

Knowledge Integration: Theory and Practice, by Jochen Hinkel

This paper explores how transdisciplinary knowledge integration can be facilitated in the context of integrated assessments (IAs) and vulnerability assessments (VAs) of climate change. Even though knowledge from a wide range of natural and social science disciplines must be integrated in such transdisciplinary assessments (TAs), the actual process of integration is rarely addressed explicitly and methodically. This paper reviews the methodological status quo of IAs, VAs and TAs in general, develops concepts for speaking about knowledge integration, suggests how knowledge integration could be facilitated and then applies these considerations to four cases taken from the domains of IA and VA. Knowledge integration is conceptualised into the two subsequent phases of the elaboration of a shared language and the design of a methodology. Three devices for facilitating knowledge integration are put forward:

- semantic ascent or the shift from speaking in a language to speaking in a meta-language about the former,
- formalisation or the translation of statements made in ordinary or technical language into a formal language,
- knowledge integration methods, which are methods that provide a meta-language for speaking about the knowledge to be integrated and organise the process of integration.

It is found that semantic ascent is a useful device in those assessments in which it is difficult to directly elaborate a shared language. Formalisation can also contribute to the elaboration of a shared language, in particular in those cases in which concepts overlap non trivially in their meanings, as it is the case for vulnerability and related concepts. More emphasis should be placed on the development of iterative knowledge integration methods as iteration is crucial in order to benefit from the mutual learning during the course of the assessment.

Biography

Jochen Hinkel has a background in ecology, semiotics and software development. He has written his PhD thesis on transdisciplinary knowledge integration within the faculty of Environmental Sciences at Wageningen University. Currently, Jochen is leading a research group on vulnerability and adaptation at the Potsdam Institute for Climate Impact Research (PIK). The group belongs to PIK's research domain Transdisciplinary Concepts & Methods and aims at advancing the state of the art of vulnerability and adaptation assessments by providing and applying mathematical formalisations of the main concepts involved. Further research activities include meta-analysis of impact, vulnerability and adaptation case studies as well as the development of computational assessment tools.