PhD Project: Developing a framework to identify the transformative potential of research for sustainability transitions (working title)

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Climate change, increased resource demand and resource scarcity, global urbanization, and economic crises are just a few examples of macro-level developments that presuppose adaptations and transformations in major parts of our society. Sustainable development has become one of the key guiding principles to direct these changes in desired directions. This also affects the role of science: Recently an increasing number of research projects intends to actively contribute to sustainability transitions providing the knowledge and the tools that are necessary to initiate or facilitate transformations towards sustainability. These projects aim at having impacts beyond academia and intend to create solution-oriented results. Going along, the demand for ways to better understand, analyze, and assess societal effects of sustainability research (SR) projects rises. However, still little research has been performed on the societal effects of such projects and how they potentially contribute to sustainability transitions on a system level. Particularly the following questions are of importance:

- Which project related factors influence which societal effects of SR projects in which manner?
- How do societal effects of SR projects connect to their systemic contexts and ongoing sustainability transitions?
- How can we identify the transformative potential of SR for sustainability transitions?

The overall goal of this research is to create a framework that clarifies the links between SR projects, societal effects that potentially result from these projects, and sustainability transitions on a system level. Hence, this framework facilitates the identification of the transformative potential of SR projects for sustainability transitions. It consists of a typology of societal effects and corresponding influence factors for these effects. I hypothesize that each type of effect has a different set of factors that determines the project's transformative potential for this effect. The factors can be project related, i.e. directly influenced by the project (e.g. project design, planned outputs, etc.), or external, i.e. not directly influenced by the project (e.g. legislation, governance structures, norms and values, science policy, etc.). The creation of the framework follows three main steps:

Identification of societal effects of SR projects and the project related factors that have an influence on these effects
The first step comprises analyses on the project level. Building on a literature analysis, document analysis, and interviews with scientific project leaders and practice partners of ongoing SR projects, I create a typology of potential societal effects of SR projects and identify project related factors that influence these effects.

Analysis of the connection between societal effects of SR projects and their systemic context including the identification of external factors that influence societal effects
The second step focuses on the systemic context of societal effects of SR projects. Building on a literature analysis, interviews with practice partners of finished SR projects, and interviews with experts on the systemic contexts of these projects, I apply the typology of societal effects of step 1 in an urban context. In doing so, I create insights on the role of societal effects of SR projects in urban system transformations towards sustainability. Furthermore, I identify external factors that potentially influence the societal effects of SR projects.

Integration of the previous results and validation to create the final framework
Step 3 consists of two major parts: First, I integrate the results from the previous steps to build a preliminary version of the framework. Second, I complement, test, and validate the preliminary framework in a group discussion to finalize the framework.