
Presentation paper

Title

***“Innovative implementation” by non-state actors in environment-related areas:
towards a “positive” implementation gap ?***

Name, Institution, and Contact information

Rémi Schweizer¹, PhD student, remi.schweizer@unil.ch

Johann Dupuis¹, PhD student, johann.dupuis@unil.ch

Guillaume de Buren¹, PhD student, guillaume.deburen@unil.ch

¹ University of Lausanne

Swiss Graduate School of Public Administration (IDHEAP)

Quartier Unil Mouline, CH-1015 Lausanne

(revised) Abstract

In an era where innovations in society and institutions are increasingly viewed as crucial to address environmental issues, attempts of innovation in concrete action surprisingly received little attention. Governance scholars on the one hand, despite precisely advocating such endeavours, tend to focus on policy designs or governance structures, neglecting the level of concrete action. On the other hand, implementation scholars, although precisely interested in the policy-action relationship, generally share a pessimistic tone that prevented them to address these phenomena.

Against this background, the present contribution conceptually and empirically explores these phenomena of innovation in action (*“innovative implementation”*). To do so, we operationalize *“innovative implementation”* as a strategy by which (coalitions of) non-state actors seek to develop *ad hoc* solutions to address a given environmental issue, going beyond what is provided for in formal policy designs. Following an inductive research strategy, we elaborate a conceptual framework whose main advantage is to bring the *actors and their coalition* (in all their diversity) back in the analysis. More concretely, we state that perceiving implementation as broader ‘social interaction processes’ (De Boer & Bressers 2011) within which actors play strategic ‘games’ (Bardach 1977, Scharpf 1997) opens interesting lines of research to better account for their innovative and strategic behaviours. In a second step, we apply this framework to three strategies of innovative implementation in different contexts, and identify on this basis empirical regularities in the individual pathways related to the emergence and success (or failure) of these strategies.

Introduction

Recent decades witnessed a growing awareness of the complexity of environmental problems such as increased pollution levels, natural resources depletion, disaster risks, or climate change impacts. (Super-) wicked in nature (Levin et al. 2012), characterized by a high level of uncertainties generated by scientific and policy unknowns (Bressers & Rosenbaum 2000), these issues are perceived as uncommonly problematic and difficult to tackle with traditional ‘top-down’ policy instruments. In this context, enabling *innovation* in society and institutions is increasingly viewed as a crucial strategy to address environmental issues in more “creative” ways (Bressers & Rosenbaum 2000: 525, Folke et al. 2005). Changes in the nature of collective action have in that respect been called for, and a vast array of concepts proposed, from adaptive co-management (Olsson et al. 2004, Pahl-Wostl 2007) to environmental governance (Lemos & Agrawal 2006), network governance (Carlsson & Sabdström 2008) or collaborative governance (Ansell and Gash 2008).

Pivotal to these approaches is a focus on the “good” design of policies. Innovations in policy designs, governance structures, organizations, or policy instruments are, *inter alia*, some of the drivers that have steered scholars’ interests so far. While existing conceptualizations are based on differing assumptions (Termeer et al. 2010), they all share the idea that state-centred approaches based on “command and control” failed to address properly the current environmental issues, and that reforms of both the types of policy instruments and the form of interactions between state and non-state actors are critical in importance. On the one hand, a wide range of policy instruments have been identified and advocated, from century-long practices of endogenous community management (Ostrom 1990) to more modern forms of voluntary agreements, negotiation-, or market-based instruments (Jordan et al. 2003, Bressers et al. 2011, Pirard 2012). On the other hand, a shift towards ‘network-based governance’ (Duit & Galaz 2008) – with a broad variety of state and non-state actors embedded in networks within which relations are no longer seen as exclusively vertical and hierarchical, but also as horizontal and deliberative – is both observed and called for.

All in all, the allegedly more flexible and cooperative nature of these new modes of governance are claimed to better handle the wicked, uncertain and changing nature of environmental pressures. Bäckstrand et al. (2010) refer to these normative assumptions as “the promise of new modes of governance”, whose empirical foundations however remain weak in their opinion (in the same vein, see Newig & Fritsch 2009). The crafting of ‘new’ or ‘original’ responses have generally been restricted to the policy formulation phase. Surprisingly, very little attention has been devoted to innovation *after* the programming stage, at the level where actors are directly confronted to environmental problems. How the supposedly superior design of new modes of governance translate into innovative and concrete actions hence remains to a wide extent an unthought of this literature, therefore limiting theoretical claims to an expression of good deeds.

