected with Russia's efforts to comply with the obligations given by the International Conventions*, it is likely that the authorities' capacities to control and regulate dioxin formation and emission and discharges will need to increase. The PSG Dioxin will, if requested, offer guidance to the MNRE on these issues in order to promote a smooth and effective compliance with these obligations.

* The PSG intends to offer guidance on the implementation of in particular the following international conventions:

- UNEP Stockholm Convention on Persistent Organic Pollutants (POPs),
- UNEP Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.
- UNEP Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

4.5. Support to Russia's activities aiming at adaptation to the requirements under the International Conventions

The work to eliminate or reduce the emissions and discharges of dioxins and furans from the Russian Arctic is related also to other efforts and activities planned by the Russian Federation, including the work to comply with international conventions such as the Stockholm Convention on Persistent Organic Pollutants, signed by Russia in 2012. Through its activities the PSG Dioxins therefore wants to be a supportive force to these efforts and, e.g. provide expert advices in the implementation of new regulations, elaboration of instructions or educational efforts, etc. both on a general basis and in relation to the specific plants/objects to be dealt with.

4.6. Coordination with other ACAP PSG's

Coordination with other ACAP PSG's is an important issue and reasons could be found to raise the attention and communication with any of the PSG's. Since the collection, transport and incineration of hazardous waste is an important issue both in large cities and small rural settlements, both the IHWMS PSG as well as the IPCAP PSG's are considered especially important for the PSG Dioxins to cooperate with. Another significant emission source of dioxins and furans is various combustion processes, i.e. for heat and power generation which also may occur in large cities as well as small rural settlements. To address these issues, also the SLCP PSG and Mercury PSG may be important to coordinate with, apart from the IPCAP PSG already mentioned.

4.7. Co-ordination with the BEAC WGE Efforts with the Barents Environmental Hot Spots

Since the BEAC WGE Subgroup on Hot Spots Exclusion (SHE) is intensively working with the remaining 39 of the Barents environmental hot spots located in the Arkhangelsk oblast, republic of Karelia, Komi republic, Murmansk oblast and Nenets autonomous region, the PSG Dioxins may benefit from the contacts and the administrative pressure put also to some of the enterprises identified in Phase I and Phase II as potential sources of dioxin and furans. A list with those of the Barents environmental hot spots that are most relevant for further survey in respect of dioxin emission reduction actions will be compiled by the PSG Dioxin and the most relevant way of co-ordinating the PSG work with the work made by the regional Hot spot Exclusion Groups (HEGs) in the five northwest Russian regions will be outlined in co-operation with SHE.

5. Funding

The Swedish Ministry of Environment has granted a sum of 500 000 SEK to the Swedish EPA over the SLCP Fund at NEFCO, dedicated especially to actions aimed at reducing emissions of dioxins and furans from sources in Russia impacting the Arctic. The funds are available during 2014 and should preferably be combined with funds from other donors, in particular the PSI.

Further funding from donors might be needed for possible explorative phase II activities whereas the PSG Dioxin considers full scale phase III activities, as the Vorkutinskiy Cement Plant, to be more suitable for i.a. PSI funding.