

New Principles of Integrated Water Management from an International Perspective: Analysing Transdisciplinary Stakeholder Processes and Institutional Change

Judith Feichtinger, PhD candidate

Doctoral School 'Sustainable Development', University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria,
judith.feichtinger@boku.ac.at, www.dokne.boku.ac.at

Doris Schnepf, PhD candidate

Institute for Advanced Studies (IHS), Vienna, Austria, schnepf@ihs.ac.at,
associated with the Doctoral School, 'Sustainable Development',
www.dokne.boku.ac.at

Introduction

This paper builds on two PhD-research projects focusing on the politically initiated processes of sustainable water management. Traditional approaches of water protection and management often show deficits in coordination and cooperation, and are characterized by a high fragmentation regarding their instruments and measures. For example the input of pollutants from agricultural activities or sealed grounds might have negative consequences for the water quality; but the possibilities to influence agricultural production or the housing and construction development on a floodplain are usually low (Moss 2004). So far, this often led to insufficient results, as the water status is not satisfying; pollution and modified hydromorphology cause problems. To alleviate fragmentation and implementation deficits, evident in many (environmental) policy areas, new

modes of steering mechanisms were discussed under the concept of *new governance*. Hereby, the assumed appropriate political process tackles fragmentation and implementation deficits by emphasising coordination, transdisciplinarity, transparency as well as broader stakeholder involvement and accountability. Policies based on these new principles are propagated. The European Union has been pursuing the new steering mode to an increasing extent since the 1990s (Heinelt et al. 2001). The Water Framework Directive (WFD), agreed upon by the European Union in 2000, is a flagship process spreading these principles. Furthermore, the WFD is not limited to existing administrative borders but follows ecological systems and units. The WFD is currently implemented within the European Union and aims to achieve a “good water status” by necessary measures till 2015. All member states had to incorporate the water framework directive into their national law by 2003 (Hödl 2005). That provides a legal basis giving incentive for incrementally changing the conventional patterns of water management, the patterns of cooperation and the institutional rules.

Considering the implementation of the WFD the first PhD-project takes the Danube River Basin as a case study. In two different sub-basins and on different levels (districts, provinces, nation state, international) institutional changes resulting from the implementation of the European Water Framework Directive are explored. Beyond the borders of the European Union the new principles of integrated water management are also taken into account in policy arenas. For example the EU-research project MELIA (Mediterranean Dialogue on Integrated Water Management, *Co-ordinated Action* within the 6th Framework Programme) aims to support the transition to integrated water resources management outside the European borders; its underlying principles for sustainable water management are derived from the WFD. MELIA tries to establish a transdisciplinary platform for different protagonists, such as political bodies, administrative institutions, scientists, sociologists, lawyers, economists, end-users and citizens of all Mediterranean countries. The communication patterns of these processes, within the proposal aimed at leading to integrated knowledge of participating actors are in the centre of interest in the second PhD-project.

The first project will examine changes, caused by the WFD, from the analytical perspective of actor-centred institutionalism, while the second project focuses analytically on the theory of social practices. The reasons for applying these approaches are that the incorporation of the WFD into the member states national laws initiates changes within formal institutions, whereas the WFD outside the EU borders is not legally binding.

That is why the first PhD-project analyses the Danube River Basin on the theoretical grounds of the actor-centred institutionalism (Mayntz and

Scharpf 1995), which has been developed for analysing institutional settings and the impact of actors behaviours. This approach includes both, a structural as well as an actor-based perspective. Combining these two perspectives produces valuable empirical knowledge as it allows both an analysis of the framework for implementation and possible courses of (inter)actions of involved stakeholders. This approach is based on the meso and/or macro level of social activities, working with standardised concepts of institutions and corporative actors.

The second PhD study looks at policy activities in the area of integrated water management outside the European borders. Since there are no binding rules for policy integration, these activities are mainly based on soft political instruments, as e.g. international activities in science and technology or transdisciplinary dialogue processes across the borders in order to create network activities, integrated knowledge and understanding of problems. By taking the research project MELIA as an example, such a transdisciplinary process will be analysed analytically from the perspective of the theory of social practices (Reckwitz 2003), since this focus is able to deeply describe and understand actors' behaviour and their institutional context from a more interpretive point of view. Methodologically, here we feed on participant observation and ethnographic methods of Sociology. The approach is therefore based on a micro level of social activities.