To the contrary, implementation studies represent a long and rich research tradition whose interest precisely lies in the study of this “policy-action relationship” (Barrett & Fudge 1981). They focus on the “missing link” (Hargrove 1975) between expectations and realizations and, as such, could have been central in examining endeavours of innovation at a more concrete level. However, this has not been the case. Works within the sub-discipline are, indeed, too narrowly conceived to fully capture innovation processes. Although some scholars mentioned adjacent phenomena – Barrett & Hill (1984) for instance talk about “specific innovation” to designate cases where concrete action precedes a policy, questions related to the institutional creativity of ‘field’ actors (Laesslé et al. 2013), innovation in implementation and action, or “positive gaps” are largely ignored. For these reasons, even though they contributed to open up “the black box of policy making in a number of ways” (Palumbo & Calista 1990: 14), implementation studies fail in our view to provide an adequate framework for the analysis of innovation endeavours.

Against this background, we argue that the need to explore conceptually as well as empirically these phenomena of innovation in action, or “innovative implementation”, appears vivid. The question indeed arises as how to frame and comprehend collective action in a less pessimistic way than what is usually proposed within implementation studies, and at a more concrete level than in the governance(s) literature. The present paper more concretely pursues a two-fold goal. Our general theoretical aim is to broaden the understanding of implementation processes in order to better apprehend the institutional and strategic creativity of ‘fields’ actors embedded in ‘real-life’ situations while, on the empirical level, our goal is to examine whether and under which conditions non-state actors defending innovation strategies can come out as winners of these processes.

To do so, we propose an operationalization of the notion of “innovative implementation” as a strategy by which (coalitions of) actors seek to develop *ad hoc*, tailor-made solutions that go beyond what is provided for in formal policy designs. Following an inductive research strategy, we rely on a broad conceptual framework whose main advantage is to bring the *actors and their coalition* (in all their diversity) back in the analysis. More concretely, we state that perceiving implementation as broader ‘social interaction processes’ (De Boer & Bressers 2011) within which actors play strategic ‘games’ (Bardach 1977, Scharpf 1997) opens interesting lines of research to better account for the creativity and strategic behaviours of field actors. In a second step, we apply our framework to three case studies, with the goal to identify empirical regularities in the individual pathways related to the emergence and success (or failure) of innovation strategies.

General analytical framework

In environmental as in other policy areas, it is clear that the course of action rarely follows mechanically the paths set out in policy designs, and that field actors should not be seen as the empty recipients of general and abstract rules they are eager to bring into life in the real world. This explains why the deficit – or gap, to borrow a less negatively connoted term (Dunsire 1978: 18) – between initial expectations and effective realisations can be wide. In that respect however, if analyses of failed implementation (leading to a well-known negative gap) are common, endeavours of innovation overpassing what is prescribed (and thus leading to a form of *positive gap*) are rarely accounted for. We refer to these strategies by which actors seek to develop *ad hoc* solutions going beyond what is provided for in policy designs as “innovative implementation”. As such, innovative implementation is thus to distinguish from the “implementation of innovations” (O’Toole 1997), which refers to the translation into practice of governmental intention to innovate; here the intention clearly come from non-state actors embedded in concrete situations of collective action.

Although implementation studies represent a long and rich research tradition whose interests precisely lie in the study of collective action, we argue that they are too narrowly conceived to fully capture these processes of innovative implementation. This is not to say that the sub-discipline represent a unified field – clearly, “no general implementation theory has emerged” (Winter 2012: 256) – but only to recognize that it remained dominated by (if not captive of) mainstream trends the long-enduring nature of which appears problematic. Schematically and in a voluntarily caricatured way, implementation research tends to adopt a “straightforward ‘top-down’ orientation” (Hupe 2011: 65), with an inclination to consider concrete action mainly as a problem of transmission and application of legislative provisions decided at the top. The focus is on ‘goal compliance’ (Winter 2012), and a rather pessimistic tone is widespread (Hill & Hupe 2009: 45), reflected in research questions formulated in terms of barriers, deficits, or problems (e.g., Nilsson et al. 2009; Dupuis & Knoepfel 2011). The perspective is relatively state-centred, and tends to focus on interactions between the top- and street-levels of the administration rather than to explore what might stimulate innovative strategies among civil society actors. Concretely, what has to be explained are the negative gaps between the goals of a sectoral policy and the outputs, impacts or outcomes.

