

Arctic Contaminants Action Program (ACAP) Progress report to Senior Arctic Officials

For the SAO meeting CA02 in Yellowknife 25-27.3.2014

1. Introduction. Response to Arctic Council priorities and potential new projects under consideration.

ACAP is implementing the work plan for 2013–2015 addressing the appropriate elements in the 2013 Kiruna Declaration. Several practical emission reduction projects are currently being implemented in ACAP, in particular on the reduction of short-lived climate forcers (SLCF), mercury, obsolete pesticides and dioxins and furans to support global actions. These projects also provide capacity building to assist countries in implementing the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury.

ACAP has several new projects under development. The Mercury Project Steering Group (PSG) is developing a Russian initiative/project "Development of mercury containing waste management system in Arctic regions of the Russian Federation" for ACAP approval and implementation in the near future. Co-operative projects under the Indigenous People's Contaminant Action Program (IPCAP) are also being discussed and it is expected that the first of these projects will be forwarded for ACAP WG approval in 2014. The PSG on dioxins and furans is planning a broadened inventory of emission sources in eastern part of Russia, support to the implementation of international conventions as well as other emission reduction projects at relevant facilities. The PSG on obsolete pesticides is preparing a project proposal for ACAP on demonstrating a clean-up study of a pesticide burial site, in cooperation with the experts of United Nations Food and Agriculture Organization (FAO).

2. Summary of progress on ACAP projects

Mercury PSG projects

Non-ferrous/Zinc Smelter Mercury Reduction in the Russian Federation. This project is approved by ACAP (2013). The project will result in mitigation and management of mercury releases (to air, water and waste) at a Russian smelter that will serve as a demonstration for others in Russia and elsewhere. The project will include cleaner production approaches as well as the application of one or more mercury reduction technologies, which also address mercury waste. The PSG intends to submit this proposal to the PSI for funding. The PSG has agreed that a critical next step is for NEFCO, facilitated by Russia Ministry of Natural Resources and Environment (MNRE), to meet with the owners of the proposed smelter (that is, the proposed project owner) to ensure their involvement in the project. The PSG notes that significant work has been done at this facility over the past several years to scope this project and conduct baseline information gathering.

Mercury Control Technology Workshop – This project is approved by ACAP (2013). It is designed to advance mercury control in the Russian Federation, with an emphasis on technologies to address major emission sources previously identified by the PSG. The two and one half day workshop will assist the Arctic Council and the Russian Federation in planning for various projects, including the non-ferrous /zinc smelter mercury reduction project mentioned above. It will complement the Russian Federation's work to develop an improved emissions inventory and an Action Plan for implementation of the Minamata Convention. The PSG intends to submit this project as a proposal for funding to the Arctic Council Project Support Instrument (PSI). However, in the interest of putting on the workshop as early as possible in 2014, the PSG is in the process of seeking funding from its participating countries and organizations, both in-kind and financial. The PSG has also requested that Russia MNRE identify an in-country co-coordinator for the workshop; that decision is pending.

Special issues or questions for SAOs: Mercury workshop report deliverable is dependent upon the PSG securing a Russian in-country co-coordinator for the workshop and sufficient funding to realize the workshop, either through member contributions or through the PSI. For the smelter project above, ACAP does not expect to identify a deliverable until and unless full funding for the project is secured and until the project owner (facility

owner) is brought into the project. To this end, a meeting with the proposed facility owner, and operationalizing the PSI, are both critical.

Dioxins and furans PSG projects

The ACAP PSG on Dioxins (approved in 2001) aims to "Reduce or Eliminate Emissions of Dioxins and Furans in the Russian Federation with focus on the Arctic and northern regions impacting the Arctic". Based on the results of emission inventories carried out at 61 sites in Arkhangelsk, Komi and Murmansk during Phase I (2002-2005), a priority list was produced based on which a more comprehensive review was carried out at selected emission sources during Phase II (2005-2008). Out of the three most relevant sites, the Vorkutinskiy cement plant in the Komi republic was chosen for the first Phase III project, with the aim to demonstrate measures and technology to reduce dioxin and furan emissions.

