Seminar

Evidence gathering and integration in sustainability science: methodological challenges and advancements

4th of September 2019 h. 14-16.30
Aud 116, Unioninkatu 35, Helsinki

Streaming/recording available at https://www.helsinki.fi/fi/unitube/video/21194

Speakers:
David Abson (Prof. - Leuphana University of Lüneburg) with expertise on systems of interest in sustainability science and scientific models of transformative change.
Gill Petrokofsky (PhD - University of Oxford) with expertise on evidence-based research for decision-making.

Moderator: **Michiru Nagatsu** (Associate Prof. - University of Helsinki) with expertise in Philosophy of Science, in particular in the methodology of interdisciplinary research.

Program

1. Problem formulation	The invited speakers will present about the challenges of evidence gathering in sustainability science.
2. Facilitated discussion	Through traditional Q&A, we welcome the participants to contribute to further refining and discussing the problems.
	Break and refreshments
3. Reflections	Through discussion groups, the audience and the speakers are asked to reflect on evidence gathering in sustainability science: what was learnt, what was missing, and how does this relate to individual research?

About the seminar

The ability of science to inform policy - and the quality of evidence itself - form part of many contemporary public debates for a sustainable future. However, questions remain on how to 1) gather reliable and valid evidence in the form of primary data regarding complex sustainability problems; 2) synthesise and integrate evidence in the form of secondary data from multiple disciplines, which often employ different methodologies (Figure 1). In particular, the role of evidence synthesis is to ensure that decision-making is based on comprehensive, reliable and up-to-date information.

Systematic reviews represent a valuable approach to evidence synthesis. This method relies on a standardized protocol for gathering and analysing secondary data in a way that guarantees replicable and generalizable results (CEE, 2013; Livoreil et al., 2017). Such reviews originate and have become a powerful tool in informing policy and practice in medical science. They have also been successfully applied in other fields such as health, education and environmental research, but several challenges have emerged.

Systematic reviews are built on the premises that data (evidence) is formed through intervention-based, controlled experiments (e.g. lab experiments or clinical trials). In such experiments, a hypothesis is tested by operating an intervention on a population and assessing outcomes in light of comparators with no or different interventions. In this context, the researcher is an external observer to the process.

Organizers: Adj.Prof. Dalia D'Amato, PhD student Maria Ojanen, Prof. Maria Brockhaus

However, the study of interlinked and complex systems, including social-ecological systems, calls for researchers to use, synthesize and integrate multiple types of evidence and knowledge, which follow different requirements of validity and reliability. For instance, qualitative research is often highly-context specific, may lack comparators and necessitate a participatory role of researchers in the experiment (Caniglia et al., 2017, p. 40). Consequently, different methodologies in Sustainability Science might not be fully comparable with each other (Dicks et al., 2017). Given these premises, what kind of synthesis is even possible?

In this seminar, we will introduce types of evidence in Sustainability Science, and we will then discuss the challenges and possible approaches to tackle the synthesis and integration of secondary data from multiple disciplines and/or methodologies. This is of utmost importance for HELSUS and similar academic communities dedicated to Sustainability Science. We thus hope for this event to provide the participants with an opportunity for reflection on and inspiration for evidence gathering and integration in their own work.

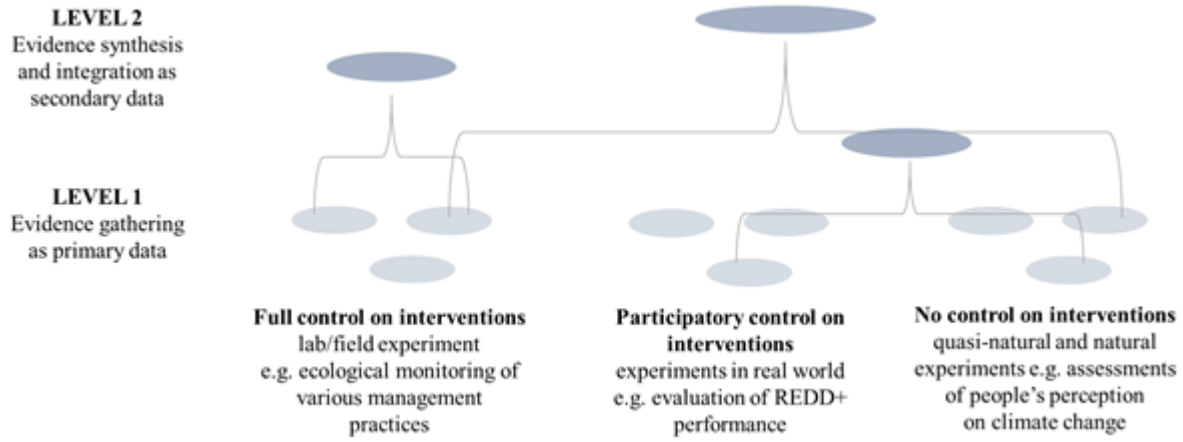

Figure 1. Representation of three types of evidence gathering for primary data, and synthesis/integration of secondary data from multiple types in Sustainability Science (inspired to Caniglia et al., 2017).

References

Caniglia, G., Schäpke, N., Lang, D.J., Abson, D.J., Luederitz, C., Wiek, A., Laubichler, M.D., Gralla, F., von Wehrden, H., 2017. Experiments and evidence in sustainability science: A typology. J. Clean. Prod. 169, 39-47. https://doi.org/10.1016/j.jclepro.2017.05.164

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Dicks LV, Haddaway N, Hernández-Morcillo M, Mattsson B, Randall N, Failler P, Ferretti J, Livoreil B, Saarikoski H, Santamaria L, Rodela R, Velizarova E, and W.H., 2017. Knowledge synthesis for environmental decisions: an evaluation of existing methods, and guidance for their selection, use and development – a report from the EKLIPSE project1. (Contract No: 690474).

Livoreil, B., Glanville, J., Haddaway, N.R., Bayliss, H., Bethel, A., De Lachapelle, F.F., Robalino, S., Savilaakso, S., Zhou, W., Petrokofsky, G., Frampton, G., 2017. Systematic searching for environmental evidence using multiple tools and sources. Environ. Evid. 6, 27. https://doi:10.1186/s13750-017-0099-6