0016

Learning to faciliate learning

Category: 2) Governance, power and politics

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Current practices in sewage management are resource intense and contribute to eutrophication, pollution and loss of biodiversity in waterways receiving sewage outfall. Reusing constituents in sewage calls for a transformation in how we think about technologies, regulations, business models and embedded social practices. Experimenting with innovative approaches to sanitaiton provides a way of trialing new socio-technical configurations, learning across multiple dimensions of the system and necessarily engaging multiple stakeholders in the process.

This paper is a critical reflection of our experience in managing multiple stakeholders to facilitate learning outcomes in a bounded socio-technical experiment. The 2 year research project aimed to investigate the potential of source separation and nutrient recovery/reuse from sewage in an urban institutional setting using urine diversion toilets and waterless urinals. In operation the project required collaborative transdisciplinary knowledge and partnership with industry, government and three academic institutions.

Designing the project meant managing collaboration across multiple research strands in three action research cycles of investigation, design/implementation and operation. Throughout the cycles of research critical reflection was embedded into the process - insights fed back into the project significantly influencing its future direction. Visioning the future of nutrient recovery was facilitated by partners identifying factors both challenging and supporting nutrient recovery/reuse from sewage. Insights from the visioning process led to partners collaboratively developing research questions to drive research in action.

Managing collaboration to contribute to social learning has been challenging as values, world views and disciplinary perspectives are diverse and require negotiation; both a time and resource intense process. Barriers to ‘collaborative readiness' of partners included lack of institutional support, spatial proximity to the research team and lack of previous experience working together. Although strategically designed throughout the project, critical reflection for learning was not voluntarily adopted. Varying levels of involvement, ownership and accountability by research partners required reaffirming expectations, goals and contributions. The dynamic and fluid nature of membership in the project reinforced the need to develop multiple communication tools to keep all collaborators well informed on progress and shifts in the experiment's direction. To encourage knowledge sharing quarterly progress reporting, face to face meetings and development of a virtual networking site for further discussion, file sharing and transparency of the research process was necessary.

What has emerged in this project has been valuable insight into how socio-technical experiments might be managed and importantly how future experiments might be designed for transdisicplinary collaboration and social learning.

0041

Low carbon transitions: coherent and consistent policy mixes?

Category: 2) Governance, power and politics

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The paper sheds light on the emerging mixes of policies for supporting low carbon transitions. Special emphasis will be put on the coherence of the goals and consistency of instruments in the low carbon innovation policy mix for infrastructure sectors, such as the energy sector. So far, the transitions and transition management literatures often implicitly assumes that dedicated transition policies can be added to existing policy mixes in an unproblematic way (Rotmans, Kemp et al. 2001). The paper utilises a typology of how policy mixes typically emerge and what their expected outcomes are which was developed in (Kern and Howlett 2009). We have argued previously that the propensity is towards the creation of sub-optimal policy mixes or of failed reform efforts with resulting poor outcomes.

The paper uses the UK low carbon innovation policy as an empirical case study of how complex such mixes can become and what that means for their likely outcomes. It is argued that the policy mix in the UK has been going through a process of layering of incoherent and inconsistent policy goals and instruments. UK low carbon transition policy has received increased attention and increased spending over the last few years. Whilst contributing a helpful diversity in low carbon innovation activity, the recent layering of initiatives and emerging institutional complexity poses considerable challenges regarding long-term strategy, coherence, and consistency across goals and instruments. From this perspective, the UK might therefore struggle to achieve a low carbon transition.

However, it is also important to acknowledge the problems of such an analysis: Firstly, policy outcomes are generally difficult to measure and difficult to trace back to particular instruments or policy mixes. Secondly, this issue becomes more important when the policy goals are very long term (as with the goal of achieving an energy transition by 2050), i.e. how do we assess possible future policy outcomes? Answers partly seem to depend on our understanding of low carbon innovation and what is required in terms of socio-technical transitions vis a vis other heuristics (Scrase, Smith et al. 2010).

The paper will conclude by suggesting a future research agenda which looks at these issues in more detail. Promising questions include:

1. How do policy legacies affect government policies to promote low carbon transitions?

2. Why do particular mixes emerge?

3. What do these considerations mean for policy makers?

0045

The potential and limitations of ‘co-inquiry' for enabling sustainability transitions

Category: 2) Governance, power and politics

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The paper aims to contribute to improving our understanding of whether and how novel governance processes can actively engage with and shape sustainability transitions. It does so by way of critical analysis and reflection upon ‘co-inquiry' processes of engagement and governance, which have gained currency in recent times. Specifically, the paper sets the emergence of ‘co-inquiry' in the context of the apparent weaknesses of existing governance arrangements in facilitating the transition to sustainability (e.g. in the UK). The paper explicates the characteristics of ‘co-inquiry', comparing and contrasting it with other approaches. The paper presents a case study based on a co-inquiry-inspired project to build sustainable neighbourhoods with a multiplicity of actors, and reflects upon the theoretical and practical implications of its execution in practice. The conclusion presents some suggestions regarding future research and practice which could produce insightful dialogue and interventions among and by contributors interested in new patterns of governance, inter-disciplinary and multi-actor engagement and their relevance for breaking new ground in sustainability transitions research and the creation of more sustainable living.

0047

Unravelling ‘the (post-)political' in Transition Management: challenges for sustainable change

Category: 2) Governance, power and politics

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In the Netherlands and Belgium, but also internationally, Transition Management (TM) is fast becoming a kind of ‘hype' as one of the most promising ways to make the transition to a sustainable society. This is not surprising: despite growing environmental concern, environmental movements and policies are experiencing a kind of ‘backlash' today in the sense that their models of change are increasingly considered to be inappropriate. TM evokes hope again by filling this gap.
However, criticisms were bound to pop up. Many of these could be summarised by stating that TM does not take the ‘political' reality of society into account. What is exactly meant with this ‘political' dimension has recently been taken up by political philosophers, such as Chantal Mouffe, Jacques Rancière and Slavoj Zizek. They analyse current society as post-political to the extent that it is pervaded by a kind of consensus thinking and a managerial attitude. These tend to overlook the reality of power and pluralism and to downplay the existence of conflict and debate about the way society is organised and about multiple future possibilities and different strategies to reach these. Ignoring this political dimension can undermine not only the democratic nature, but also the effectiveness of transition processes.
As TM tends to bear the hallmarks of this ‘post-political consensus', this critique challenges its core. First, TM fully embraces the new choice for ‘governance' through public-private bodies, which, in a guise of bottom-up processes and participation, in fact redistribute power from what should be ‘all citizens' towards non-elected groups of ‘important' business and civil society actors. Second, ‘ordinary' people don't get a place as possible actors in this transition process. Sometimes, they are taken into consideration in their role as consumers, but even that is not always the case. Third, within the framework of a consensus-driven multiple-stakeholders model, TM abstracts from power relations, and from the reality and the possibly constitutive role of conflict in society. Finally, as it is based on a market model, TM presents one of the most fundamental current ‘landscape' elements (the neoliberal political economy) as a neutral choice, thus obscuring its political nature.
In this paper, we try to unravel the (post-)political in TM by referring to the contemporary work of political philosophers and concrete examples of transition experiments in Belgium and the Netherlands. The crucial question is what this means for the possibilities of TM to realise real change.

0049

The malleability of institutional fields with respect to sustainability transitions: an exploratory study in three industrial sectors in Flanders, Belgium

Category: 2) Governance, power and politics

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In the multi-level perspective on transitions interacting across social and hierarchical scales and levels is regarded as the prime concern for steering societies towards sustainable development. In empirical and conceptual contributions on societal transitions, cross-scale, societal change is thought to depend on the mobilizing power of innovating actors in niches who engage in cross-level interaction to develop alternatives to an incumbent regime. Multi-level interaction, initiated from a niche, is regarded as a necessary condition to infuse change.

A key condition for such a multi-level change trajectory is that pre-established institutions need to be malleable for a transition to effectively take place. This is because niche-development is suppressed in contexts made up of stable and rigid institutions where processes take place within stable rule-sets and proceed in predictable directions. An important question therefore is to what extent institutions are effectively inert, or conversely, to what extent institutions are malleable and open to change. In this paper we argue that institutional inertia is analytically and conceptually underdeveloped in the multi-level perspective on transitions. We set out to remedy this lack by conceptualizing and empirically exploring sources of inertia in three sectors of the Flemish economy, each of which have experienced pressure to adapt as a result of the climate change debate: energy, transportation and construction.

We observed that these sectors appear to have evolved very differently from one another over the past decade, both in terms of the pace and the nature of the change process in response to climate change problems. Given the fairly similar type of landscape pressure across all three sectors and if one assumes similarly inert institutional contexts in each of these sectors, the reason for this disparity must be sought in the characteristics of the niches. According to the MLP, change ultimately depends on innovators who build innovative solutions in insulated niches that built up in strength, knowledge and numbers to ultimately challenge or offset a reigning regime. In this paper, we investigate the alternative hypothesis that innovation is best explained by analyzing the varying weaknesses of institutional frameworks.