Project: Phase III project on Vorkutinskiy Cement Plant: During 2011-2013 feasibility studies were carried out at the Vorkutinskiy cement plant and further assignments for sampling & analysis of emissions as well as identification of actions including emission reducing equipment were prepared by the company in close dialogue with the PSG, the authorities and NEFCO. Installation of the first electro-filter was carried out by the company in 2013. Current Status: During 2014-2015, the construction and installation of electro-filters and possibly also a cooling tower for reducing the emissions of dioxins and furans and other organic pollutants are planned for. Costs are estimated to be up to USD 250.000 and participants involved up to 25.

PCB PSG Projects

Inventory of PCBs in the Russian Federation was estimated (AMAP Report 2000:3) to be of the order of 20,000 metric tonnes. The key projects addressed by the PCB PSG are summarized as follows:

Destruction of PCB-Containing Capacitors (USA): The project was approved in 2001. About 500,000 PCB-containing capacitors were estimated by ACAP in 2005 to remain in Russia. A Plasma Arc Centrifugal Treatment (PACT) in the custody of the U.S. Naval Research Laboratory was made available to the project as reported by ACAP in 2002 to destroy 12,000 capacitors containing ~200 tons of PCBs at an approved site located in Russia. 19 sites were evaluated. A primary and two back-up sites were identified: 1) Chimprom, Volgograd; 2) "GITOS/VNIIOCHT, Saratov Region; and (3) Ecolline, Yaroslavl. Environmental Assessment was to include certification of the plasma arc technology in Russia for use at the site. Current status (2014): Site and technology require approval. Costs: Total costs estimated at \$5.5million. Participants involved: For all activities of an order of up to 200.

Destruction of PCB liquids from Transformers (NEFCO): The project was approved in 2001 and plans to destroy 250 tons of PCB liquids from Russian transformers. This project consists of two sub-projects led by NEFCO. Emptying and cleaning of PCB-transformers and destruction of the extracted PCB. Basis for the activities was the AMAP inventory refined by NEFCO to address about 540 transformers containing an estimated 1140 tonnes of PCBs in North West Russian Federation. Upon international tendering and evaluation of 3 destruction technologies: i) Plasma; ii) Rocket engine; and iii) Cyclone reactor, the Russian technology (based on vapour phase cleaning of the transformer and cyclone reactor based PCB destruction) offered by Joint Venture EnergoChemTech (ECT) was chosen. In July 2003 NEFCO signed Agreement for destruction of 250 t by May 2006 at the St. Petersburg- Kapitolova site. St. Petersburg, Leningrad Oblast, and Federal approvals were obtained during Dec. - March 2003, however, approval by local government was revoked in Dec 2004 due to local opposition. Thereafter 17 sites were investigated and the project was put on hold. Current Status: Pending licensing and support from the relevant Russian ministries including co-funding from the Arctic Council Project Support Instrument (PSI), when operational. Costs: Total costs estimated at about \$4 million. Participants involved: For all activities of an order of up to 200.

PCB Collection and Storage Project (Denmark): Denmark addressed an expanded collection and storage project in St. Petersburg and the Leningrad Region to update inventories of PCBs and obsolete pesticides in the area, to ensure proper storage conditions and to perform a collection test of PCB for further destruction. The project faced problems to get access to the enterprises in order to register PCB in the Leningrad region. Without such data it was not possible to implement the project. Current Status: The project is closed. Denmark expressed for several years interest in resuming the work on PCB with the NEFCO project but after 2007 Denmark does not have the necessary relevant grants for aid to projects in this area. Cost: Estimated to be up to USD 200.000. Participants involved: Up to 50.

Initiatives Managed and Implemented by Permanent Participants (GCI)

Community-based model for PCB mitigation in the Arctic – Gwich'in Council International (GCI). The GCI PCB Mitigation project was accepted in principal at the ACAP meeting in the October 2004 in Helsinki, Finland. No specific funding was authorized. The GCI Project addressed on-site inspection for obsolete electrical equipment completed in four Alaskan villages.

