

Operationalising resilience as a policy-relevant concept for climate change adaptation: Results from several case-studies

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Resilience, as a concept in the context of climate change adaptation, has been used under numerous definitions. Although resilience is perceived as a desirable attribute of (social-) ecological systems, the use of this concept has so far remained mainly at the conceptual level. In literature, the concept has been used as specific system attribute, as well as an umbrella concept for a whole range of attributes. Furthermore, its relationship to closely-related concepts, such as adaptive capacity and vulnerability, differs between studies. In our research we explored the concept of resilience as an adaptation strategy by applying different methods to bring the concept at the operational level for several (social-) ecological systems. The paper will present our experiences with operationalising the concept in a way that keeps in touch with the studied system and its policy-context.

In different case-studies, various methods to operationalise resilience were explored. The first case-study explored the usefulness of 'resilience principles' for assessing adaptation options and strategies in the urban delta of the city of Rotterdam. They appeared to make the concept of resilience sufficiently operational for local actors in exploring policy options (De Jong, 2008; Wardekker et al., 2010). In the second case study, the practitioners' workbook of the Resilience Alliance (RA) was used to assess resilience in the Wadden Sea ecosystem. The focus in this study was on resilience-enhancing measures for different alternative states that are relevant in the context of climate change. In this study, both advantages and disadvantages of the RA's workbooks were identified (Westerlaan, 2010). A third and fourth case-study explored the development of 'resilience indicators', which may be used to quantify the resilience of a specific (social-)ecological system. Challenges and opportunities in developing resilience indicators were characterized (De Jong et al., 2010).

Finally, we summarized our experience in operationalising resilience in a conceptual study on resilience as strategy in adapting to climate change. Both its relationship to related concepts, as well as practical aspects and challenges on operationalising resilience as a fruitful adaptive strategy are discussed.

References

De Jong, A. (2008). Veerkracht als strategie voor klimaatadaptatie onder onzekerheid: onderzoek aan de hand van de casus 'het buitendijks gebied van gemeente Rotterdam'. Copernicus Institute for Sustainable Development and Innovation, Utrecht University, Utrecht.

de Jong, A., Wardekker, J.A., Verweij, P.A., & van der Sluijs, J.P. (2010). Handen en voeten voor veerkracht Indicatoren voor klimaatbestendige washoversystemen en kwelders. Copernicus Institute for Sustainable Development and Innovation, Utrecht University, Utrecht.

Wardekker, J.A., de Jong, A., Knoop, J.M., & van der Sluijs, J.P. (2010). Operationalising a resilience approach to adapting an urban delta to uncertain climate changes. *Technological Forecasting and Social Change*, 77(6), 987-998.

Westerlaan, P. (2010). Resilience in the Wadden ecosystem. Copernicus Institute for Sustainable Development and Innovation, Utrecht University, Utrecht.