



Discussion Minutes

A 2 – Unsustainable Pathways and Leverage Points

Chair: Antje Bruns

Speakers: Johannes Halbe, Jalal Mirnezami, Jens Newig, Patricia Romero-Lankao, Annika Weiss

Minutes: Viviana Wiegler

Presentation notes:

Johannes Halbe – The Role of Sustainability Innovations in the Governance of the W-E-F Nexus

- Analysis of nexus-solutions requires integrated assessment: reducing detailed complexity and focus on dynamic complexity
- Modelling dynamic complexity by identify feedback loops in the W-E-F Nexus
- Sustainability innovations require innovative learning processes combining different types of knowledge (expert and local)
- Governance needs to address learning requirements, multiple roles of stakeholders, multiple entry points for change
- Case study: sustainability innovations for W-E-F in Cyprus

Discussion:

Q1: What is adaptive agriculture?

- Crops adapted to the local climate: drought resistance and need little water

Q2: What if different stakeholders do not work together, cannot be combined?

- Models should combine different views of stakeholders – explain methods individually to participants so you can deal with individual needs. But need also to support a group process. Tool to start a structured learning process with all stakeholders – group process. Start a discussion and analyse different viewpoints.

Q3: What do you do about quantification?

- Using fuzzy cognitive mapping to test viability of different models – can do it in real time and in participatory ways.
- System dynamics – feedback loops can go into the model and analyse where different things happen, what are causes of unexpected behaviour in the system



Jalal Mirnezami: Escaping the trap of short-termism to take the nexus approach: Exiting from the water crisis in Iran

- The water crisis in Iran is driven by population growth, national policies for food security (self-sufficiency), technology change from Qanats to new pumped wells. Finally overexploitation and land use change → degradation and depletion of GW resources → dried regions, migration, ...

Research question: Why is the critical trend still going on while the government and people are aware of the problem?

- Structural-political-administrative problem: water conservation is considered as the government's responsibility. Water users have no incentive to save water. There is a lack of cooperation between users.
- Ground water conservation is a social and political process. Ways to tackle the problem could be in terms of major changes in the user behavior, government role, macro-economic setting, national and intl. policies. It seems that governments do not will to address these basic and controversial problems in one electoral period.
- Short-termism instead of long-term solutions for sustainability.

Discussion:

Q1: Have you looked at infrastructural aspects? These are usually very important in such settings.

- Infrastructural solutions will not work. Water users do not believe they have to reduce their water use. What can the government do to reduce extraction with infrastructure? It is a structural (social) problem not so much infrastructural.

Q2: Unsustainability trap – Do we have to get rid of 4-year legislation cycle to solve this problem? Short-termism due to short electoral periods is a big problem everywhere.

- Concerning water, maybe the government should not be the only one in power. There should be another organization in charge of water. Nobody should have the power over water resources and be able to use it to get into power (the government). Politicians use water and make promises to improve the situation before elections. Cannot escape the trap.
- Maybe have to change government structures and take the power over water away from government.

Q3: In oil exploiting country energy is usually heavily subsidized. Is this the case in Iran? Energy and water sector are suffering from the subsidies to solve food security.

- Iran also subsidizes energy. If the government changed prices for energy there would be conflict with people. Most farmers cannot not pay for energy real prices. Also the parliament has shown, that do not agree with increasing the prices.



Jens Newig: Leverage points for sustainability transformations in the WEF nexus institutional perspectives

- Usual claim of WEF discourses: Water, energy and food are currently managed in siloes. In fact, systems are already interlinked. Often we have lots of interactions in these sectors on government, institutional, and physical levels. Lots of institutions on different levels have co-evolved over time and are very interlinked. This is not a problem if the system is sustainable but a serious problem if it is not. We need more systemic and institutional change!
- Institutional dynamics and institutional change: 1) Complex adaptive systems change – change it from less desired state to a desired state; 2) Purposefully diminish structures that do not work sustainably by learning from other.
- Case study: W-E-F in Lower Saxony

Discussion

Q1: Why do you think the EU Water Framework Directive is ineffective? It is one of the most powerful tools for water in the EU.

- Study on Lower Saxony shows that things did not change for the better in response to the WFD. There was an enthusiastic welcoming of WFD in early 2000s but the question is: are we really achieving something on the ground? Changing something in river structures but blinding out the nutrient challenge. Lots of people talking to each other but in reality things are not actually changing significantly for the better.

