

## **“Doing” Socially Inclusive Sustainable Development Through Transdisciplinary Knowledge Dynamics: The Case of Paper Province 2.0**

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How can we “do” sustainable development? This paper addresses the tall order of making a transition to a sustainable development, through focusing on knowledge dynamics in the bio economy. The paper is based in the ten-year initiative ‘Paper Province 2.0 - an innovation system for a bio based economy’.

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To realise the bioeconomy innovation of goods, services, processes, business models are needed as well as development of new organisational systems and behavioural changes that contribute to sustainable development. Key aspects of such multi-faceted innovation processes include the understanding of knowledge dynamics. That is to say, to understand the development of knowledge and learning as processes involving relations and interactions between people.

Knowledge dynamics that can contribute to a transition to a sustainable bioeconomy needs to be cross-sectoral, i.e. interactions drawing on different disciplines, industries and expertise. It also needs to involve different actors e.g. researchers, firms, public authorities and the civil society, i.e. it needs to be socially inclusive. To be able to “do” sustainable development and contribute towards solutions to the transition to sustainability, transdisciplinary research and development projects involving stake holders need to be developed.

This paper reports back on activities related to the initiative “Paper Province 2.0” that have started to develop methods for transdisciplinary research and development aiming at contributing to sustainable development through the bioeconomy.

One such activity was a workshop with partners from Sweden, Finland and Estonia. The workshop addressed the overarching question “How do we make the transition to a sustainable regional development based in the bioeconomy”. The workshop was cross-sectoral and multi-actor involving researchers from different disciplines, different types of public actors, and partners from industry. The result of the workshop was promising since it identified key themes to focus as well as preliminary research questions and development issues that formed a good platform to cultivate in joint research applications as well as different development actions among the various partners. The workshop also provided valuable experiences in relation to the development of methods for transdisciplinary research.

One of the themes that was identified in the workshop as important for realising the bioeconomy was the so called 'quadruple helix'. Broadly speaking this means that in addition to the triple helix innovation model that is commonly used within innovation research and policy, further actors are increasingly needed to generate new knowledge and innovations. Such actors may include voluntary organisations and associations, trade unions, customers, clients and others, and are often labeled "civil society". As a result of the workshop further research and activities into this, the fourth helix, and its role in relation to "doing" sustainable development have started. Civil society carries experiences and knowledge about everyday practices, lifestyles and consumption patterns that are highly relevant in the transformation into a more sustainable society. Developing an understanding for the role of civil society in "doing" sustainable development and the elaboration of methods for socially inclusive processes are important to be able to harness the broad range of knowledge that are necessary to reach the sustainable development goals. In a quadruple helix workshop including actors from public authorities, firms, academia and civil society ways in which to develop new knowledge addressing a transition to sustainable development was explored.