In this article we describe and compare the differences and similarities of the applied approaches, and present the advantages and disadvantages of the chosen perspectives.

Sustainable water management within the Danube river basin: the WFD as legally binding foundation

Assuming that the sincere idea of the WFD complies with criteria of sustainable water protection and water management; the implementation of the WFD requires rethinking and reorganisation of water economics, and interferes strongly in the area of water management, in existing structures, processes, institutions and the social code of practice (Moss 2003). To reach the environmental goals adaptations have to be accomplished on all existing levels. Although formal instruments and institutions are already predetermined in the WFD, successful implementation still demands substantial adaptations and learning processes. It is still open whether the WFD will be able to change the patterns of behaviour of all involved stakeholders to a degree where the implementation is not carried through

as a compulsory exercise but in the sense of genuine sustainable development.

The project focuses on both; a structural as well as an actor-based perspective. Subsequently, the project investigates the following two questions: (1) with what strategies do which actors in specific actor-constellations support or impede the WFD implementation? And, taking institutions into account: (2) which institutional frameworks support or hinder the actors involved? The following three practical problems will be focused on in the empirical case areas: (1) Cooperation: The need for cooperation within but also beyond national borders increases with the growing demand of integrated approaches towards environmental problems. (2) Integration: This problem deals with the attempt to reconcile the needs for sustainable water management and water protection with other political areas or sectors (e.g. climate, agriculture). (3) Participation: The third focus investigates the involvement of stakeholders and the general public, formally predetermined in the WFD. At the moment, it still seems to be open how participation will be organised in the different sub-river basins and which decisions the general public and stakeholders may influence.

Mayntz and Scharpf (1995) developed the actor-centred institutionalism to analyse the problems of steering and self-organization at the (macro)-level of an entire social sector or social sub-area, in this case water protection policy. Actor-centred institutionalism is built on specific theoretical premises, but does not constitute its own theory or provide an explanatory model. It rather forms a research-heuristic, which directs the attention to certain aspects of reality (Mayntz and Scharpf 1995). Institutions are within that context (and within neo-institutionalism) defined as social constructs and socially standardised patterns of behaviour (Vanberg 1982, 32). The basic assumption of the heuristic is, that social phenomena are the result of interaction between intentionally acting actors (Scharpf 2000). These interactions are structured through the institutional frame, which forms the rules, arranges the constellation of actors, structures the resources and which therefore has restrictive or supportive impact. But institutions are not understood as determining factors. The scientific interest on steering and self-organization of sustainable water management requires much more a focus on the interaction between corporative actors (Mayntz and Scharpf 1995).

The first project focuses on the Danube River Basin. In two different sub-basins, one in Austria, one in another nation belonging to the Danube basin; and on different levels (districts, provinces, nation state, international) institutional changes resulting from the implementation of the European Water Framework Directive are explored. Assuming that the institutional arrangements and adaptations through the WFD rather coincide

within the Danube River Basin, actor-centred institutionalism seems rather convenient to explain implementation differences in the Danube's sub basins.

The study strives to comprehend on which level institutional change takes place and how the constellation and orientation of involved actors influence that change. The project aims at analysing the procedural aspects of the WFD implementation and it further assesses its impact and outcome. It will be estimated if and how successful implementation can be accomplished. Based on the analysis, policy recommendations concerning how to reach the WFD goals will be developed.

In a first explorative phase, four actors on the national and international level were interviewed; at least two interviews on the federal level will follow. The interviews intended to exploratorily get to know the Danube-basin and learn about occurring difficulties in implementing the WFD for identifying suitable case studies.

The analysis of the first explorative interviews showed that institutional change through the implementation of the WFD is already apparent. The WFD gives integrative, sustainable water management more weight, which interview partners, working with the coordination of the WFD in the river basin or for the federal administration, perceived in a rather supportive way. A fundamental change is that the WFD does not follow existing administrative borders, but takes spatial units of ecosystems (the river basins) into account. That demands cooperation and coordination beyond community, federal or national borders (Fichter and Moss 2003). The interviews showed that an intensification of communication is already noticeable for the interviewees. The communication effort also increases through the new approach of implementation which strives for deepened public participation, higher transparency, policy integration and an increased accountability of widened stakeholder networks (Moss 2003).