0059

Ethanol and Sugar Production in Angola: Governance Challenges with International Technology Transfer from Brazil

Category: 2) Governance, power and politics

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Based on technology transfer from Brazil, Angola is entering the *sucroalcooleiro* sector (ethanol and sugar production). The Angolan Government envisions technology transfer as a strategy to increase participation in global markets and create local opportunities for business and employment, while decreasing dependence on sugar (and oil) imports. While the production of ethanol and sugar can bring about a range of benefits, technology transfer in this field can involve risks. It needs to be carefully crafted and executed in accordance with the principles of sustainable development, which are portrayed in plans by the Angolan Government to directly engage local populations and key stakeholders - this appears to be crucial to achieving sustainable development.

This paper examines the governance challenges associated with a joint venture - called BIOCOM - created to transfer the knowledge, skills and technologies of the *sucroalcooleiro* sector from Brazil to Angola. The departure point for this paper is the concept of International Technology Transfer (ITT). The first objective is to explore the perceptions of direct and indirect stakeholders of BIOCOM. The second objective is to discuss the relationship between ITT and sustainable development in the context of BIOCOM. Within sustainable development, the focus of this paper is on socio-environmental issues encompassing food security, land competition, local participation, health issues, and ecosystem impacts. This paper is based on interviews with key stakeholders in Brazil and Angola, and a review of a diversity of literature.

This paper shows there are widely different opinions on the benefits and risks of BIOCOM. The leading reason is linked to the distinction between global, national and local levels. On the global level, ITT and BIOCOM are viewed as alternatives to importing oil through the production of ethanol. However, on the local level there are concerns with the risks associated with BIOCOM, particularly socio-environmental impacts. On the national level, there are expectations of rural employment, infrastructure development, and foreign investment in Angola. However, this paper shows there is a distinct lack of trust in governance processes by local populations and key stakeholders. Overall, this paper highlights the governance challenges associated with ITT, sustainable development and the *sucroalcooleiro* sector.

0064

What is 'protective space'? Exploring the politics of niche development in sustainability transitions

Category: 2) Governance, power and politics

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Transitions theory emphasises niches as sources of path-breaking systems innovation. A defining characteristic is the provision of temporary 'protective space' for developing vanguard sustainable practices currently disadvantaged in more mainstream, market settings. Niche protective space enables improvements to the social and technological innovations that (hopefully) make it practicable (and profitable) to 'power one's home from the sun', say, or 'move about in a low carbon way'. It is therefore surprising that the dynamic concept of 'niche protection' has received little systematic attention to date. Even criticism about the desirability of protection has not prompted serious reflection on where protections come from, how they perform, and how they transform and decline.

Drawing upon the history of solar photovoltaics in the UK and Netherlands, the paper begins by developing a systematic approach to protection. In terms of *functional properties* we argue that protection, ideally, 1) *shields* novel socio-technical practices from mainstream selection pressures. 2) *nurtures* the development of those socio-technical practices, and 3) *empowers* advocates to influence mainstream selection environments. In terms of *forms of protection*, we distinguish *economic, institutional, socio-cognitive, cultural, geographical* and *political* protection. Functional properties and forms of protection are combined in an analytical framework.

We develop ideas about how protections are removed, if at all. Building upon infant industry literature, we distinguish between 1) protection that is removed as niche adapts and becomes competitive under regime selection pressures (fitting), 2) protection that is perpetuated by beneficiaries with little pressure to continue to innovate (capture), and 3) protection that is institutionalised as part of a new regime largely based on the innovative sustainability practices in the niche (stretching).

The analysis develops further by focussing on the political dynamics of protective space over time. Our hypothesis is that (prospective) niche advocates engage politically to try and secure varieties of protections for *their* niches (cf. other niches). We draw upon Law and Callon (1994) to argue for a network approach that distinguishes global networks from local networks. Global networks are primarily concerned about representing the niche favourably to others and carving out a favourable context for innovation. Local networks experiment with 'working prototypes' in specific contexts and must validate global claims. We expect a piecemeal and iterative process, in which emergent global networks develop and adapt narratives for specific audiences over time to mobilise new protections perceived as needed for further niche development, but whose persuasiveness depends upon past niche developments.

0077

Climate governance: fair enough? Equity, Power, and Discourse in the Post-2012 Institutional Architecture of the Climate Regime

Category: 2) Governance, power and politics

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Global climate governance is at a crossroads. Current efforts to allocate responsibility, capacity and needs in the international climate regime have ended in political deadlocks and in a north-south impasse. In the UN climate regime, the principle of common but differentiated responsibilities (CBDR) and respective capabilities is the most obvious example of institutionalised equity considerations, but their interpretations and translation into practice are highly contested. Efforts to differentiate emission reduction commitments of countries, now and beyond 2012, have also ended up in a political impasse. At the heart of this political impasse are contestations about what is perceived fair and equitable. In this thesis, I draw upon insights from political ecology and the theory of plural rationality to show how conflicting discourses over equity and their translation into principles or allocation mechanisms always boil down to the four basic (though incomplete and conflicting) ways of organising, perceiving, and justifying social relations: hierarchy, egalitarianism, individualism, and fatalism. Additionally, insights into the nature and scope of power in the UN climate regime can help us identify and move beyond the bottlenecks that currently prevent the much-needed progress and scale-sensitive policies and reforms. I conclude by arguing that so-called ‘clumsy solutions’ (creative combinations of conflicting perspectives on organizing, perceiving and justifying social relations) as an answer to a ‘wicked problem’ like climate change, can offer a valuable and novel way forward in forging a scale-sensitive, coherent architecture and providing equitable allocation mechanisms in climate governance. Furthermore, I argue for increased reflexive governance in the climate regime in order to rethink its role in the regime complex for climate change, an enhanced focus on cross-regime coherence of sustainability governance, and an enhanced theorisation of the multiple scales of governance and their mutual interlinkages.

0111

The cumulative creation of sustainable mobility - the case of SMILE

Category: 2) Governance, power and politics

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The city of Malmö in southern Sweden has undergone major changes when transforming the former industrial city to an economy based on knowledge production and a service industry. At the very heart of this transformation is the notion of the driving force of mobility. Infrastructure (the Öresund Bridge, the City Tunnel), marketing and tax policies have been used to promote a highly mobile regional lifestyle in the hope of achieving prosperity through mobility.

As mobility levels rose, attention was turned to the detrimental effects of mobility practices based on ever-increasing consumption of fossil fuels, not only creating environmental calamities but also exhausting the very energy source used to maintain these practices. In an attempt to impede environmental corrosion, the city of Malmö joined in the EU project of SMILE (towards Sustainable MobIlity for people in urban aEreas), within which they launched 22 so called measures aiming to reach 'sustainable mobility'. SMILE ran between the years of 2005-2009 and involved the partners of Malmö, Norwich, Potenza, Suceava and Tallinn.

This paper analyses the governance's attempt at reshaping an ecologically unsustainable mobility and the instruments used in SMILE project. It uses a multi-level perspective (MLP) which emphasizes that processes of change are additive and interactive processes where the events and their effects may be individually negligible, but together substantial. The basic premise of MLP is that change is not one-dimensional, but rather an interplay between the three levels of niche (micro), regime (meso) and landscape (macro). Even though the relationship between the three levels is hierarchal, the process of transition takes place on all levels simultaneously and system innovation (a regime change) can only occur when these processes link up. This paper focuses on that (potential) process of change over and within the layers, using the concepts of synergy effects and cumulative impact.

0113

Presenting an Analytical Power-in-Transition Framework

Category: 2) Governance, power and politics

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This paper presents a power-in-transition framework as an analytical tool to conceptualize and empirically research the role of power and empowerment in transition processes. The power-in-transition framework consists of 1) a typology of power exercise and power relations, 2) a reconceptualizaiton of transition concepts (e.g. 'niche' and 'regime') in power terms, 3) a reconsideration of the Multi-Level framework from the perspective of power and 4) theoretical hypotheses on power dynamics in sustainability transitions. A **niche** is reconceptualized as a group of actors that exercises *innovative power*, a **niche-regime** as a group of actors that exercises *transformative power*, and a **regime** as a group of actors that exercises *reinforcive power*. One of the most important reconsiderations concerns the **landscape** level as the level of aggregation where *systemic power* is exercised both by 'dominant trends' as well as by undercurrent counter-movements. Subsequently, a societal transition is conceptualized as a combination of *synergetic and antagonistic power dynamics* between passive and active, moderate and radical groups of actors, in which the systemic power of undercurrent counter-movements increases while the systemic power of dominant trends decreases. It will be argued and demonstrated - with empirical illustrations - that this power-in-transition framework provides an improved analytical tool to conceptualize and empirically research the power of social movements that are spatially scattered (i.e. transnational networks). As such, the power-in-transition framework contributes to four conference themes: 1) transition dynamics and delimitation, 2) power and politics, 3) civil society and social movements and 4) spatiality of transitions.

0115

Assessing the Role of the State in Historical and Prospective Energy Transitions – The Case of Electricity Networks in the UK

Category: 2) Governance, power and politics

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A recent special issue of the *Technological Forecasting and Social Change Journal* (Loorbach et al., 2010) highlighted the importance of grid based infrastructure systems, such as energy, water, and transport, to wider societal transitions and called for further research into the specific features of transition dynamics in such systems. Amongst the significant features of large scale infrastructure systems is their public good characteristics; they often fulfil essential societal functions such as the provision of warmth, light and sanitation, and have thus been shaped by the involvement, both directly and indirectly, of the state, the market and wider civic society. In recent decades the ongoing processes of privatisation and market liberalisation of previously nationalised network industries has seen a diminution of direct state intervention in many such industries with contrasting results. In the telecoms sector, for example, this was a key catalysing factor in stimulating technological innovation and new entrants, while in the electricity sector, technologies and practices have remained largely the same. The recent adoption of greenhouse gas emissions targets into UK law has, however, focused attention on the manner in which electricity networks can facilitate the decarbonisation of electricity supply and, as a consequence, the concept of the smart grid – the application of novel technologies and practices to transmission and distribution systems – has attracted much attention in policy and industry arenas. This paper asks; what is the role of the state in facilitating the transition to a smart grid in the UK?