This traditional approach reveals a “myopic nature” (Jochim & May 2010: 204) that, in our view, is problematic when it comes to the analysis of collective action as whole. If “explaining [...] the way policy intention influences policy action is the research agenda” (O’Toole 2000: 283), then there is a strong need for an “appropriate broadening” (Ibid.; in the same vein, Hill & Hupe 2009: 16). The proposed analytical framework¹ must precisely be viewed as an attempt to do so. It relies on the two core beliefs that, first, a “continued awareness of the [...] bottom-up challenge remains important” (Hill & Hupe 2009: 58) given the dominance of a top-down perspective and that, second, the need “to set implementation research in a political science setting” (Hjern & Hull 1982: 105) is still vivid. More concretely, implementation processes are understood as broader “social interaction processes” (De Boer & Bressers 2011) within which actors pursue diverse strategies – “innovative implementation” being one of them.

In line with bottom-up scholars who advocated a focus on problem solving rather than goal achievement (Winter 2012: 257), the analytical lens consists of a given (set of) problem(s). We assume that the actors engaged in social interaction process “are bound together by a common problem that needs to be collectively solved” (Khan 2010: 199). In that sense, the problem as *socially constructed* by the relevant actors represents the starting point. In our case, that means the analytical lens consists of a concrete environment-related problem, covering a large spectrum of potential issues (resource depletion, pollution level, disaster risks, etc.).

The proposed framework (see figure 1) maintains the ‘process’ perspective inherent to implementation studies, assuming that “several inputs are [...] ‘processed’ into something new and different” (De Boer & Bressers 2011: 60). This is thus a *conversion process* we are talking about, not a temporal one. Each component – inputs, process in itself, and results – is conceptualized as to emphasize both the “multi-layered structural context” of collective action and the “role of multiple social actors in arrays of negotiation, implementation, and service delivery” (O’Toole 2000: 276)

The concept of ‘*Institutional Regime*’ (Knoepfel 2007, Gerber et al. 2009) is, first, substituted to narrower notions of ‘policy design’ or ‘boundary-spanning regime’ (Jochim & May 2010). Recognizing that policy designs are not the only overarching institutions having a strong impact on environmental issues, institutional regimes also integrate the influence of property regimes (well-known to institutional economists, cf. Bromley 1992; Schlager & Ostrom 1992). More concretely, they regroup all general and abstract provisions related to a given resource, as part of either public policies (in a multi-sectorial perspective) or property regimes. Embedded in wider and case-specific layers of context, they represent a set of constraints and opportunities shaping actors’ choice and behaviour.

Second, implementation processes are extended to more complex ‘*social interaction processes*’ (De Boer & Bressers 2011) within which (coalitions of) actors play strategic ‘games’ (Bardach 1977, Scharpf 1997). The idea of games thus serves

