**Influence of Climate Change on Transport, Levels, and Effects of Contaminants in Northern Areas**

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The here presented study is summarising a recently completed interdisciplinary research project investigating the effect of recently observed climate change on fate and distribution of anthropogenic pollution in northern and Arctic ecosystems. This research project combined fieldwork (Svalbard, Norwegian Arctic) with modelling and regional risk assessment for high priority pollutants including selected persistent organic pollutants (POPs), mercury (Hg) as well as potential relevant transformation products. The study elucidated the impact of climate change on fate and concentrations levels in the Arctic of selected contaminants including polychlorinated biphenyls (PCBs), γ- and β-hexachlorocyclohexane (HCH), perfluorinated alkylated substances (PFAS), Hg and methyl-Hg. The results from this study provide new insight on how climate change will affect transport of POPs and mercury to the North and influence the bioaccumulation, degradation and re-mobilisation of these compounds in the Northern environment. The interdisciplinary approach allowed identification of environmental factors contributing to the observed changes in bioavailability for old and new contamiants in the marine and terrestrial environment.

A case specific assessment on accumulation processes in animals and humans in the North and the effects were completed. This included a first risk assessment for selected anthropogenic pollutants related to foodstuff and water security with respect to the potential exposure risk of Northern people.

Levels and distribution profiles for emerging contaminants including transformation products of POPs were investigated in important local food for Arctic and Northern people. This data was used for determination of dietary exposure assessment and to investigate the emission and distribution profiles of these pollutants. .This comprehensive assessment also investigated mercury in Nordic and Arctic terrestrial environments and how environmental factors related to climate change will affect the environmental cycling of methylmercury.

This presentation will conclude the major findings and highlights of the project, identify knowledge gaps and recommend research strategies for possible actions addressing regulatory actions for managing potential environmental risks as well as exposure potential for Northern human populations.