The study is divided into two parts: First, we analyse the history of UK electricity networks and argue that various forms of state intervention have been a defining feature of previous transitions e.g. the move towards interconnection and standardisation during the mid-twentieth century. We outline the context within which these interventions were undertaken and the associated outcomes. Secondly, using data from a series of semi-structured interviews with key stakeholders, we explore the potential role(s) that the state may undertake in enabling the transition to smart grids in the UK. By drawing on lessons from history and insights from various strands of the governance literature, it is proposed to assess the changing role of the state in the context of the smart grid transition and to discuss the scope and form that this may take.

0119

The role of institutional dynamics in the transition towards sustainable water governance

Category: 2) Governance, power and politics

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Future challenges, such as those created by climate change, will be characterized by increasing non-stationarity, complexity and scientific and policy uncertainties. Under these conditions, urban water systems can no longer rely on centrally-controlled, large infrastructure systems that are common in parts of the world. Water crises are likely to be governance crises, associated with governance failures rather than resource-related issues. Institutional structures will become increasingly important for dealing with the impacts of climate change on the water sector, and in moving towards more sustainable water management approaches. Revised governance models are required, underpinned by recognition that social and environmental systems are inseparably interconnected, and with sufficient adaptive capacity to cope with the potential for more frequent critical events, such as floods or droughts, but also for strategic, longer-term changes due to climate change effects.

In this paper we investigate the role of institutional dynamics within the water sector, including regulators, water companies, NGOs and local communities, in the process of transition to more sustainable systems. This research seeks to critically analyse how alternative water futures are negotiated, legitimised and enabled within and across institutions. We draw on the cases of Wales in the UK and Oslo in Norway for a comparative study investigating how different pressures, legislation and governance structures influence current management approaches, as well as potential transition pathways towards a more sustainable system. In the first research phase, institutions within the whole water sector are examined with the aim to unpack the institutional dynamics enabling and constraining collective action towards more sustainable water management approaches. In the second phase, a number of smaller-scale case studies are identified, covering localities believed to be particularly impacted by climate change and localities where action against anticipated climate change impacts has been taken. The range of case studies covering a variety of scales and contexts enable us to explore the interdependencies between global problems, policy and local practice.

This research seeks to develop knowledge in two ways. Firstly, by demonstrating the importance of institutional dynamics in the water sector in order to build sustainable governance and adaptive capacity. Secondly, by exploring the institutional components required to develop adaptive capacity in any water sector, as well as the context-dependency of developing such capacity. This research also seeks to inform practice by identifying how institutions can become more adaptive and sustainable given their physical, institutional and technical circumstances.

0120

Hybrid Governance: analyzing the development and promotion of hybrid-electric vehicle technology in Sweden 1990-2009

Category: 2) Governance, power and politics

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Road transport is a significant source of greenhouse gas emissions and present trends indicate that these emissions continue to rise. Actions to reduce emissions from cars, trucks and buses is thus urgent. Replacing traditional combustion engine power trains with hybrid-electric propulsion systems has been proposed as one of the most promising means to accomplish this on a short- to mid-term basis. Combining theories on technological innovation systems (TIS) and governance, this paper uses a retrospective case study to analyse how governance has affected the development of hybrid-electric vehicle technology in Sweden during a 20-year period, 1990-2009. The purpose is to understand how different governance arrangements can be devised to promote major innovation in automotive power trains.

Being a small country with a limited domestic market, Swedish car production is marginal from a global perspective. However the Swedish heavy vehicle industry (trucks, buses, etc.) has a much stronger position and the automotive industry is very important for the Swedish economy. The empirical study is based on interviews with managers actively involved in hybrid technology and vehicle development, as well as representatives for public organizations such as university professors engaged in relevant technology fields. We also made use of extensive documentation related to state funded programs supporting hybrid vehicle R&D and demonstrations. Based on this data, we drafted comprehensive reports and compared predicted patterns from the literature with emerging patterns from the case study. In doing these comparisons, we relied on interpretations corroborated through interviews with key informants.

The study shows that several initiatives were taken in the Swedish hybrid-electric vehicle technology innovation system 1990-2009, but the level of activity also varied significantly. Relevant activities range from public displays of concept vehicles and development of prototypes to field trials and market launches. These activities were influenced by a range of governance arrangements (R&D subsidies, market incentives, private-public partnerships, regulation etc.) on different levels (local/regional, national, EU, global). The study results illustrate that innovation governance is a continually evolving multi-level process. It furthermore shows how national level actors need to adapt their policies to international trends such as fluctuating oil prices, environmental debates, and crises and dynamism in the global automotive industry. The paper concludes that adaptive governance on multiple levels may be required to affect a deeply entrenched technological regime such as automotive power trains.

0123

Promises in concrete -Unfixing working principles in interactive structured design.

Category: 2) Governance, power and politics

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Reflexive, interactive and structured design processes have been shown to contribute to system innovative change. For instance in agriculture, where ecological sustainability has to be combined with a number of other issues, like animal welfare and food safety, food security, and a wide range of stakeholders are involved. Ambitious projects aimed at developing new practices and new, more sustainable, roles of growers and farmers need to appreciate the complexity of issues and functionalities of the agricultural systems. Dealing with this complexity requires a structured approach to design acceptable systems in terms of functionality and sustainability, and achieve anchorage of these systems.

Typically, these structured design processes are iterative: they go through a sequence of loops of identifying needs, defining goals and functions, while in each loop working principles are selected at increasing level of detail. In the first loop the overall goal defined as well as one or more working principles: critical structural features that differentiate the alternative system apart from entrenched practices, and promise considerable improvements by opening a new technological trajectory. Working principles are central to system innovations.

Ideally, this first loop in the design process involves the consultation of a heterogeneity of stakeholders. Financiers aiming to transition current unsustainable practices do set their own requirements of the system to be designed, and even may suggest a specific working principle. But they purposefully allow the involvement of other stakeholders to complete and possibly even adapt these requirements and to propose alternative working principles.

However, often specific working principles are already fixed choices from the start, without proper stakeholder consultation, as ‘promises in concrete'. This may be caused by political preferences, effective lobbying of the originators of the idea, or strong market forces. More generally it is inevitable that working principles become fixed during the course of (a sequence of) project(s), narrowing the points of entry for new insights or ideas.

The design project therefore has to deal with the tension between a fixed working principle and the need to create points of entry for new stakeholders. The question is answered what the room for maneuver is to reestablish a proper design process. First the proper design process is described. Then, using a number of design projects faced with the challenge of a fixed working principle empirically methods are identified to approximate the desired structured approach.

The general consequences for the governance of system innovations will be discussed.

0124

SUSTAINABLE INNOVATION BACKCASTING AND PARTICIPATORY DECISION MAKING

Category: 2) Governance, power and politics

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The institutional domains of the market, the state and civil society transfer a strong bias towards decisions that are short-term and particularistic. Moreover, they do not provide an effective incentive for actors to engage in interactive learning. This deficit obstructs the proliferation of sustainable technologies. Participation intervention methods such as backcasting aim to repair these institutional shortcomings and as such, these methods can be seen as one of the most important social science contributions to the proliferation of sustainable technology.
These methods are usually based on bringing together actors from different societal angles, and creating a context that stimulates actors to integrate long-term perspectives and public interest into their orientations, and providing a possibility for actors to learn from each other's perspectives. These benefits are seen as important conditions for innovation.

At the same time, the concepts of 'long-term', 'public interest', and 'learning' are characterized by the presence of ambiguities, while a method that is based on an inconsistent operationalization of its main concepts is expected to lead towards unsatisfactory and unusable results.
This paper will address the theoretical ambiguities that apply to the 'long-term', the 'public interest', and 'learning'. Moreover, it will address their mutual interdependencies. Subsequently, we will retrieve how the observed conceptual ambiguities have resolved or not in a concrete application of the backcasting method. The goal of this confrontation between an empirical case and a theoretical discussion will provide more insight about the extent of the theoretical problems, and the possibilities to settle these.

0131

Transition Management 2.011

Category: 2) Governance, power and politics

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Transition management (Rotmans, Kemp et al. 2001, Loorbach 2010) has gained foothold in the academic debate as well as policy practices related to sustainability. It has contributed to the debate on governability of long-term change in society in Europe and abroad, and has led to a wide array of innovative experiments, programs and transition agendas in the Netherlands and Belgium (Loorbach and Rotmans, 2010). The approach of developing transition arenas with frontrunners, creating space for transition experiments and formulating transition agendas with larger innovation networks has created the basis for up-scaling and acceleration. However, the transition management cycle and instruments that have been developed were specifically targeted at the predevelopment of transitions: the phase in which dominant regimes are slowly but steadily pressurized by emerging alternatives and a changing landscape. As the dynamics in a number of sectors and areas (such as energy, construction, water but also in specific regions) seemingly accelerates, it is time to fundamentally revise and renew the transition management framework.