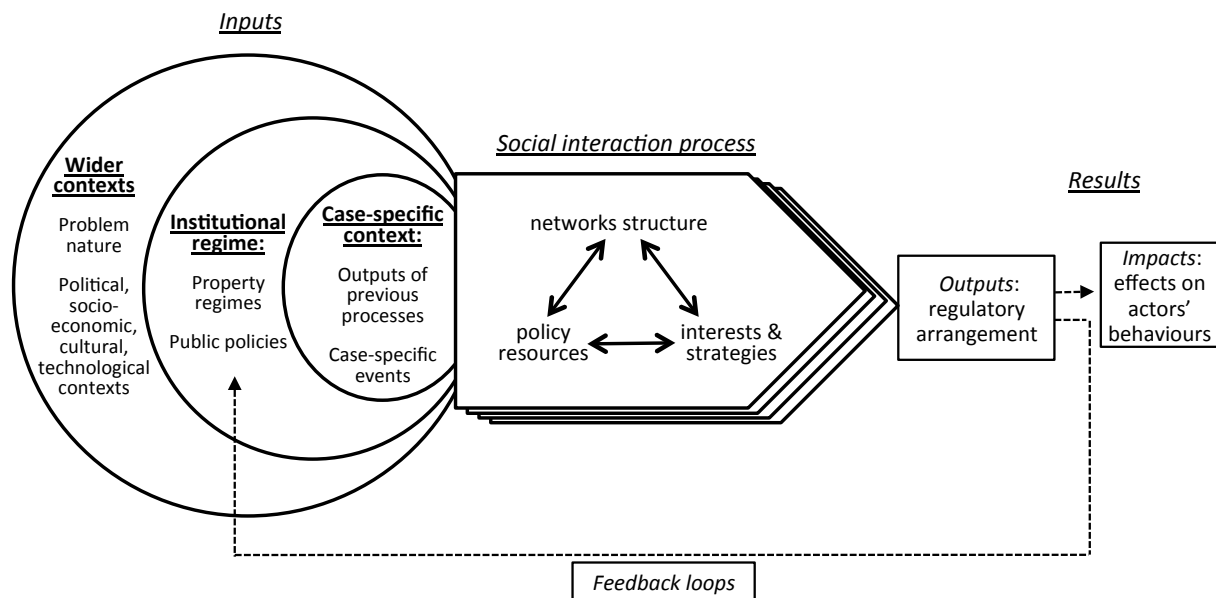
as a master metaphor that directs attention and stimulates insight. It directs us to look at the players, what they regard as the stakes, their strategies and tactics, their resources for playing the rules of play (which stipulates the conditions for winning), the rules of “fair” play (which stipulate the boundaries beyond which lie fraud or illegitimacy), the nature of the communications (or lack of them) among the players, and the degree of uncertainty surrounding the possible outcomes. (Bardach 1977: 56)

¹ An earlier version of the framework was presented in April 2013 at a cycle of seminar on policy implementation held at the University of Lausanne (Schweizer 2013, available online in French).

More particularly, the game metaphor supposes to decompose the black box that interaction processes represent in three elements: the structure of the actors' network (which actors are playing and how do they interact?); their endowment in policy resources (which cards are they holding?); their interests and the strategies they pursue (which cards do they play? are they trying to cheat? to play in creative and innovative ways?).

Finally, the results of these social interaction processes are considered to be threefold: bringing together all the concrete decisions, bilateral contracts or community agreements reached by the actors, 'regulatory arrangements' (Schweizer & Knoepfel 2011) are considered as the output; *impacts* (Knoepfel et al. 2011: 244) refer to the effects in the real world, more specifically on the actors' behaviour; *feedback loops* on the institutional regimes are, in a last step, also considered. All in all, these three levels materialize different degree of success of a given strategy in the social reality, somehow determining the winners and losers of the game.

Figure 1: analytical framework for the analysis of social interaction process



Source: adapted from Schweizer (2013: 14)

Specific operationalization

The analytical framework developed in figure 2 is, in comparison to the traditional approach of implementation studies, more appropriate to capture the wicked nature of environmental issues, the complexity of collective action addressing them and, last but not least, phenomena of "innovative implementation". Designed as a comprehensive framework, it aims at addressing a wide variety of research questions, with a large range of potential (in)dependent variables and causal assumptions. In that sense, the framework is nothing but a focus, a way of organizing thoughts and driving scholars' attention. The operationalization and exact weight given to each element will then depend on the specific interests and research questions of the analyst.

The rest of this contribution precisely consists in an operationalization and confrontation of this framework to empirical reality. As far as this paper is concerned, the attention is centred on strategies of “innovative implementation”. Through three case studies, we more particularly address the question of whether and under which conditions non-state actors defending innovation strategies can come out as winners of social interaction processes. The dependant variable consists in the success or failure of a strategy of innovative implementation (point 3), and the main explanatory variables of interests in the endogenous elements of the social interaction process (point 2). As these processes do not take place in a vacuum, the influence of contexts and exogenous variables will also be questioned (point 1).

