



Lead Author e-mail: [julia.schmale@iass-potsdam.de](mailto:julia.schmale@iass-potsdam.de)

**Title:** *Sustainable Maritime Arctic Transformation - The SMARt Project*

**Julia Schmale**<sup>1</sup>, Sebastian Unger<sup>1</sup>, Achim Maas<sup>1</sup>, Ilan Chabay<sup>1</sup>, Birgit Lode<sup>1</sup>, Katherine Houghton<sup>1</sup>, Axel Lauer<sup>1</sup>

<sup>1</sup>*Institute for Advanced Sustainability Studies e.V., Potsdam, Germany*

The SMARt transdisciplinary project investigates the benefits and feasibility of reducing short-lived climate-forcing pollutants (SLCPs) in the Arctic. This includes the effects of climate change and air pollution on the Arctic environment as well as societal and legal implications within the framework of sustainable governance with strong stakeholder involvement. In SMARt, of special interest are SLCPs from ship emissions and gas flaring. SMARt was launched in December 2012 and is anticipated to run for four years. It is funded and carried out under the lead of the Institute for Advanced Sustainability Studies (IASS), Potsdam, Germany.

Over the last decades the Arctic has warmed at a rate twice as high as on global average. SLCPs, especially black carbon and tropospheric ozone, contribute substantially to the regional warming. Key sources of SLCPs in the Arctic include maritime transportation, oil and gas exploration, flaring, and domestic heating. With the projected decrease of sea ice extent and the resulting opening of Arctic seaways, local emission sources are expected to increase significantly in the near future. Emissions of black carbon and ozone precursors increase atmospheric radiative forcing leading to surface warming. Furthermore, black carbon reduces the albedo of ice and snow-covered surfaces causing accelerated thawing. Current regulations include vessel-specific technical approaches (e.g. low-sulfur fuels) and the designation of marine protected areas such as sensitive sea areas and emission control areas.

Considerable knowledge on these Arctic issues already exists. Now, it is needed to start a dialogue with the stakeholder groups involved to ensure coherent actions towards sustainable development of the Arctic. SMARt conducts transdisciplinary research proactively involving the stakeholders to co-develop sustainable governance approaches. SMARt focuses initially on maritime transportation and addresses the following key objectives:

- analyzing regional and global stakeholder relationships, needs, and interests in the Arctic,
- establishing a dialogue process among the different stakeholder communities (including indigenous, commercial, and governmental),
- advancing the understanding of the impact of air pollution and climate change



on the Arctic environment and its people, and

- identifying options for feasible regulations of shipping and other significant sources of SLCPs, including more comprehensive, stringent, and mandatory rules for shipping in polar regions.

We will present our approach and methodologies for the transdisciplinary co-development of knowledge appropriate for decision-making and describe the links between stakeholder engagement processes, the natural science basis, and the elaboration of governance approaches within the framework of international law.