This proposed paper outlines what we call Transition Management 2.0: a framework and set of systemic instruments targeted at take-off and acceleration dynamics. Its focus in on up-scaling of the built-up transition agendas and networks, at institutional and structural change, at dealing with resistance of regime actors, at breaking down undesirable structures and at mainstreaming sustainable alternatives. By necessity, this implies a shift in focus from frontrunners to the early majority, from creating space to making use of this space, from innovation to structural change and from envisioning to implementation. This paper will conceptually outline Transition Management 2.0, position it in the context of the evolution in thinking about transition management, relate it to the perceived changes in transition dynamics and illustrate this with a number of examples from current transition management practices. The paper will finish by outlining a research and practice agenda based on the concept of Transition Management 2.0.

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0136

Can markets function as learning arenas? Renewable energy deployment policy as innovation policy

Category: 2) Governance, power and politics

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Transitions to sustainability include increasing the share of renewable energy technologies (RET). New RET largely are not competitive with dominating fossil or nuclear energy technologies, resulting in lock-ins and small markets for new technologies. A widespread understanding is that this entails intervention of public policy (Giddens 2009). This paper analyses Feed-in tariffs (FITs), a market deployment tool that has become increasingly popular to deal with issues of lock-in in several countries.

However, feed-in tariffs are not solely a deployment tool. The paper discusses how FITs, on the long term, rely on large scale innovation efforts. A core trait of the system is decreasing support by reducing tariff rates over time. For FITs be successful on the long term, and to maintain deployment effects, RETs need to be available at decreasing prices to sustain investments. This is assumed to be driven by learning, and FITs are assumed to create markets as new learning arenas. There hence exist bold assumptions based on how deployment drives cost reductions. The paper finds that the core objective of FIT policy is one commonly associated with innovation and research policy; induce learning (i.e. increase competitiveness). The paper discusses how FITs are designed on the rationale of learning curves. The paper discusses the theoretical and conceptual rationale for learning curves in FIT policy. Doing so it identifies a set of challenges which include; (a) uncertainty of innovation processes (b) black-boxing learning inputs (c) level of aggregation of learning curve models and (d) decoupling of price and cost.

The paper asks if market creation policy is sufficient to stimulate the large-scale innovations in low-carbon technologies needed to overcome barriers posed by dominating technological regimes? The paper contrasts learning curve approaches with a discussion on technological innovation systems (TIS) to illustrate learning as a complex phenomenon. The paper argues that markets may provide learning opportunities for firms and other organizations. It nevertheless requires the complex interaction of organisations, institutions and networks for which new markets may provide new learning opportunities. Creating markets hence may be viewed as part of a larger systemic learning process in which policy is endogenous. Analysing qualitative aspects of learning processes may reveal complex underlying opportunities and challenges for system growth that are not salient in learning curve assessments.

0137

How to Deal with (Subtle) Power in Regional Governance Networks

Category: 2) Governance, power and politics

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The overall objective of our joint research project KLIMZUG NORD is to explore solutions to the question how to cope with the consequences of climate changes in the metropolitan area of Hamburg, Germany. In our work package 'Climate Adaptation Governance' we facilitate regional co-operation networks for participative problem structuring, mutual social learning, and decision support.
Our transition approach is normative-oriented towards sustainable development as a learning process. It is theoretically/ methodologically based on notions from Actor Oriented Institutionalism (Mayntz/Scharpf), Soft System Thinking (Checkland), Participative Modeling (Vennix; Gottschick), Reflexive Governance (Voß; Feindt/Gottschick), and Transition Management (Loorbach; Kemp). We use these approaches in order to find a context-sensitive way away from descriptive tools towards a prescriptive support of social learning processes, conflict management and sound/ reflexive decisions.
Focus of the paper is to investigate the (subtle) power balance and effectiveness of local experiments resp. regional governance for sustainable transitions. Several scholars ask (often as an open question) how power balance in governance networks and approaches like Transition Management can be achieved (e.g. Voß et al. 2009; Meadowcroft 2009; Bommel/Röling 2009). In our case studies we try to cope with this difficulty of unequal power in networks and workshops by using anonymization techniques (Gottschick 2008). Besides addressing this problem, the paper raises further questions about a more subtle aspect of power we analyzed in one case study.
This case study could be easily viewed as a success story - what it actually is in terms of social learning. Considering the opposing interests of the involved actors (farmers, environmentalists, administration) the communication between them, however, seems too harmonious. Furthermore, we received the information from actors in the network that there would exist other - eventually more effective -arenas and networks where some actorslobby for their interests. These arenas and networks are closed and non-transparent. The mentioned aspects give us reason to suspect that in our network we might miss an equal (and honest?) involvement of the actors. If in our network strategic communication strategies (Habermas 1981) were pursued and the network was used by some actors as a subtle mode of power giving them the shine of being cooperative and open for sustainable transition our network process would be a farce.
We would like to discuss whether the situation is to be regarded really in such a pessimistic way or if the described difficulties might be only one stage on the way to a more reflexive, regional governance.

0145

Transition pathways for a UK low carbon energy system: exploring roles of actors, governance and branching points

Category: 2) Governance, power and politics

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Achieving long-term targets for carbon emissions reductions, such as the UK's legally-binding target of reducing its carbon emissions by 80% by 2050, will require a transition in systems for meeting and shaping energy service demands. This will involve radical changes to low-carbon supply technologies and improvements in end-use efficiency through technological and behavioural changes. This paper describes research that develops and analyses a set of transition pathways to a highly electric, low carbon UK energy system, which examine the roles of different actors and their interactions across niches, regime and landscape levels. The pathways use an ‘action space' approach to explore the dynamic interactions between choices made by actors, which are influenced by the competing governance ‘framings' or ‘logics' that different actors pursue.

Three core pathways explore alternative futures dominated by market, government and civil society logics respectively. For each core pathway, a transition narrative outlines the main co-evolutionary changes and key multi-level interactions under that pathway's dominant logic. An initial quantification of the electricity demand and supply technology mix implications has been used to analyse the technological feasibility and social acceptability of the pathways, and to undertake a sustainability appraisal, including life cycle carbon emissions and other environmental impacts, using a whole systems approach. A second iteration of the core pathways and an analysis of key ‘branching points' is now underway, drawing on the results of these analyses, historical cases studies of past energy transition processes, and continuing interactions with stakeholders from energy companies, policy-makers and NGOs.

The branching point analysis is being used in two ways. Firstly, we identify a limited set of key branching points across all three pathways, which are analysed to inform understanding of the sensitivity and the resilience of the pathways. Secondly, branching points specific to each pathway are explored, to inform understanding of the plausibility and internal consistency of the pathways. The branching points are defined as points at which choices made by actors, in response to internal or external stresses or triggers, determine whether the pathway is followed or not. Branching point triggers include: key technologies proving to be technically or economically infeasible; the governance framework failing to provide sufficient incentives for large investments needed; and lack of public acceptability of key technologies. This analysis will inform actions needed by stakeholders to realise feasible pathways to a sustainable, low-carbon UK energy system, and the mutual understandings of the roles of different stakeholders.

0152

Public procurement & eco-innovation systems: a case of municipal waste management

Category: 2) Governance, power and politics

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In this paper we examine the role of public procurement in the emergence of an eco-innovation system. Specifically, we apply an innovation systems approach to understanding the reconfiguration of a municipal waste system in the UK. The transformation from a waste disposal system reliant on landfill to a more sustainable waste management system incorporating recycling, composting and 'energy from waste' production was driven by changes in European landfill legislation. A regional public body, operating in this supra-national context, drove the transformation by actively disintegrating the existing system and orchestrating the emergence of a new (micro) eco-innovation system. We use an in-depth case study to analyse the processes underpinning this transformation.

The Greater Manchester Waste Disposal Authority (GMWDA) is a public body that handles 5% of the UK's municipal waste. The GMWDA commissioned an integrated waste management solution for Greater Manchester, in what constitutes Europe's largest waste management Public Finance Initiative (PFI) contract, with a value of £3.8bn. This case is unusual in its scale and level of systemic co-ordination. The GMWDA acts as a 'focal organisation'; defined as organisations with the potential to orchestrate change in the wider system through their market power. In this example, the new system does not self organise, instead the focal organisation co-ordinates activities and interests.

The focal organisation drove change from within the existing system through its unique role as a public authority with a guaranteed market (i.e. supply of municipal waste). The opportunity to induce a transition towards a more sustainable waste management solution was identified, clearly articulated and actively managed. The focal organisation initially prepared the market for the procurement process by divesting a waste collection firm and regaining control of key sites. The GMWDA entered into dialogue with potential bidders and a diverse range of stakeholders, including planning officials, NGOs and technology providers. The focal organisation also initiated changes in household consumption and waste disposal practices, and facilitated the convergence of waste collection practices at 9 local authorities. Through the contract a unique innovative configuration of waste processing plants was constructed and new markets for recyclets and Solid Recovery Fuel (SRF) were created. In the paper, we discuss how the public procurement process drove system transformation and explore the role of public bodies in transitions to eco-innovation systems. Key features of this case include a deliberately pursued transition, the articulation of a clear vision and systemic process management.