The explorative interviews further demonstrated that the implementation of the WFD already implicates significant tension in specific areas. One major tension is that the WFD opposes specific economic interests. An example is hydropower, an important renewable energy-supply in Austria that affects hydromorphology and continuity of rivers negatively. An adequate sub-basins as case studies is not identified yet, but an area of tension could serve as a good case to observe the orientation of corporative actors and their different logics of cooperation.

Sustainable water management in the Mediterranean region: beyond the WFD

Focusing on the action-orientation of involved actors and their interaction coincides with the second PhD-project, which is studying the creation of a dialogue process on integrated water management in the Mediterranean region, taking the MELIA project as an example. MELIA (Mediterranean Dialogue on Integrated Water Management in the Mediterranean region) is a so-called “Coordination Action”, a research instrument within the 6th EU framework programme. It aims to structure a transdisciplinary dialogue process between various different actors across the whole region on integrated water management issues. This ongoing project will be examined in the second PhD study.

Research on water management is, and has been, a priority in national and Euro-Mediterranean projects, especially in the INCO-Med programme. However, it has also been observed that the product of these research programs and projects have difficulties to transform results in concrete proposals to improve the efficiency of water use and its management due to the lack of dialog between the different protagonists. There exists a general perception that existing water management models and schemes ignore important interests, particularly from users or citizens. They lack local, cultural and economic sensibility, which are determinant to generating the necessary efficiency in water planning and management and subsequently the collective concern with its issues.

The integration of different perspectives is of great importance in order to be able to operationalise the concept of sustainable development. Especially research in the field of sustainable development has the potential to become a promising model for cooperation between science, practice and the public (Brand 2003). As it aims at implementing a normative approach based on the formulation of sustainable developmental strategies in different thematic fields and at different regional and temporal scales.

Therefore, research is often inevitably embedded in controversial societal processes. Sustainability research seeks to form a dialogue between different societal actors who co-construct the discourse about sustainability and its implementation. Various disciplinary perspectives and methodical approaches are combined in an interactive process of communication with different aspects, forms of knowledge and rationalities of acting of the involved societal actors. Brand (2003) calls this type of science transdisciplinary and dialogue-participative. With this new type of research Brand (2003) expects that new, stable findings and methods for problem solving, irrespective of the scientific discipline, will be found.

Kommentar: Watt denn datt?
Vielleicht besser mit Fußnote erklären?

The empirical evidence, however, is still missing (Lieven/Maasen 2007). On the contrary, in various scientific publications and accounts problems with transdisciplinary processes are reported of (Brand 2000).

The second PhD project focuses on (1) problems of integrating disciplinary scientific knowledge. Due to disciplinary codes, i.e. prevalent disciplinary systems and structures for education and career prospects, such integration is difficult, if not impossible to achieve. The second focus (2) considers problems in the contact between science and practice, which can frequently be found in field reports about transdisciplinary research. Problems are for example differing languages and rationalities of action, differing interests and expectations (of results), differing time frames, but also a generally disturbed relation between theory and practice (Hollaender 2000). The normative concept of sustainable development is much more stable than the cognitive one, which might support solving those problems. On a highly aggregated level – as formulated in the Brundlandt definition of intra- and intergenerative equality – there is wide mutual consent on the normative concept. The political success and various strategies for sustainability at different hierarchical levels and sectors attest to this fact. However, if looking at the concrete synopsis of different actors and their interests within problem solving of complex questions concerning society, it can clearly be seen that the cognitive conception of sustainable development is lagging behind the normative one. Transdisciplinary approaches to complex sustainability problems, which are seen as an instrument for the difficulties encountered in the cooperation between actors from different fields of study may thus often fail when tried out in practice. Actors' different rationalities are exchanged. Methodologically however, an integration of knowledge and the emergence of new, conjoint findings can empirically not (yet) be verified (Lieven and Maasen 2007).