Six obsolete electrical transformers were identified (one was punctured and leaking). Sampling of transformer liquids and, weather permitting, package the transformers for shipment for safe storage and treatment. An additional village has recently notified GCI that they have 15 improperly discarded obsolete transformers. The Council of Athabascan Tribal Governments (CATG), acting as a technical arm of GCI, initiated the inventory phase of the GCI Project in June 2005 (with funding and technical assistance from the USEPA). Inspections for obsolete electrical equipment were carried out at the following villages in Alaska: i) Beaver; ii) Venetie; iii) Chalkyitsik; iv) Fort Yukon. Transformers were found in the villages of Chalkyitsik and Fort Yukon. A village outside of the Yukon Flats contacted CATG to inform us that they have approximately 15 obsolete transformers improperly discarded in their village. CATG and the USEPA were to finalise sampling of the di-electric oil and establish procedures for proper disposal of the transformers. In addition following villages in Alaska were to be included: Circle, Arctic Village, Birch Creek, Stevens Village, and Rampart. CATG has been in communication with Canadian Gwich'in villages to determine if future cooperation is feasible. Educational materials to the Gwich'in Canada was to help raise awareness about the hazards of PCB's and where they are found.

Current Status: To be updated

Cost: Estimated to be up to USD 300.000 Funding for the village-based obsolete equipment inventory provided by the USEPA Indian General Assistance Program (IGAP). The USEPA also committed to providing funding for sampling and disposal, as necessary, of the five identified transformers.

Participants involved: Up to 50.

Other relevant initiatives related to PCBs in the Arctic

Remediation Programme of Franz Jozef Land (RF, DK, NO, USA, NEFCO, AMAP)

AMAP and the Polar Foundation have been addressing the Franz Jozef Land with financial support from Denmark, Norway, USA, the Russian Federation and NEFCO. Russia is carrying a project to clean-up the sites in the Arctic. During 2012 the Russian Arctic National Park authority contracted out EURO 16 M for FJL (Alexandra land and Hooker). For 2013 EURO 15.7 M is allocated to address the problems of Hayes, Rudolph and Graham Islands with a priority clean-up of Facility No 2 in Graham Bell due to acute on-going and serious damage to the Arctic. Most of amount of contamination is fuel and metal scrap. There is also some amount of PCB contamination that has been collected on Alexandra Land from the 2012 activity. Additional PCB contaminated oil and soil may be expected from clean-up activity of 2013. Funding from NEFCO was also sought e.g. in the context of the Arctic and Barents cooperation.

Current Status: To be updated

Cost: EURO 35 million

Participants involved: Up to 150.

Special issues or questions for SAOs: Success of ACAP PCB demonstration projects in the Russian Federation requires obtaining federal, regional and local support, including adequate funding, e.g. from the PSI Support

instrument when operational. The key RF Ministry needs to address the matter in a holistic manner including transportation of hazardous waste into a region for treatment. The recommendations of the PCB PSG (Progress Report to ACAP, Sept 2005) need to be brought to the attention of the key Russian Ministries and the Environmental Committee of the State Duma.

Obsolete pesticides PSG projects in the Northern Russian Federation

The project (approved in 2001) continues to identify possibilities to demonstrate environmentally sound destruction of obsolete pesticides (project Phase III). Destruction will be demonstrated in either Russian Federation or by exporting waste abroad. In addition, the Ministry of Natural Resources of the Russian Federation will investigate the possibilities to engage the chemical weapons destruction facilities in Russia in destruction of pesticides.

Indigenous Peoples Contaminant Action (IPCAP) PSG projects

The first projects to address contaminants in indigenous communities are being developed for ACAP approval by the countries and PPs together. The projects implementation will be dependent upon the PSG securing sufficient funding, either through member contributions or through the PSI.

Short-lived Climate Forcers and Contaminants (SLCFC) PSG projects

The Short-lived Climate Forcers and Contaminants PSG has three approved ACAP projects:

Reduction of Black Carbon Emissions from Residential Wood Combustion (Norway and Finland). The project focuses on reduction of black carbon (BC) emissions from residential wood combustion in the Arctic countries. The project was approved by ACAP Working Group in November 2012 and has participation from CAN, DK, FI, SE, NO and the US. Data on BC emissions from wood combustion and information on abatement instruments and measures are collected from all the six participating countries with the help of the nominated national experts. Consultants are helping in the synthesis and analysis of the information. The co-leading institutions hosted a workshop in Oslo on 18th and 19th of June 2013 as part of the midpoint status review of the project. Nominated national experts from all the six participating Arctic countries and representatives from international organizations and research institutions took part in dedicated workshop discussions. The consultants, co-leads and national experts have developed the project report together. An advanced draft of the report was distributed to the ACAP WG before the meeting in Tromsø and the co-leaders presented the findings and invited ACAP WG to discuss the recommendations on the 4th of February in Tromsø. After receiving comments from the SLCFC PSG and ACAP WG and carrying out final editing, the co-leads hope for the final approval of the report from ACAP WG early spring 2014. The final report will be a deliverable for the Ministerial. The cost of the project was 1,8 million NOK . The number of participants was up to 25.