0154

The role of institutional innovations in the transition to low-carbon futures

Category: 2) Governance, power and politics

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Deep cuts in carbon emissions to avoid dangerous climatic change will require fundamental transformations of the energy and transport systems. This is an enormous challenge for society and the political system. In order to tackle this challenge effectively, and in legitimate ways, we argue that it will be necessary to develop new institutions and institutional practices that address and give priority to long-term climate policy objectives. In this paper we focus on three different cases of institutional innovations in the field of climate governance and energy system transformations that are guided by such visions. Institutional reforms at the national level in three arguably progressive cases (the Netherlands, the UK and Sweden) are studied concerning their relevance for governing transitions towards low-carbon societies. In the study we ask, firstly: What views on how to bring about low-carbon transitions guide the activities of the institution? What is the role of the new institutions in steering, coordinating and facilitating processes of change, and what institutional practices have developed so far? The cases provide examples of ways to enhance reflexivity and how a new political agenda for low-carbon futures and strategies for instigating processes of change can be institutionalized. However, when secondly contrasted against contemporary green political thought, they seem to be bound by liberal conceptions of greening the welfare state rather than post-liberal ecologist ideals on radical green transformations. Our analysis also shows that in practice, the institutions examined tend to favor technological transitions over behavioral change and to be reliant on hierarchical authority and traditional patterns of steering to a greater extent than intended.

0169

Introducing the notion of citizenship in transition theory

Category: 2) Governance, power and politics

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To accommodate cuts in government spending in the aftermath of the financial crisis, the Dutch government reinforces its call for ‘active', ‘self-reliant' and ‘good' citizens. Besides being a formal instrument of inclusion and exclusion regulated by the state, a moral notion of citizenship is currently used to enhance the level of manufacturability of certain social problems. This discourse is also apparent in several transition programs. Our paper aims to re-examine modalities of citizenship (e.g. formal, moral) in transition theory and practice and the implications that follow from this framing.

Based on recent transition processes in the Netherlands, we show that transition programs assume active citizens who take responsibility for their environment. We demonstrate that this assumption is apparent in transition processes regarding climate change, healthcare and deprived city neighborhoods. Especially transition governance (e.g. transition management and strategic niche management) is not only based on, but also fosters certain dominant notions of moral citizenship.

The implications, we claim, are far reaching. The normalizing standpoint regarding the role of citizens in certain persistent problems, can lead to a form of top down directed civic participation where normative and moral goals prevail first and foremost. Citizens are portrayed as having to be disciplined and conditioned (formally and morally) to become more sustainable citizens. Aiming for radically new ways of handling complex and persistent problems, it seems that transition theory does not include new ways of conceptualizing citizens and their roles in change processes. Instead of opening up radically new insights the transition processes in the Netherlands we examined were staying close to the ‘neoliberal governmentality' discourse and by this becoming a state extension.

By engaging critically and reflexively with the notion of citizenship our paper contributes empirically and theoretically to transition literature and thereby hopes to invoke a necessary debate on this issue.

0179

Politics of Renewable Energy. The case of Norway

Category: 2) Governance, power and politics

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The paper will present findings from a project studying the problem linked to increase production of renewable energy in Norway during the period 1990-2010. The point of departure is the availability of vast potential energy resources in Norway; from wind onshore and offshore, waves, tides, salt, in addition to biomass, solar energy etc. There is a relatively strong research capacity and technological competence in many potential forms of electricity production. In spite of the availability of new renewable energy sources and techno-scientific capabilities, very few resources have been transformed into economic production.

The paper argues that Norway is locked into an energy system which creates small opportunities for increased production of renewable electricity. The electricity production has always been based on renewable energy (hydropower), and domestic production has since the late 1980s covered total domestic consumption. Increased production is dependent on access to new markets, i.e. export markets. The paper will argue that this is not purely an economic process, but is a transformation of the meaning of electricity in the Norwegian society. Electricity has traditionally been regarded as part of social infrastructure, and used as part of social welfare policies as well as industrial policy. From 1990 there has been an alternative perspective on electrical energy. It is seen as a commercial activity where the main role of the electricity industry is to increase company profits and exports earnings. There is a public controversy where actors presenting the two perspectives compete in gaining acceptance in the public and among political actors.

Within this setting no perspective is able to become dominant. No part is able to link policies to develop new renewable energy to wider policy considerations. There are no strong drivers for increased production of renewable energy as climate policy (reduce emissions), energy security (independence of import), industry policy (build up of technology sectors), regional policy (employment in specific regions), etc. The paper will also discuss to what extent public policies may bring an end to the stalemate situation for renewable energy.

0180

Confronting the sufficiency challenge: the importance of rights, liberties and obligations

Category: 2) Governance, power and politics

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In the environmental policy discourse, we can notice how concepts such as ‘consumption', ‘lifestyles' and ‘green growth' is gaining ground. It reflects the mounting concerns that we cannot solve our global sustainability challenges merely through strategies based on growth, even when this growth is perceived to be ‘green'. Indeed, the evidence is mounting that our desire for increased consumption levels will constantly outpace improvements in socio-technical systems, and that this state of affairs is not likely to change. Thus, whatever is achieved by efficiency and decoupling approaches will be negated by increasing consumption volumes due to rebound effects. Current - consumption-oriented - policies and tools will contribute to greener consumption patterns, but cannot deliver a less resource-intensive economy. Therefore calls for sufficiency governance - aiming for absolute reductions in energy consumption, carbon emissions and resource use - are becoming increasingly common. This trend is most notable among academics, but also among politicians we see an increased interest for such approaches. Personal carbon allowances is the most commonly discussed sufficiency-oriented policy instrument, but also other instruments have been proposed. A related trend is the renewed focus on welfare among politicians, as opposed to a narrow focus on economic growth. The interest for the concept of "degrowth" is also spreading.

However urgent the need to address consumption levels, it is no easy task for governments. Sufficiency policies would challenge the dominant market paradigm and would be heavily resisted by many actors. Thus, a main challenge for democracies will be to deliver increased sufficiency, without having to resort to policies considered as authoritarian, or and infringement on liberty. But many features of current democratic countries - such as current electoral cycles, and a focus on individuals' rights rather than their obligations or responsibility towards the greater good - makes it difficult to deal with both urgent and long term sustainability challenges. Convincing people in richer nations to opt for less or at the very least curb increasing consumption levels is no easy task. This will require increased solidarity between different societal actors at both the national and the international levels.

Building on several research streams, this contribution will discuss the need for a new social contract, which will reflect the needs of tomorrow's world, where concepts such as ‘citizenship', ‘rights' and ‘obligations' may need to be renegotiated.

0187

Multi-level governance in Smart Grid deployment: Transforming the electricity system in Austria

Category: 2) Governance, power and politics

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Smart Grids are "intelligent" electricity networks of the future, providing electricity using real-time, two-way digital communication between producers and consumers´ appliances; this is expected to save energy, to reduce costs and to increase reliability and transparency. Smart Grids are being promoted by many governments as a way of addressing energy independence, global warming and emergency resilience issues. In a project supporting policy development in the area of energy innovation in Austria, Smart Grids are therefore considered as an integral component of socio-technical visions of potential energy futures for the next 30 to 40 years.

In this paper we aim at identifying the key governance issues arising in the deployment of Smart Grid technologies that enable the transition of the present electricity system into a sustainable energy system. Facing the socio-technical complexity of the system, we focus on governance on the local, regional, national, and European levels. Building on a systematic and interactive process of engagement with stakeholders, including scenario analysis and backcasting, we assess the scope for action and the room for maneuvre for legal arrangements in this multi-stakeholder and multi-level-policy context. We take into consideration the role of consumers, grid operators, electricity producers (of whatsoever size), service providers, government (local, regional, national, European), technology providers, telecom providers, standards organisations, and R&D organizations.

Of special relevance for Austria, network-oriented governance mechanisms are identified that complement the traditional coordination mechanisms of political hierarchy and market exchange. Beside a successful integration of national energy policy into a truly European policy, the ability of local and regional stakeholder groups to participate in the deployment of innovative solutions is seen as crucial. Here, the concept of a system of "Energy regions of the future" has been sketched, which allows small- to medium-scale experiments for utilizing region-specific resources, implementation of business models, and demonstration of actor-centered good-practice.

0198

Politics, Process, and Path Dependency: The Transition to a More Sustainable City in Groningen, the Netherlands

Category: 2) Governance, power and politics

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Despite widespread agreement on the need for more sustainable cities and the proliferation of supporting policies at a variety of governmental scales, very few cities have undergone major transitions toward greater sustainability. Groningen, the Netherlands, is a rare exception to this generalisation. A heavily automobile-oriented city as recently as the 1970s, Groningen underwent a major transition, beginning in the mid 1970s, to become what is today widely recognized as one of the most bicycle-oriented, and sustainable, cities in Europe. Groningen's transition required overcoming path dependency in both politics and the built environment. The transformation of these two distinct but mutually modifying realms was essential to Groningen's transition, but not in ways that could have been predicted from the outset. A variety of social and political struggles rooted in class relations, urban restructuring, quality of life, changing political structures, and a few seemingly minor but galvanizing events, led to a series of changes that moved Groningen from its very conventional automobile-centric development path to a path that generally drives the city toward becoming ever more sustainable. By studying cases of successful sustainability transitions we can begin to understand sustainability transitions' social and political prerequisites, and their variability.

