

Project Abstract

Regional Infrastructure Foresight – Transition Management for the Sanitation Sector

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Project Partners and Co-workers (alphabetical order)

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Objectives

The project aims at developing a methodology that supports mid- to long-term analysis and strategic decision making for sustainable infrastructure planning at the local or regional level. The methodology shall be developed and tested for the Swiss sanitation sector. Typical problem profiles of Swiss communities and associated sanitation firms, as well as upcoming socio-technical and organizational innovations will be analyzed in detail. Based on these analyses, regional foresight exercises will be carried out in three specific case study regions. These will allow identifying strategic alternatives for sustainable infrastructure development. Based on the lessons learned in the sanitation sector, generalization will be endeavoured first for the urban water sector as a whole and then for other infrastructure contexts.

Concept

We will analyse the transition towards sustainable infrastructure systems as a problem of “regime transformation”, where new technologies, new organisational principles and new regulatory institutions develop in a co-evolutionary way. Against this analytical background, we develop a methodology (Regional Infrastructure Foresight – RIF), which shall support strategic decision making at the regional and local scale. RIF may therefore be seen as a proposal of a new method for “regional governance”, „strategic planning“, or “Technology Assessment”. As a consequence it is conceived as a strongly interdisciplinary oriented research project, interacting tightly with experts of the respective sector.

We focus our research on three assumptions or working hypothesis:

- Recent and foreseeable developments in the sanitation system increasingly challenge the prevailing socio-technical regime. As a consequence, windows of opportunity for a regime change are likely to open up.
- Given the local specificities of most infrastructure systems and the increased range of technological and organisational alternatives, preferable solutions are likely to become locally and regionally more differentiated than today. Accordingly planning strategies and methods have to consider regional differentiations and specific endogenous innovation potentials and cannot be designed and implemented from a national level.
- In order to meet these challenges and to profit from the new opportunities, new forms of regional governance have to be developed and decision making procedures have to be more explicitly oriented at mid- to long-term time horizons.

The project is structured into three analytical steps:

- Anticipatory problem identification: Analysis of the key problems and drivers for change, which may become effective over the next 30 to 70 years in the Swiss sanitation sector.
- Innovation System Analysis: Analysis of socio-technical, organisational and institutional innovations, which may be available in this time period. Innovations shall be evaluated with regard to sustainability criteria and with regard to the contribution to solving problems identified in the first step.
- Regional Infrastructure Foresight exercises: Case studies of regional infrastructure foresight in two or three Swiss communities (or regional clusters of communities) for which problem pressures are likely to rise in the near future.

Expected Results

From a scientific point of view, the project shall contribute to the emerging scholarly field of Transition Theory in its application to infrastructure systems. Transition Theory has emphasised the highly interconnected dynamics of technical, social and institutional aspects and the role of mutual fit of these elements, in order to reap economies of scale, economies of learning etc. Transition management is concerned with the analysis of conditions to break up existing regimes and to induce transitions from one regime to another.

Beyond its academic goals, the RIF project wants to contribute to practical problem solution related to the sustainable transformation of infrastructures in Switzerland. Results of practical relevance will include:

- Report on key trends and challenges in the Swiss water and sanitation sector.
- Analysis of socio-technical, organisational and institutional innovations in view of their contribution to sustainable development in the sector.
- Development of a basis for a national coordination and support of regional infrastructure planning.
- Methodological guidelines for regional infrastructure foresight and participatory technology assessment. Publication of a handbook for Regional Infrastructure Foresight.

Networking

The project is conceived as an interdisciplinary research project. The project team encompasses scholars from the Social Study of Technology (CIRUS), Engineering Science (Urban Water Management EAWAG), Innovation Analysis (Fraunhofer ISI), Participatory methods of technology assessment (EMPA) and regional economics and regional policy (Economic Geography, University Berne).

The project is carried out in close interaction professionals from the Swiss sanitation sector and in particular with their national association (VSA). The project has installed an advisory board constituted by BUWAL, VSA and TA Swiss.

Moreover, the project is embedded in the emerging international transition management research community with CIRUS being actively involved into the ongoing theoretical and methodological research.

Case Study Area(s)

The project focuses on the sanitation sector in Switzerland. For the three RIF exercises, three regions of spatially contiguous communities shall be selected that may approach the problem of infrastructure planning in a coherent way (e.g. communities located in the catchment of a lake or a river). The selection of case studies will be based on the results of the anticipatory problem identification (see step 1, above).