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Methodology to explore the emergence behaviour of the interactions between water resources and ecosystem under a pluralistic approach

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We have observed that under the umbrella of a pluralistic water research approach after Evers et al. (2017), the study of interactions between water resources and ecosystems can lead to complex questions. For example, what are the key system elements, sensitive control variables, feedback loops and emergence behaviour of a specific Human-Hydro-Scape? The identification of sensitive control variables and feedback loops can without doubt enhances the knowledge about the potential set of factors and/or agents leading to the current water resources and ecosystems situation, which in turn supports the decision-making process of desirable futures. To answer this question natural scientific and quantitative methods need to be used as well as social scientific and qualitative methods. To our understanding both approaches are needed to describe the reciprocal boundary conditions which created and create the human-water-scape.
Our study presents the utility of a system dynamic modeling approach for water management and decision-making for the case of a forest ecosystem under the risk of wildfires coupled with a eDPSIR model.

Evers, M., Höllermann, B., Almoradie, A., Taft, L., Garcia-Santos, G. 2017. The pluralistic water research concept – a new human-water system research approach. 19th EGU General Assembly, EGU2017, proceedings from the conference held 23-28 April, 2017 in Vienna, Austria., p.14371.