0200

Technical and Institutional Challenges for Enabling Sustainability Transitions: The Case of Ecological Ordinance in Mexico

Category: 2) Governance, power and politics

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Mexico has recently mandated that ecological ordinances (EO) be used as the primary platform for social-ecological planning at the municipal level. This new institutional framework for participatory planning aims to synthesize existing knowledge on land change dynamics, while providing avenues for continued learning and institutional adjustment as knowledge improves. EOs are designed to provide the structure for communication and decision-making - in essence, a common platform for learning and planning -- so that government actors and diverse elements of civil society become aware of the underlying quality and vulnerability of a region.
Operationally, the goal of EOs is to ensure that sustainability principles are integrated into plans, programs and projects so that appropriate actions can be taken to steer a socio-ecological system to a desired state. Such desired state is defined collectively through the implementation of sound analytical, such as GIS-MCDA (geographic information systems and multicriteria decision analysis), to advance a fair and legitimate collaboration process.
In this paper we discuss the challenges faced in the implementation of EO as a means for achieving a transition to sustainable socio-ecological systems. In particular, we address the issue of how EO can provide a knowledge sharing platform so that an equal participation of elites and non-elites in decision making can be achieved. In addition, we discuss how sustainability values manifest as alternative states of socio-ecological systems, and how these alternative states shape those values within the EO context.

0212

The Power of Outsiders: Why a typology of power can help us understand how innovation happens in sustainability governance

Category: 2) Governance, power and politics

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As the Millenium Ecosystem Assessment (2005) demonstrated, many social-ecological systems around the world are currently being governed unsustainably. Given this, there is, arguably, a vital need for innovation and transformation in order to bring about a transition to governance practices that foster sustainability. Many scholars have recognized the need for sustainability transitions (e.g. Raskin et al. 1996, Frieman et al. 1999). Yet, dominant institutions and social groups often resist innovation because of the threat it poses to their own interests (see e.g. Olsson 1982). Consequently, governance transformation often must begin among outsider groups that have been left disenfranchised by established social orders but because of their position, often lack the financial and institutional resources needed to effect change. Despite this, there are numerous cases where outsider groups have been able to initiate processes of radical change to establish sustainable governance practices for threatened social-ecological systems (e.g. Tjornbo et al. 2010 and Hahn et al 2006). Clearly, despite their position as outsiders, some groups are able to exercise power, and to overcome the resistance of an established, more obviously powerful status quo.

This paper introduces a typology (Barnett and Duvall 2005) that takes a comprehensive approach to analyzing power and approaches the topic from a global governance perspective that illuminates the role that non-governmental organizations, local governments and other ‘outsider' agents play in international politics (Ba and Hoffman 2005). In so doing, these scholars go beyond the conventional category of coercive power based on resources and formal authority and identify four forms of power that agents use to further their cause. This paper argues that such a typology can enrich our understanding of how sustainability transitions occur in social-ecological systems by illuminating the opportunities available to outsiders interested in pursuing such goals. Although it relies mainly on a theoretical discussion, this paper is illustrated by examples taken from a number of cases studies of social-ecological transformation. The discussion and examples reveal that certain forms of power may be more easily accessible to outsider groups than to established institutions and organizations, and that these may be used to initiate processes of innovation and transformation. This raises questions about how the use and distribution of certain types of power might shape the course of such transformations, including who is allowed access to decision making processes, and the implications of this for the legitimacy of these processes.

0219

Covenants as niche configuration for international markets in the area of closed loop management for metals

Category: 2) Governance, power and politics

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Transition Management approaches are often critized for neglecting governance aspects of transition politics. Especially for niche developments win-win situations are assumed regardless of the specific distribution of costs and benefits of transition processes. We hypothesize that the impact of niche developments for a sustainable development crucially depends on their institutional configuration. This paper seeks to analyze these aspects from a new institutional economics point of view by the case study of a covenant for closing international material cycles of end of life vehicles (ELVs).

Discarded vehicles are among the most important waste streams in the European Union. Their recycling could save considerable amounts of resources - certainly an emerging market in times of high raw material prices. Accordingly the European ELV directive obligates manufacturers to ensure high recycling rates. But current analysis reveals that e.g. for Germany only about one sixth of these ELV are effectively recycled within the country. Most vehicles are exported and end up as waste in countries, where these recycling targets and related environmental concerns are of no relevance. This system failure not only causes environmental degradation and a massive loss of materials. It also hinders new international markets on metal recycling to flourish although basic economic interest of the actors involved can be assumed. In that regard, the existing policy instruments and incentives are clearly not sufficient to generate innovative niches for large-scale investments and new partnerships.

The central approach of the incentive mechanism to be analyzed here is the negotiation of a legal contract based on private law (a covenant) between suppliers and automotive manufacturers, recycling industry and the relevant public authorities in the export and destination countries. The theoretical starting point for our considerations of an international covenant is the thesis that especially knowledge problems and transaction costs are responsible for the material leakages occurring at the end of life of products. On the one hand market failures exist on recycling markets, because of the asymmetrical distribution of information hindering efficient contracts. On the other hand, the states have insufficient information to correct market failures for an optimal result by direct regulation.

Covenants could therefore be a promising approach to establish an efficient institutional framework for niche developments regarding international transition challenges characterized by limitations of markets as well as of any direct regulations. Characterized as knowledge and trust generating institution, they highlight the importance of dynamic reliable framework conditions for system eco-innovations.

0221

In what sense can we talk of ‘democratic' energy transition governance, and how might this be achieved?

Category: 2) Governance, power and politics

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Over the last few years, several criticisms have been aimed at transition management scholars arguing that theoretical concepts central to the transition management approach such as the multi-level perspective (MLP) and the technological innovation systems perspective (TIS) (at least in their current versions) insufficiently acknowledge politics and governance issues (see e.g. Kern and Smith, 2008; Meadowcroft, 2007, 2009; Shove and Walker, 2007, 2008; Hendriks, 2008). Analysing the application of transition management ideas in the Dutch context, these critics e.g. point out the lack of democratic legitimacy of the proposed transition mechanisms, the persistent dominance of regime incumbents who ‘colonise' the transition arenas, the evasion of clear political choices w.r.t. to public support for promising ‘niche' experiments, limited learning according to narrow techno-economic criteria, and the general ‘fuzziness' of the visions proposed by the incumbents which lack concreteness to inform strategies or select experiments. Such criticisms are by now acknowledged by transition management scholars, who propose a new research agenda for transition management (Voβ et al., 2009; Grin, 2010). In our paper, we analyse key texts from the transition management literature as well as the recent criticisms and/or proposals for a new research agenda on governance with regard to the way they refer to ‘democracy' as a regulative ideal. The analysis will be guided by the way the criticisms/proposals relate to the different conceptions of democracy as elaborated in liberal, republican, populist and deliberative democratic accounts. Drawing on a detailed discussion of the respective strengths and weaknesses of the different proposals, we tentatively propose our own account of how a more democratic governance of energy transitions could be achieved. The proposal will be worked out into concrete suggestions for a further democratisation of energy transition governance, and will relate to the chartering, composition, rules of deliberation, and output of the governance arrangements implied.

0226

Measuring the alignment of perspectives in a socio-technical system. The case of the introduction of the electric vehicle in the Netherlands

Category: 2) Governance, power and politics

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Interaction, negotiation and learning are key processes in transition experiments aiming at sustainability transitions. Problems in sustainability transitions can be associated with the fact that there is uncertainty about the relevant problems, about the scope and timing of technological change and about public opinion and support for actions. We assume that transition experiments can lead to a decrease of these uncertainties, and thus to increasing ‘alignment' between the relevant actors and within society as a whole. The primary goal of this explorative study was to develop and test a diagnostic method with which alignment/disalignment of the actors' perspectives on sustainable mobility can be measured. In this study the introduction and development of the electric vehicle has been chosen as the object of study, because previous studies suggested that quite different perspectives exist on electric vehicles among relevant organizations.

The research started with open interviews to trace all existing views and perspectives on the introduction of electric vehicles as a means to increase sustainability in the mobility sector. From this overview a list of topics was derived for which we wanted to measure the alignment among relevant actors. Data were gathered through an internet-based questionnaire that was sent to 273 actors involved in electric vehicles in the Netherlands, of which 126 questionnaires were returned.

This study show that several methods can be used to indicate the (measure of) alignment in a socio-technical system. In a first method we used the standard deviation of the scores from all of the respondents as an indicator for alignment on each topic. In a second approach we used a Kruskall-Wallis test to see whether categories of organizations have (significantly) different perspectives on a topic. A third way looked at categories of organizations with a significantly high level of non-response on specific topics, which could suggest that there is some form of misalignment in the knowledge-bases.

In the case of the electric vehicle in the Netherlands, the study revealed on what topics misalignment in the socio-technical system can be seen, and which (categories) of organizations hold significantly different views from other organizations. This information is helpful for new transition experiments and for improving the interaction, negotiation and learning processes in sustainability transitions.

0228

The rule of transition or the rule of law?A transition perspective on the regulatory framework for renewable energy

Category: 2) Governance, power and politics

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The case of renewable energy innovation is one of the key transition challenges in the 21st century (Loorbach 2007; Verbruggen 2008;Grin 2010). For several reasons (climate change, peak oil, dependence on unstable regions, deforestation, conflict source, environmental and safety risks) transition of the energy system is required to establish sustainability (IPCC 2007 etc.).

