

ESEE 2015 extended paper abstract

The Leverage Potential of the Common Agricultural Policy for creating Sustainable Agro-ecological systems: Conflicting system goals and intervention points

Conference theme: 4. Power, politics, institutions and the reality of achieving change

Sub-themes: 4.1. Power relations and overcoming vested interests, 4.3. Getting there from here: viable frameworks for planetary problems and 4.4. Interrelations between societal, cultural, and economic and political values.

Summary

Here we outline a systems thinking approach to intervening in complex social-ecological systems in order to steer them to more sustainable development trajectories. We identify specific system properties or 'leverage points'—places in complex systems, where a small shift can lead to fundamental changes in the system as a whole. We differentiate between most readily altered but relatively weak or 'shallow' leverage points (include changing system parameters and strengthening feedback loops) and the more difficult to change, but potentially more influential 'deeper' leverage points such the power to self-organize system structures and the mind-set from which the system itself arises. Secondly we use this leverage points framework to assess the recent CAP reforms. Using two German case studies, we assess the extent to which the relative shallow interventions in the reformed CAP align with, inhibit or enable sustainable, multilevel governance of European agro-ecological systems.

Key words: Systems thinking, multilevel governance, stakeholder, discourse.

Extended Abstract

Since the industrial revolution, numerous social, economic, and ecological phenomena have greatly accelerated, including human population growth, global economic activity, the use of non-renewable resources, the concentration of greenhouse gases in the atmosphere, and the extinction of species (Steffen et al. 2007). Much of the sustainability science to date has focused on understanding and modelling our social-ecological system dynamics and highlighting unsustainable behaviours and their impacts on the environment. While it is increasingly clear that current use of the biosphere is violating important planetary boundaries (Rockström et al., 2009), there is surprisingly little attention on how we might change our existing development pathways. Existing analyses suggest that simply applying prevalent policy tools more resolutely will not suffice to fundamentally alter the trajectory of the Earth System (Fischer et al. 2007). Instead, there is an urgent need to examine more deeply the root causes of unsustainability. One of the most pressing of these sustainability challenges over the coming decades is likely to be how to transform food systems so that they achieve the twin goals of improved global food security and more effective conserving biodiversity (Fischer et al, 2014; Loos et al., 2014)

It is our premise that one fruitful way to address sustainability problems related to the biodiversity-food security nexus is to analyse food systems as complex system problems. We refer to a mode of analysis that focuses on interrelationships typically present in complex systems as ‘systems thinking’. That is, systems thinking is a way of conceptualising the world, drawing particularly (but not only) on the range of concepts inherent to the analysis of complex systems. Much of the recent ground-breaking research within sustainability science using systems thinking has focused on quantitative systems modelling (e.g. Scheffer et al., 2009) or resilience-related concepts such as feedback loops, path dependency, lock-in, and stability (e.g. Gunderson and Holling, 2002, Diamond, 2005, Walker and Salt, 2006). While quantitative systems modelling and resilience-related concepts are undoubtedly important they have limited scope to inform us how to purposefully move onto more sustainable development trajectories. Here, building on the work of Donella Meadows (1999) we outline an approach to conceptualizing and understanding ‘leverage points’ that can foster more sustainable human-environment relationships.

Meadows outlined a series of specific system properties or leverage points—places in complex systems, where a small shift can lead to fundamental changes in the system as a whole—that could be targeted to proactively change a given system’s overall behaviour (or even transform it entirely). She arranged these leverage points, from those most readily altered but relatively weak or ‘shallow’ leverage points, ‘to deeper’ intervention points that are more challenging to alter, but extremely influential. Shallow leverage points include changing system parameters (such as subsidies taxes and standards), altering the structure of material stocks and flows and strengthening feedback loops to increase the responsiveness of the system to change. ‘Deeper’ leverage points are related to more fundamental system properties such as the structure of information flows, the power to add, change and self-organize system structures and the paradigms from which the system itself arises.

Here we use a system thinking based leverage points framework to explore how the EU’s Common Agricultural Policy (CAP) intervenes in the food system in order to mitigate the impacts of production on biodiversity. The most recent CAP reforms have specifically introduced ‘greening’ measures, which provide payments for environmental measures that are decoupled from production payments. We first outline the ‘depth’ of the interventions in “the greening of the CAP” in terms of Meadows’ leverage points framework. Secondly, using case studies in Lower Saxony and Saxony Germany we examine how these interventions are being implemented, and their impact on food production systems. We draw on data collected in stakeholder interviews and transdisciplinary

workshops, and on documentary analysis. In doing so, we highlight how CAP enables, inhibits and/or shapes interventions in the food system in relation to biodiversity.

We find that the current CAP reforms target relatively shallow points of leverage but do not challenge the dominant productionist paradigm, rather CAP reforms reinforce the existing system's structural arrangement and objectives of EU agricultural policy. The implementation of CAP in our case studies extends the roles of existing actors and maintains the existing boundaries between actors, and between systems. In practice, this means that the system remains one of agricultural production, focussing on interventions being made at the single-farm scale. This necessarily subordinates ecological goals to production goals, and prevents addressing ecological issues at ecologically-appropriate scales. In order to intervene around the food production-biodiversity nexus in a more meaningful way, CAP would need to create space for positive interplay with biodiversity governance, such that it redefines the system as a agro-ecological system.

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