



Project no 12/72 - Final Rapport

**Boot, clothing and equipment
decontamination program**

Background

In 2010 AECO applied and received money from Svalbard Environmental Protection Fund to conduct an integrated Impact Assessment for cruise traffic around Svalbard. AECO contracted Akvaplan-niva to conduct the study and the final report "Environmental impact of expedition cruise traffic around Svalbard" was published in February 2011.

The main findings were that there generally is little negative impact of present expedition cruise traffic around Svalbard, that the cruise industry is well informed of regulations and environmental considerations and that the industry also adds to the guests understanding of the need for environmental considerate behavior, as well as general protection of the environment.

The report also, however, pointed to a few mitigating measures suggested in order to reduce potential negative impacts. Among these measures were cleaning of boots before arrival in Svalbard and between sites in Svalbard. This was also documented in UNIS' report "Risk assessment of non-native seed introduction by visitors to Svalbard" from 2010, financed by Svalbard Environmental Protection Fund. In this assessment the findings were that four seeds and two moss-fragments are attached to each visitor's shoes when they arrive at Svalbard airport, and that 26 % of these have the ability to sprout in Svalbard.

To address this AECO decided to apply Svalbard Environmental fund to finance a Boot, clothing and equipment decontamination program. A program which would be carried out in close cooperation with Inger Alsos Greve and Chris Ware from Tromsø University and was a carried out over a two year trial period, after which routines were evaluated.

AECO's Boot, clothing and equipment decontamination program

After receiving funding for a “boot, clothing and equipment decontamination program” AECO members in cooperation with researchers from Tromsø University have worked together on a project evaluating the effectiveness of decontamination practices employed on Svalbard expedition cruises during a two year trial period.

The overall aim of the project has from the very beginning been to safeguard the environment in Svalbard by ensuring minimal impact of tourism through limiting the potential for non-native species introduction and transfer.

During the field seasons of 2012 and 2013, researchers from Tromsø Museum, in cooperation with AECO operators, undertook a number of activities with the aim of:

2012: considering the effect of different decontamination measures (such as cleaning and vacuuming) of passengers’ footwear and clothing on board seven of AECO’s member vessels

2013: following up on research results from 2012 in order to determine the efficacy of educating passengers of the need to carry out footwear and clothing decontamination prior to travel to Svalbard, to remove the need to do this on board vessels.

These aims were addressed by cleaning and sampling the outer clothing, back-packs, and boots of visitors before and between landings to non-inhabited sites in Svalbard. These samples allowed researchers to determine whether the decontamination practices were capturing or destroying any non-native propagules (plant seeds, invertebrates, microorganisms) transported. Research based on Polar tourism has shown these items may transport large numbers of non-native propagules.

Summary of important results

- Where undertaken, the cleaning and vacuuming of equipment, boots, and outer clothing belonging to cruise guests substantially limits the transfer of non-native propagules to Svalbard.
- Few AECO member ships are, however, able to perform the necessary decontamination procedures within the limited time frames provided on a Svalbard expedition.
- The simplest decontamination procedure to undertake is the disinfection of footwear. The way in which this is performed currently by several expedition ships is, however, not effective.
- Given the impracticality of carrying out extensive decontamination procedures during a Svalbard expedition, the most effective way to prevent non-native propagules from being introduced to, and transferred within, Svalbard – at this point in time – is to provide cruise guests with educational pamphlets and information about basic biosecurity measures about how to pack (and clean their footwear and clothes) prior to arrival in Svalbard.
- Most tourists indicated that they would be receptive to receiving educational material about carrying out basic biosecurity measures, and would ensure that they performed the necessary tasks should they again travel to Svalbard.

From the very beginning of this project it has been AECO's intention to introduce a "boot, clothing and equipment decontamination program" for AECO members, which involve cleaning of boots and vacuum cleaning of visitor's clothes and back-packs before and between visits to non-inhabited sites in Svalbard. Our vision in this regard was from the beginning to establish a permanent scheme to limit the transfer of non-native propagules to Svalbard permanently.

The trial period proved that the way decontamination was carried out in Svalbard was ineffective. One of the reasons for this was the limited time frame to carry out boot cleaning and vacuuming before first landing and between landings. Unlike in for example Antarctica – where the crossing of Drakes Passage from Ushuaia to Antarctica leaves the passengers and crew days to perform thorough decontamination measures – the typical expedition vessel leaving Longyearbyen has very limited time for this. Furthermore little effect of cleaning boots and vacuuming clothes on cruise passengers in Svalbard together with a high number of other ways seeds are transported and spread, brought us to the conclusion that a full decontamination program in Svalbard is not worthwhile.

Given that an extensive decontamination procedure during a Svalbard expedition would not be carried out, AECO in cooperation with the researchers from Tromsø University have decided to address the decontamination issue in Svalbard somewhat different. With the same important focus of limiting the transfer of non-native propagules to Svalbard AECO in cooperation with the researchers have developed a 'Biosecurity Guideline' with basic

biosecurity information for visitors, which AECO-members can distribute to passengers prior to their arrival. This as a direct result of the fact that the trial period showed that cruise guests responded positively to receiving educational material about carrying out basic biosecurity measures, and generally indicated that they would perform the necessary tasks in regard to this.

By creating a permanent biosecurity guideline and thus focusing on information and education of cruise guests in order for them to clean their clothes and footwear themselves before arriving in Svalbard, AECO has moved away from the original vision of a on-board decontamination program, due to the fact that such a program during the trial program showed ineffective. By producing a decontamination guideline AECO has, however, managed to live up to the original intention of establishing a scheme to limit the transfer of non-native propagules to Svalbard. The trial-period resulted in new knowledge that indicated that education and information of passengers prior to their arrival in this case would be the best means to this end.

Environmental benefits and management

The project shows that the environment can be safeguarded from the potentially negative impacts of people travelling around Svalbard by informing visitors about basic biosecurity measures before arriving in Svalbard, and that such a visitor-awareness has a positive influence on environmental management. While this work focused on AECO member cruise tourism, the results are relevant to any group travelling around Svalbard.

Follow-up measures

In October 2013 AECO's members approved the new biosecurity guidelines at AECO's annual meeting. This means that the guidelines and biosecurity measures have been made mandatory for AECO's operators. The guidelines have been published on www.aeco.no – see: <http://www.aeco.no/guidelines/biosecurity-guidelines-2/> and are available to the public who can download and use this tool as they wish.