The concept of transition has been studied for decades in several disciplines such as sociology, biology and technology studies (Grin 2010). Little insights have so far been generated from the study of the regulatory framework. Not because it is considered to be unimportant. Transition and innovation literature tend to refer to the role of legislation as a fundamental barrier (protecting status quo, conservative standards, responsible for lock in) for transition and innovation (Nooteboom 2009). These general observations sometimes manifest in the political arena in a plea for a 'transition law', ' experimental standards' , or a 'climate law'.

This paper will analyze the legal bottlenecks that exist on the basis of case material in the area of renewable energy. We will see that part of the existing norms and standards do actually form a blockade for transitions whereas in other situations the blockade is more related to the mechanisms (people, institutions) installed behind the rules. There are even examples of areas where lacking norms and standards are a barrier to innovation.

As a next step this paper explores the possibility for a transition perspective on legislation. What does happen if we confront 'the rule of law with the rule of transition'? Does the way the rule of law has evolved allow for something else then incremental change? According to recent insights transitions come about through interactions between niche, regime and landscape (Grin et al 2010). The papers shows however that parts of the regulatory framework obstruct such an interaction.

The insights of transition management are used to raise the question what type of regulatory framework would allow to speed up the innovation path in energy. Is a 'co-evolution' of the rule of law and the rule of transition' feasible? A challenging question as there is a widespread belief that the current legal and institutional setting is not suitable to bring forward the energy transition (Verbruggen 2008, ECN 2010, Grin et al 2010).

0235

Operationalizing urban sustainability transitions with transformative governance: results from participatory sustainability transition planning and proposed research agenda for implementation

Category: 2) Governance, power and politics

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Though there has been significant post hoc work documenting sustainability transitions, empirical research on placed-based transitions that include ‘real-world' interventions and reflexive assessments of how transitions occur in vivo is necessary to further move transition theory from a place of analyzing change to one of catalyzing change. In this vain the authors present results from the development of a sustainability plan for the City of Phoenix as well as a concurrent and proposed transformative governance research agenda aimed at implementing, testing and refining the transition plan through multiple, targeted interventions.

Transformative governance has been applied and functionally served as a framework for organizing sustainability transition work embedded in the renewal of the City of Phoenix's General Plan. Within the transformative governance framework the transition plan, co-created by community members, the City planning department and students and faculty from Arizona State University's School of Sustainability, includes a sustainability vision for 2050; an analysis of the current state of Phoenix; non-intervention, alternative, future scenarios of Phoenix in 2050; and transition strategies and recommendations for implementation that are aimed at moving the City from the current state toward the vision and away from undesirable scenarios.

Beyond presenting empirical results of transition work in practice, this paper presents complimentary proposals for moving from planning to initiating transitions. Also included are insights from thesis work conducted by graduate students in the School of Sustainability, which approach sustainability transitions from both placed-based and institutional perspectives. Scaling down from the city level, two of the projects focus on spurring sector-specific transition in the water system and citizen-based transition in a local community in Phoenix. Fundamentally linked to the city scale work, these projects develop citizen-created and maintained transitions that universities and city governments can foster and that reflexively contribute to the larger sustainability transition.

With this sustainability transition work the authors hypothesize that multi-scale, multi-dimensional analysis and implementation is capable of catalyzing sustainability transitions in cities facing deeply rooted and highly complex sustainability problems. Preliminary results demonstrate the instrumental roll that universities with targeted and transformational research agendas can play in organizing and initiating these types of sustainability transitions. Arguments are made for the transition community to utilize existing tools, such as those provided by the transformative governance framework**,** as well as develop new tools in order to make empirical transition work more prescriptive and implementable.

0238

Gender and climate governance: evaluating the transition in the case of Sweden

Category: 2) Governance, power and politics

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This paper takes a starting point in the climate strategies proposed in recent years in Sweden. Gender analysis often addresses gender parity and asks if men and women are equally represented. Often it is argued that the lack of a gender perspective is because women have been absent from climate governance in general, as has been the case with the international climate negotiation until very recently. However, the Swedish case does not support this. In Swedish climate governance there is gender parity in the committees and expert groups that have been instrumental in proposing national, regional and local climate strategies. Women have been present yet, by looking at the climate strategies that have been formulated they pay no attention whatsoever to gender aspects or effects on women. In this respect, what is found in the Swedish case is not unique. Concerns about gender and social reproduction effectively marginalized from the agenda of climate politics. The proposition of the paper is that it can be explained by the gender power order with the propensity for technical solution and the marginalization of gender and also other social aspects of climate politics. By using feminist theory and research on gender and climate, this paper will point to the relevant gender aspects of climate governance. As an example, the paper argues that gender and social relations are seldom discussed among scholars and policy makers. This is particularly the case when different scenarios and visions for the future are proposed. Method that visualize futures, a tool in long-term climate governance, are often used to set the agenda, and becomes the base for plans, measures and ways to reach a specific goals. The way the climate problem is articulated and the visualization of possibilities for a low-carbon future most often lacks a vision on gender relations or even social relations in general.

0245

Institutional work at field-configuring events: Shaping industry change within sustainable transitions

Category: 2) Governance, power and politics

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Adopting an institutional approach from organization studies, this paper explores the role of key actors on "purposeful governance for sustainability" (Smith, Voss et al. 2010: 444) through the case of smart metering in the UK. Institutions are enduring patterns in social life, reflected in identities, routines, rules, shared meanings and social relations, which enable, and constrain, the beliefs and behaviours of individual and collective actors within a field (Thornton and Ocasio 2008). Large-scale external initiatives designed to drive regime-level change prompt 'institutional entrepreneurs' to perform 'institutional work' - "purposive action aimed at creating, maintaining and disrupting institutions" (Lawrence and Suddaby, 2006).

Organization scholars are giving increasing attention to 'field-configuring events' (FCEs) which provide social spaces for diverse organizational actors to come together to collectively shape socio-technical pathways (Lampel and Meyer 2008). Our starting point for this exploratory study is that FCEs can offer important insights to the dynamics, politics and governance of sustainability transitions. Methodologically, FCEs allow us to observe and "link field evolution at the macro-level with individual action at the micro-level" (Lampel and Meyer, 2008: 1025).

We examine the work of actors during a series of smart metering industry forums over a three-year period[1] (industry presentations [n= 77] and panel discussions [n= 16]). The findings reveal new insights about how institutional change unfolds, alongside technological transitions, in ways that are partial and aligned with the interests of powerful incumbents whose voices are frequently heard at FCEs.

The paper offers three contributions. First, the study responds to calls for more research examining FCEs and the role they play in transforming institutional fields. Second, the emergent findings extend research on institutional work by advancing our understanding of a specific site of institutional work, namely a face-to-face inter-organizational arena. Finally, in line with the research agenda for innovation studies and sustainability transitions elaborated by Smith et al (2010), the paper illustrates how actors in a social system respond to, translate, and enact interventions designed to promote industrial transformation, ultimately shaping the sustainability transition pathway.

[1] In October 2008, the UK Government announced its intention to mandate a roll out of electricity and gas smart meters to all homes (DECC, 2009). This announcement, which represented a significant jolt for the industry, was followed by a series of industry forums in which regulators, energy companies, technology companies, and others talked extensively about how to implement the technological changes and transform the industry.

0247

International Technology Transfer and Strategic Emission Standard Setting

Category: 2) Governance, power and politics

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Climate change is the classical example of a global commons problem which ideally must be solved on a level of governance responding to the global geographic scope of the environmental externality. But an international framework of binding emission reduction rules has turned out to be difficult to establish. Under perfect competition, standard economics would thus typically predict free-riding behavior and a “race-to-the-bottom” of national emission standards.

To move the world closer to the welfare optimum several policy instruments have been discussed, including international transfer of environmental technology from advanced to developing countries. Technology transfer from the North to the South is the basic process behind the idea of “tunneling through the environmental Kuznets curve” described by Munasinghe (1999). But whether it is in the interest of developed countries to make costly efforts for sharing their technological knowledge with developing countries in order to address global environmental problems is debatable.

Contrary to the “tragedy of the commons” assumption, at the international arena only a small number of very powerful actors (as the US, China and Europe) find themselves in a situation that could be better modeled as a non-cooperative game, in which the environmental outcome for each individual player depends to a significant extent on the own decision. Moreover, governments can shape the costs of environmental protection by influencing technological development paths.

In our paper we develop a two-stage game-theoretic model of costly technology transfer and strategic emission standard setting between two asymmetric players that demonstrates the welfare effects and the strategic interests involved in the international transfer of environmental technology: In the first stage countries decide whether or not to involve in costly transfer efforts while in the second they strategically set their national emission standards.

In a similar framework, Buchholz and Konrad (1994) analyzed strategic technological choices before emission reduction negotiations. They conclude that countries have the incentive to improve their strategic position in the second stage by adopting technologies with higher per unit costs of emission reduction in the first stage. Their model however neither accounts for increasing costs of higher environmental protection nor does it allow for international technology transfer: specifications of our model that significantly change the strategic situation.

Within such a more realistic scenario, we analyze the conditions under which welfare enhancing technology transfer investments are feasible in the absence of an international emission reduction agreement, thereby contributing to the understanding of sustainability-oriented technological change.

0261

Add actors: a backcasting approach to the governance of sustainable urban development

Category: 2) Governance, power and politics

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This paper elaborates the theoretical arguments, and presents a methodological framework for including actors, and structures and processes of governance as objects of study in futures studies for sustainable urban development.