Q2: You will probably not find an institutional fit for the nexus. One of the problems is that scientists talk to scientists and that it is very water scientist driven. Need to take the nexus debate to the practitioners and industry. In Germany, it was the political parties driving the nexus discourse.

- In this presentation focus lies on institutions. Can be related back to the presentation by Louis Lebel about narratives. Agreement that we need to bring it out into practice.

Q3: What kind of analysis do we need regarding institutions? Institutional change is essential but the most interesting and most effective institutional change might be the one most difficult to achieve.

- Might be easy if there are windows of opportunities. We need more systematic comparison in terms of case and comparative studies analyzing changes and dynamic behaviour (deep or not).

Particia Romero-Lankao: UNMASK – Urbanisation, food-energy-water nexus and extreme hazard risks

- Presenting concept for project proposal: WEF nexus security in cities
- Can actions intended to enhance people's water or food security ensure WEF nexus security?
- Can we identify conditions across cities supporting innovations for WEF nexus security: social, political, technological, environmental conditions



Discussion

Q1: Regarding Santiago and Mexico City: How can there be fragmentation and centralization at the same time?

- Santiago is simultaneously centralized and fragmented: everything is decided by central government. Fragmentation between local and national level, as actors do not talk to each other.

Q2: Water accessibility in terms of cities and climate risk: Are you looking at floods and access to water and at what infrastructures might help solve the problems.

- Indicators: different things work out differently in different contexts

Q3: Australia had to deal with same problems and also linked it to the concept of resilient urban cities and urban metabolisms. Looked at food and energy, water metabolism by analysing in- and outflows. What innovations could be adopted in cities to incorporate sustainable 'technologies'.

- Decided to have a social sciences perspective. You can have the best metabolism approach but if people do not have access to good food or water people still have problems.

Q4: Impression that you talked about different perspectives of security: 1) resilience and disaster and 2) conventional nexus security addressing security for poorest of the poor. How to reconcile these and maybe it would be good to have either of these?

- When implementing the project need to look at all the different definitions and how they can be conceptually combined.

Annika Weiss: Integrated Modelling and complex interdependencies, The Water Energy Food Nexus in the urban context

- Focus on urban infrastructures: Potential to introduce new technologies like greywater recycling, etc.
- How to organize water and energy services more efficiently?
- How can technologies be used sustainably in the respective societal context?
- How can stakeholders be involved?
- The interaction of technologies with society must be considered, assessment of acceptance of technology options, identify sustainability indicators, data collection

Discussion

Q1: How is the LCA involved in this concept?

- The LCA is used as a basis to model mass and energy flows. It can be combined with scenarios that describe societal conditions in a qualitative or semi-quantitative way. Details on the spatial and temporal framework are to be developed.



General Discussion:

In all these presentations actor coalitions are not really mentioned. In fact, civil society or social movements are taking an increasingly important role across the globe. They are well connected and 'scale-jump'. Activists start local but they move up the scales and connect. Could this lead us to new findings and new leverage points? We talked about learning but how can we learn from these social activists? Science should study these movements to identify leverage points.

- Civil society in Jemen/Arab World has the least vibrant civil society. There we have long-termism and long term 'electoral cycles' but priorities are very different (security and corruption). Cabinets have different priorities than connecting the dots towards sustainability. Need to anticipate, look at context, leverage points that are important for transformation systematically. Concerning the nexus: we cannot construct rigid conceptual frameworks but need flexible frameworks.
- Looking at the Energiewende: started long time ago but needed windows of opportunity. Concerning the nexus: we should anticipate windows opportunity such as Fukushima. Where and in what situations might transition be easier?
- Social movements may be important: pluralism in terms of social movements, windows of opportunity. How to build a link to scientific rationality? Science needs to join the discussion with scientific rationale, as social movements are often emotionally and idealistically driven. We need to create arenas where these things connect and can be used in a productive way. Self-organisation cannot be the only way.
- We should not leave it all to the social movements but instead study these movements and see what we can learn from them
- We have to be careful not to generalize too much. Everything is contextual and we need to situational aspects into account. Contextualisation but findings need to be linked to globalized challenges.