

# A systems approach to water(soil) management: systems' resilience as a challenge to organizations and innovation processes

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**Introduction:** Systemic thinking has become increasingly popular in approaches to water(soil) management. This is partly driven by policy measures such as the implementation of the water framework directive and partly through scientific progress. There is also the experience that a single issue approach does not lead to sustainable solutions ([www.sednet.org](http://www.sednet.org)). On the organizational level, this shift towards a systemic perspective demands alternative knowledge, skills and structures if compared to singular approaches. On the level of the production process of organizations this demands a new way of organizing innovation processes in response to these new water(soil) management challenges. This increased need for change at both the organizational and the production levels requires approaches that help the organizations to understand and deal with the challenges in a way that improves both survival and thriving.

## Methods

In this paper the authors first discuss the context of a system approach. Why is it being used at this point in time? Which societal developments triggered it? The second section discusses what the elements are included in a systemic approach to water(soil) management, and how it differs from a more traditional approach. Based on experiences from water(soil) management projects in both the Netherlands and Germany [1, 2, 3,] the third section presents findings the impact a systemic approach has within the organization and which patterns are triggered by this impact. Some organizations are fearful or even incapable of dealing with the changes they are confronted with, such as stakeholder involvement and a more multi-disciplinary approach to water(soil) management. The fourth section addresses the impact of the organizational turmoil and other elements of a system approach on the innovation process of organizations. A major challenge in this case is that the knowledge to deal with water(soil) management issues is available, but the implementation is lacking [4].

## Results & Discussion

Thus far the analysis impact of a systemic approach on the organizations dealing with water(soil)

management and the innovations processes they manage has been fairly conceptual.

The authors will discuss if and why resilience is a useful concept when dealing with a systems approach towards water(soil) management, and what possible implications the actual application of this concept could have on organizations dealing with a system approach towards water(soil)management and their innovations processes. We argue that resilience is an integrative concept for assessing the natural (ecological) and social systems that are at stake in water(soil) management as well as the knowledge (production) system that should provide guidelines for managing the socio-ecological system involved.

## References:

[1] Owens (Ed.) (2008) Sediment Management at the River Basin Scale, Elsevier. [2] Heise (Ed.) (2007) Sediment Risk Management and Communication, Elsevier. [3] Gerrits., The Gentle Art of Coevolution; decision making over estuaries in Germany, Belgium and the Netherlands. Erasmus University Rotterdam [4] Innovatieplatform, werkgroep Waterinnovatie (2007). Winnen met Water, waterinnovatie: analyse en uitdagingen. Versie 6 september 2007.