Reduction of Black Carbon from Diesel Sources in the Russian Arctic (US). Over the next several years, the US will work on a four-step project to reduce black carbon emissions in the Russian Arctic. Specifically, the US will work to: 1) Assess primary sources of black carbon in the Russian Arctic; 2) Develop a targeted baseline emission inventory for black carbon from diesel sources, in key areas; 3) Implement targeted, on-the-ground demonstration projects for reducing black carbon from diesel; and 4) Establish policy recommendations and financing options for reducing black carbon diesel sources. While the US's work will be focused in the Russian Arctic, the project will collaborate more broadly to reduce diesel black carbon emissions across the Arctic. The project's emissions inventory is in process and a draft will be completed in April 2014 (final by May 2014). US EPA, Battelle, and WWF, Russia held a Circumpolar Transport and Clean Air Workshop in Moscow in December 2013. Leading experts shared best practices on reducing emissions of particulates and black carbon from diesel sources in the Arctic. Participants heard lessons learned and examples of overcoming barriers which informed approaches at the city and national levels. The project's pilot mitigation projects will address two of the largest sources of black carbon, on-road and off-road transport. A case study will be developed of a bus company deciding to purchase more fuel-efficient buses which will reduce black carbon in its fleet. A guide will be developed for

mines to make their diesel vehicles more energy efficient, thereby reducing black carbon. A report with recommendations on reducing BC Emissions (including policy and financing recommendations and lessons learned from pilot projects) will be produced by April 2015. The approved project components cost \$1,350,000. The number of participants is up to 50.

Arctic Black Carbon Case Studies Platform (US). The U.S. undertook outreach to better understand the capacity of potential partners, including the Arctic Council Secretariat, to host a platform that would be interactive and easily evolve with additional information. Research into what types of technical capacity this project could tap in order to meet its stated interface goals continues. Additionally, research on specific cases to include in the initial set of studies continues. Norway renewed its expressions of interest in contributing to this project, which the U.S. welcomed. The U.S. continues to encourage any additional partners in this project who would like to contribute informational, in-kind, or financial resources. The platform will be developed by April 2015. The cost of the project could be up to \$155,000 but is not funded yet. The number of participants for the project is up to 50.

3. Deliverables for the next Ministerial

ACAP expects to be able to submit the following deliverables:

- Final report on the ACAP project "Reduction of Black Carbon Emissions from Residential Wood Combustion", with recommendations
- Final report on Diesel project in Russia (including project level emission inventory to measure the improvements, and recommendations on reducing BC Emissions - includes policy and financing recommendations and lessons learned from pilot projects)
- Arctic Black Carbon Case Studies Platform
- Final report from dioxin and furan PSG 2013-2015 project activities
- Final report on ACAP destruction demonstration of hazardous waste (PCB, obsolete pesticides)
 - Dependent on availability of environmentally sound destruction capacity in RF or export
 - dependent upon the PSG securing sufficient funding to realize the destruction, either through member contributions or through the PSI
- Report of the Mercury Control Technology Workshop
 - dependent upon the PSG securing a Russian in-country co-ordinator for the workshop and sufficient funding to realize the workshop, either through member contributions or through the PSI

4. Working Group administration and next meeting(s)

Finland announced it will be stepping down at the next Ministerial Meeting and the WG will need to consider the next chairmanship.

Arctic Council Secretariat has recruited a working group coordinator to assist ACAP.

5. Collaboration with other working groups / other organizations

Co-operation with other working groups on AACA-C and SLCF.

Close co-operation with United Nations Food and Agriculture Organization (FAO) project "Improved pesticides and chemicals management in the former Soviet Union".

Close cooperation with the United Nations Environmental Program regarding Minamata Convention, and GEF/UNEP/Russia mercury project in Russia (emissions inventory and Russian Action Plan).