In terms of rationality, it can be argued, that transdisciplinary processes in the area of sustainability science have been more geared toward informing substantive rationality (know what), rather than procedural rationality (know how), regardless of whether this is the most appropriate form of support to provide to those processes. An integration of different knowledge across disciplines and different actors does not take place. There seems to be a gap between the theoretical output of transdisciplinary processes (Oxley 2004) and the practical output that often just bring together different knowledge in an additive way (Mittelstraß 2005), without creating common understanding and problem solution.

Against this background the second PhD project proposes to analyse transdisciplinary processes in the area of sustainability research with a yet not applied way of analysis, coming from the social sciences: the theory of social practices. It is taking into account the dimension of the practical and

everyday life of included actors. Social practices can on a general level be defined as a “nexus of doings and sayings” (Schatzki 1996). An important dimension of actions therefore is incorporated routines.

This may allow addressing key problems of knowledge integration from a yet new perspective. The (seemingly missing) interaction between actors of scientific disciplines among each other as well as with actors of public and praxis can be questioned and answered from a fresh point of view. The linkages between those actors may not only be seen as a failed process of interaction or even as given limits of perception, but may be interpreted as network of communities of practice.

The analytical focus on theories of social practices may contribute to better understand the interactions between different actors (and/or their communities of practices) in a qualitative way. The origin of such a gap may be considered as a practice as well and as such be analysed. This approach can thus contribute to further theory building on the dynamic of transdisciplinary processes in the area of sustainable development.

The second PhD thesis takes the MELIA project as an example for such a transdisciplinary process. The framework question therefore is: Which social practices of actors, representing communities of practices, can be observed regarding their interaction and the integration of knowledge?

The case study is MELIA Community of Practice, which aims at structuring a dialogue across the whole Mediterranean region among key stakeholders concerned and affected by water use and management, such as scientists, professionals, decision makers, policy makers, water providers, media professionals, educators and citizens. In this view, there is a need for horizontal and vertical integration and dialogue. The WFD and its above mentioned principles thereby serve as one role model of water management issues. The dialogue process takes places against this background, but aims to create an open dialogue within the region not just based on the principles of the WFD.

The Core Group partnership of MELIA has been structured so as to include, on the one hand, players with experience in the scientific, technical and socio-economic sectors, experienced in past or on-going European, national or regional projects and networks and committed to a dialogue without prejudices. On the other hand, other actors such as basin management organisations, water suppliers to cities, industrial groups, agriculture water users, NGO with contrasted experience in day to day management of water related issues, knowing perfectly well the limits of the actual management systems, the expected demand and the possible baseline of the future conflicts. The patterns of interaction between the different actors within this ongoing transdisciplinary, and politically supported process of sustainable

development in the field of water management as well as patterns of knowledge integration will be examined.

Contrasting approaches and common basis

Both studies intend to contribute to knowledge on how to enhance the particular political processes. But the two PhD projects draw on different scientific theories to investigate on different levels.

