

# Engaging in meaningful science-stakeholder dialogues in polar and marine research

Bär Kristina, Maximilian Felix Schupp and Gesche Krause

Alfred-Wegener-Institute, Helmholtz Centre for Polar and Marine Science, Am Handelshafen 12, 27570 Bremerhaven, Germany  
E-mail: kbaer@awi.de

The call for research projects of direct societal relevance and the transference of scientific results to end-users has significantly increased over the past years. The globally growing competition for ocean resources and space as well as pressures on the marine environment have created an increasing demand to meaningfully include stakeholders outside academia in research activities.

Yet, despite an increase of dissemination and outreach efforts, these activities are often found to be lacking targeting and tailoring of the transferred information to the relevant audiences (European Commission, 2011). The communication efforts are therefore mostly one-dimensional and non-directional, following the “deficit” model, which regards the lay-audience as passive receivers of information rather than individuals interpreting messages according to their personal and professional background, experiences and needs (Nisbet, 2009; Bauer, 2008; Bauer, Allum and Miller, 2007; Nisbet and Goidel, 2007; Scheufele, 2007). In most cases, this approach, however, limits understanding and sense-making of the given information (Moser, 2010).

This study works from the premise that meaningful stakeholder engagement calls for dialogic communication processes, in which interests and expectations of the all actors are accounted for. For this analysis the subjective experiences of researchers obtained during various science-stakeholder projects at the Alfred-Wegener-Institute Helmholtz Centre for Polar and Marine Science, were gathered using semi-structured interviews. Projects were selected based on a content analysis of their respective abstracts, identifying those that stated the objective to engage with stakeholders.

The in-depth project analysis showcases three common approaches to multi-stakeholder communication processes:

1. A limited one-dimensional communication model, in which the target audience was vaguely defined and messages were produced in a “one size fits all” matter without evaluation of the effects of provided information.
2. A linear, targeted information transfer, in which stakeholder needs were segmented and accounted for, providing tailored scientific information to each audience segment.
3. A targeted information exchange, in which stakeholder views and feedbacks were requested at one or multiple occasions during the research process, potentially influencing the research project and thus the subsequent tailored information transfer.

Based on the experiences reported by researchers using these communications models and feedback by stakeholders engaged in them, the interaction between the actors was then rated to be most beneficial for involved participants, when stakeholders were involved from the beginning of a research processes as regular project partners and when stakeholders were able to leverage their science cooperation for own purposes. To systemise this approach the study proposes a fourth dialogic approach to science-stakeholder interactions, which enables the co-production of knowledge. Compared to the above mentioned communication processes this approach calls for scientists and stakeholders to become equal partners in the research process, which engage in a continuous dialogue throughout the project - and ideally beyond - in order to produce a result, which feeds back into the research arena and allows for informed-decision making in the stakeholders’ respective domains.

Hence, new interactive formats of science-stakeholder dialogues are needed, which overcome the current barrier between academia and “the outside” world, transforming scientific findings to societal relevant knowledge.

## References

- Bauer, M., 2008. Survey research and the public understanding of science. Handbook of public communication on science and technology, pp.111-130.
- Bauer, M.W., Allum, N. and Miller, S., 2007. What can we learn from 25 years of PUS survey research? Liberating and expanding the agenda. Public understanding of science, 16(1), pp.79-95.
- European Commission (2011), Impacts of EU Framework Programmes (2000-2010) and Prospects for Research and Innovation in Food, Agriculture, Fisheries and Biotechnologies; Helming, K., Connolly,

- N., Amanatidou, E., Rem, P., Wilenius, M. (2014), Ex-Post Evaluation of FP7 Cooperation Programme Theme: "Environment (including Climate Change)".
- Moser, S.C., 2010. Communicating climate change: history, challenges, process and future directions. *Wiley Interdisciplinary Reviews: Climate Change*, 1(1), pp.31-53.
  - Nisbet, M.C. and Goidel, R.K., 2007. Understanding citizen perceptions of science controversy: bridging the ethnographic—survey research divide. *Public Understanding of Science*, 16(4), pp.421-440.
  - Nisbet, M.C., 2009. Communicating climate change: Why frames matter for public engagement. *Environment: Science and Policy for Sustainable Development*, 51(2), pp.12-23.
  - Scheufele, D.A., 2007. Nano doesn't have a marketing problem... yet. *Nano Today*, 2(5), p.48.