

Ines Oehme, Harald Rohrer, Philipp Späth, K. Matthias Weber:

## **Policy coordination to support a transition to sustainable production systems. Lessons to be learned from the case of biorefineries in Austria**

Transition processes towards sustainability can be conceptualised at the level of production-consumption systems, ranging from resource extraction to final or intermediate product and service delivery. Policy initiatives play a pivotal role in fostering such transitions, but require an integrated and coordinated policy approach to be effective. However, the coordination of policy initiatives, both vertically and horizontally, cannot be all-encompassing, but needs to be focused on what we call transition fields, i.e. critical segments of a production-consumption system where a transition process can be initiated.

In the case of manufacturing, we are confronted with a high degree of diversity of production-consumption systems. As a consequence, the level of aggregation at which transition fields can be delimited is much lower than, for instance, in energy supply or transport which represent far more homogeneous systems. The case of biorefineries in Austria is an interesting example for studying policy coordination and its impact on the evolution of such a transition field and the corresponding production-consumption system, as well as about the pitfalls and difficulties it involves.

At the beginning of the millennium, the perspective for biorefineries seemed to be quite promising in Austria, because an RTD-programme was set up that aimed to integrate sustainability aspects into manufacturing research, thus building an explicit bridge between sustainability and RTD policy. However, policy coordination involves a wider range of key issues, and we will show by means of the Austrian experience some of the barriers to policy coordination and to an effective management of a transition field. The reasons why this Austrian initiative did so far not show the expected benefits can be traced back to a range of factors, several of which relate to problems of policy coordination: the neglect of European policy developments (vertical coordination), both in RTD and other policy areas; a lack of coordination with other relevant national policy domains (horizontal coordination); but also a lack of coordination within sustainability-oriented RTD-policy where the limited amount of research funding was spread too thinly across a wide spectrum of transition fields (internal coordination).

Along these three dimensions, the different coordination links will be described and analysed in terms of the underlying reasons why they worked well or not. In many cases, the success of the different coordination efforts can be traced back to organisational and institutional factors. Therefore, the paper will conclude with some general lessons that can be learned from the

Austrian biorefineries case for the design of coordinated and integrated policies and corresponding institutional settings, with the emphasis being put on the role of RTD-policy.