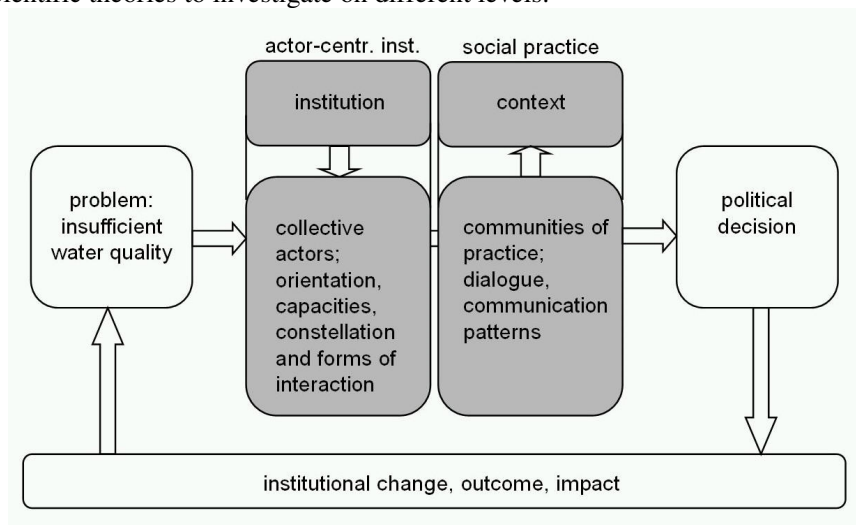


Figure1: area of action-oriented policy research (Scharpf 2000), modified

Figure1 shows the political area of water management which the two projects investigate. Based on a problem-oriented model from political science, the graphic outlines its concerns: to deal with reasons of political problems, possible solutions and the solution's presumed impacts on the primary problem. Within this model actor-centred institutionalism directs the attention toward analytical categories like institutional context and its influence on collective actors' orientation, their capacities and constellations. This approach mainly describes phenomena at the macro level. In contrast social practice does not emanate from such a solution-oriented idea, investigating on the micro level, the focus of the analysis rather lies on theory of action and can mainly be captured methodologically by interpretive methods, foremost by participant observation. Parts of the institutional setting can be understood implicitly by observing and interpreting the way of acting of specific actors, and therefore complement the deduc-

tive approach of the first thesis. Therefore the arrow in figure 1 regarding social practice points from the specific perspective on actors to the context. Within both studies, actors of different institutional background, culture and practical knowledge are investigated who behave within their specific logic and code of action and thus within their specific social practices.

Common basis for the two PhD projects is the focus on political processes of transition to sustainable water management and the analysis of the implementation of these. The overall aim of the two studies is to enhance the exchange, coordination and implementation of existing knowledge about integrated water management by better understanding its structure, communication patterns and underlying interactions.

- Brand K.-W. (ed) (2002) Politik der Nachhaltigkeit. Voraussetzungen, Probleme, Chancen – eine kritische Diskussion. edition sigma, Berlin
- Brand K.-W., Kropp C., Ruether D. (2003) Nachhaltigkeitsforschung – ein neues Modell der Kooperation von Wissenschaft, Politik und Öffentlichkeit? Gutachten für das Deutschen Büro für Technikfolgenabschätzung beim Deutschen Bundestag. MPS, München
- Coleman J. (1994) Foundations of Social Theory, Cambridge, Mass, Belknap Press of Harvard Univ. Press
- Fichter H, Moss T (2003) Regionaler Institutionenwandel durch die EU-Wasserrahmenrichtlinie. In: Dombrowsky I et al. UFZ-Workshop, Institutionen in Naturschutz und Ressourcenmanagement - Beiträge der Neuen Institutionenökonomik, Leibig.
- Heinelt H et al (2001) Environmental Policy: The European Union and a Paradigm Shift. In: Heinelt et al.: European Union environment policy and new forms of governance. Aldershot, Ashgate
- Hödl E. (2005) Wasserrahmenrichtlinie und Wasserrecht. Wien Graz, Neuer Wissenschaftlicher Verlag
- Mayntz R., Scharpf F.W. (1995) Der Ansatz des akteurszentrierten Institutionalismus. In: Scharpf (ed) Gesellschaftliche Selbstregulierung und politische Steuerung Frankfurt a.M., Campus.
- Moss T. (2003) Induzierter Institutionenwandel "von oben" und die Anpassungsfähigkeit regionaler Institutionen: zur Umsetzung der EU-Wasserrahmenrichtlinie in Deutschland. In: Moss T (ed) Das Flussgebiet als Handlungsraum. Institutionenwandel durch die EU-Wasserrahmenrichtlinie aus raumwissenschaftlicher Perspektive. Münster, LIT Verlag
- Moss T (2004) The governance of landuse in river basin prospects for overcoming problems of institutional interplay with the EU Water Framework Directive. Land Use Policy, 21: 85-94
- Scharpf F. W. (2000) Interaktionsformen. Akteurszentrierter Institutionalismus in der Politikforschung. Wiesbaden, VS Verlag für Sozialwissenschaften

Schatzki, T. R. 1996: *Social Practices. A Wittgensteinian approach to human activity and the social*, Cambridge University Press, Cambridge
Vanberg, Viktor, 1982: *Markt und Organisation*. Tübingen: Mohr.