As all intended change, sustainable urban development depends on not only what to change but also change by whom. The need of visionary approaches to sustainable urban development has been recognized by many, as have the need for more dynamic, adaptive, and proactive forms of urban planning and governance for sustainable development. This paper seeks to explore how the governance of sustainable urban development could benefit from a more visionary approach, developed as based on the futures studies approach backcasting.

Central to backcasting is the development of images of desirable futures, connected to the present through pathways of transition. Thus backcasting is a fruitful approach to explore how a certain target can be met when contemporary structures block the changes sought. Traditionally this has been used to explore what could change and how change could take place, while the question of who could change has been left out of study.

The methodology reported on here is aimed at answering the question "How could the changes take place, in terms of governance networks managing the process?" Concretized into a methodological framework this comprises two main issues:
1) Which actors should be included in the governance network, and which are their relations?
2) How does the governance network develop over time?

The first issue captures questions on actor involvement; which actors and which kind of relations give rise to different types of governance. The second issue concerns the dynamics of both the governance network(s) and the pathway in terms of the timing and sequence of events.

Identifying actors can be made either during the scenario creating process, or afterwards. There are good arguments for the former; in this way objects and agents of change can be identified iteratively rendering the scenario more consistent. However, such an iterative approach is not and will not always be possible. Hence the methodology is outlined so as to function also with the identification of actors being a subsequent step in the scenario study.

The paper also discusses how narratives and visualizations can be used to represent actors and governance networks in scenarios.

Throughout the paper a scenario study of sustainable private transport in Bromma, Stockholm, is used to exemplify the methodology.

0262

Can we define a set of 'transitions principles' to which sustainability & innovation policy should aspire? (And do they include the explicit label of 'transition'?)

Category: 2) Governance, power and politics

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There has sometimes been a reluctance to translate transitions theory into a set of policy guidelines. Yet its interaction with policy practice has led to a number of such attempts.

In 2000 through interaction with policy makers involved in the Netherlands 4th National Environmental Policy Plan (NEPP4) a set of 5 rules of thumb were developed to encapsulate the principles of transition management for policy: Long-term thinking as the basis for short term policy; Think in terms of multiple domains (multi-domain), different actors (multi-actor) and different levels (multi-level); Learning as an important aim for policy (''learning-by-doing'' and ''doing-by-learning''); Orient policy towards system innovation besides system improvement; Keeping options open (wide playing field). (Kemp & Rotmans (2009))

Later work with the UK innovation agency NESTA led to 5 principles being identified for reconfiguring policy towards sustainability-oriented transformative innovation: Long-term visions - short-term action; A sociotechnical approach - bridging the arenas of new technology and behavioural change; The global and local - reconfiguring national innovation policy; Invention and imitation - being realistic about novelty; Incumbent and emergent - recognising the contradictions within the business world. (Steward 2008)

In 2008 a study for the UK environment ministry DEFRA on systems approaches to sustainability policy argued that 4 issues needed to be address in new systemic policy measures: network building; framing of expectations; facilitation of learning; vertical and horizontal policy integration (Geels et al 2008)

This paper discusses the considerations needed for securing greater policy influence from a transitions perspective. It explores new policy developments in a number of countries including the UK and the Netherlands. The guidelines and principles that have been articulated are reviewed and it is suggested that there is merit in developing a shared international framework drawing on these.

Geels F, M. Eames, A. Monaghan & Steward (2008) **The Feasibility of Systems Thinking in Sustainable Consumption and Production Policy:** A report to the Department for Environment, Food & Rural Affairs. Brunel University. DEFRA, London July

Kemp Rene & Jan Rotmans (2009)'Transitioning policy: co-production of a new strategic framework for energy innovation policy in the Netherlands' **Policy Sciences** DOI 10.1007/s11077-009-9105-3

Steward Fred (2008) **Breaking the Boundaries. Transformative innovation for the global good.** Provocation 07. NESTA, April

0264

Sector level objectification and strategic interventions in industrial transitions

Category: 2) Governance, power and politics

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The paper takes its outset in the identification of a series of different sector level objectifications which since WW2 have been crafted to portray the Danish construction industry as a coherent sector object of development in order to inform a coordinated development of the industry. These strategic objectifications are discussed against the structure of the governance arena engaging in and delimited by the objectifications structured with the scope of becoming involved in the strategic development of the industry.

The post WW2 decades were characterized by a governance arena dominated by a strong Housing Ministry with emphasis on the supply of housing after the war. This governance arena was able to develop and maintain a single hegemonic sector objectification of the industry which succeeded to inform a relatively coordinated industrialization agenda. Since the early 1990'ties a new period with attempts to develop contemporary sector governance arenas can be identified. Compared to the post WW2 sector development arena these contemporary governance arenas have however been much more fragmented. This fragmentation has been reflected in the development of a series of incommensurable sector level objectifications of the industry. Any clear or dominant contemporary development agenda for the industry is thus difficult to identify. The difficulties of establishing a coherent development agenda for the industry can thus be seen as the result of an overload of diverging and un-coordinated objectification strategies.

The paper indicates that an inherent challenge of contemporary transition processes is to develop strategies by which to cope with incommensurable and competing industrial objectification. It will discuss this result in relation to theories of socio-technical regimes and other contributions to define the sector objects and actors at stake in transitions and how they are entangled in different governance networks and assumptions of strategic interventions. It is suggested that such a strategy must be anchored in an analysis of the structure of the governance arena involved in the development efforts.

0267

Capacity building dissected: what to learn in order to mainstream sustainable urban water management in the Netherlands?

Category: 2) Governance, power and politics

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Implementation of sustainable water management that structurally takes into account climate change, urban development, demographic change, environmental change and economic growth is slow in practice, say the national government and researchers in the Netherlands. In order to stimulate implementation of sustainable water management in practice, many initiatives of capacity building undertaken by government agencies, network organizations, research programmes and private enterprises. However, despite the large body of literature about transition management, adaptive governance and social learning, there seems to be limited theoretical evidence for creating effective capacity building instruments. Learning and stakeholder engagement are critical components of capacity building instruments. However, in order to make capacity building effective, it should be identified what exactly needs to be learnt. This paper aims to provide building blocks for making capacity building initiatives in the Netherlands more effective by identifying where the need for learning is the highest.

Based on 25 semi-structured qualitative interviews with key representatives from local, regional and national government, water authorities and the development sector, the receptivity to sustainable urban water management amongst stakeholders is analyzed. Applying the receptivity framework (awareness, association, acquisition, application; Jeffrey and Seaton, 2004) learnt that most water and spatial planning professionals are aware of adaptation. However, their understanding of what it exactly is varies. Most respondents did not relate consistent long term planning, flexibility and resilience to the concept of adaptation. Instead, they associate adaptation with one-time measures. Although many interviewees think there are synergies with other disciplines, it was identified that the planning and implementation processes of adaptive designs still result from sectoral approaches in most cases. The required technologies seem readily available, but process innovations are deemed necessary to create bridges between disciplines at different organizational levels. Despite the large number of networks and platforms for knowledge sharing, most interviewees agree that knowledge management needs to be improved. Several incentives have been mentioned for the application of adaptive approaches: opportunities to link with urban (re-)development, financial and time incentives, and regulatory incentives.

Capacity building should not only encompass developing more knowledge and skills, or on stimulating stakeholder engagement. Perhaps more importantly, in particular water professionals need to become aware that sustainable water management cannot be established by sectoral approaches. Besides a multi-faceted focus of capacity building, strategic alignment with regulatory measures is needed in order to create incentives for application.

0278

Different perspectives: degrowth-movement versus Transition Towns?

Category: 2) Governance, power and politics

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On the base of a presentation of my Master in which I examined sustainability in relation to the concept of Transition Towns I want to discuss some interrelationship to issues, focused by the degrowth-movement (www.degrowth.net).

While Transition Towns Network (7 principles, 12 steps, 7 but's) offers attention to local resilience, the degrowth-movement - with the background in "Limits to Growth" - focus on "system change" in all aspects of life.

Besides my Master I will raise the discussion on my participation in two international research de-growth-conferences (Paris 2008, Barcelona 2010).

0283

Lost in Transition: Securing Victoria's Low Carbon Future

Category: 2) Governance, power and politics

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The fossil fuel energy economy we know and use today will need to undergo significant changes in the coming decades if we are to stabilise greenhouse levels within the atmosphere. Yet transforming the energy sector along more sustainable lines represents considerable challenges for both state and society, all of which involve an increasing number of actors in the context of global, market, and social forces. Governing socio-technical transitions will therefore require an understanding of the relations between economic and political powers and the broader networks of actors involved in the energy domain. This thesis focuses on how these actors interact, how they construct consensus, and how resources are utilised and shared between networks in order to achieve specific goals. To this end it examines policy and public responses to energy transition issues in the brown coal region of the Latrobe Valley, Victoria, Australia. This region provides an interesting case study for several reasons. The first is due to Australia's national political culture and international orientation. The coal industry has become a powerful lobby group due to both its domestic production and international exports and the threat of extinction has lead to conflict in a number of different policy settings. And second, brown coal from the Latrobe Valley supplies the state of Victoria with ninety per cent of their energy needs. Not only is brown coal one of the most polluting fuels available, but the region's economic dependence on it further complicates the transition. To explore these issues a policy network approach is adopted and assessment is made primarily through the analysis of interviews as well as relevant documentation. It is envisaged that a focus on the power relations between various actors, decisions, institutions, and structures can improve our understanding of governing sustainable energy transitions.