1. Inputs

Inputs represent a set of constraints and opportunities that shape actors’ choice and behaviour and, therefore, influence to some extent the results of a given process. We distinguish three embedded layers of context: wider (problem nature, socio-economic, political, etc. trends); institutional (institutional regime); and case-specific (regulations, circumstances or events specific to the case under inquiry). More precisely, institutional regimes refer to the general and abstract rules related to a given resource or issue, with a focus on two steering dimensions: the policy designs in a cross-sectoral perspective (public law), and the property regimes (private law). In each case, institutional regimes are characterized by a specific *extent* (number of provisions) and *coherence* (coordination between objectives and instruments, potentially competing regulation logics, etc.) and can be qualified as weak (low extent), complex (high extent but low coherence), or strong (high extent and high coherence).

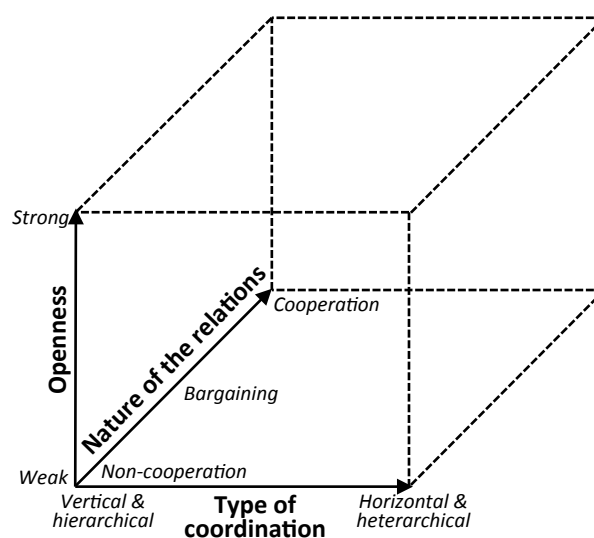
2. Social interaction process

Social interaction processes are composed of three interrelated groups of endogenous variables: the structure of the actors’ networks; their policy resources endowment; and their competing interests and strategies.

2a. Networks structure

The first component is the structure of the networks within which actors (i.e. the players of the game) are embedded, related to the success of innovation strategies to the extent that it acts as operational rules which restrict the access of actors to the decision arena and constrain their capacity to act (Schlager & Ostrom 1992). By ‘actors’, we refer to both state and non-state actors, be they target groups, beneficiaries, or third parties (Knoepfel et al. 2011: 57). Relying on the contributions of Tichy et al. (1979), Waarden (2006) and Dupuis & Knoepfel (2013), we identify three dimensions to characterize these networks (figure 2): the openness (the greater the number of actors, the stronger the openness), the type of coordination (vertical and hierarchical vs. horizontal and heterarchical), and the nature of the relations (from non-cooperation based on confrontation to cooperation based on trust, with bargaining interactions based on an exchange of policy resources in-between). In each case, the interactions between these elements are complex and in permanent evolution, and different coalitions of actors are likely to emerge.

Figure 2: continuum of modes of interactions



2b. Policy resources

Each actor is characterized by a capacity of action (i.e. a 'hand' of cards) that determines precarious, ever-evolving balances of power within the actors' networks. To apprehend this capacity of action, we rely on the notion of *policy resources endowment* (Knoepfel et al. 2011), which brings together all the "resources that public and private actors will be able (or not) to produce and mobilise in the course of the policy formulation and implementation processes" (p.69). Knoepfel et al. (2011: 69ss) identify ten of them, which can be combined, conserved, or exchanged by actors in order to reach their objectives: law, personnel, money, information, organisation, consensus, time, infrastructure, political support, and force. Among them, a specific focus will be put on those more specifically linked to the capacity to initiate and foster coalitions: *organisation* (which refers, inter alia, to the capacity to organise collaborative interaction or to the presence of shared values) and *consensus* (which refers, inter alia, to the creation of trust-based interaction).

2c. Interests & strategy

The actors who are bound by a collective problem and engaged into the social interaction process addressing it can pursue diverse strategies, which we define in relation with the institutional regime. In fact, depending on their position in the actors' network and their endowment in policy resources, on the specific interests they pursue (personal vs. altruistic; substantive vs. political; etc.) and their capacity to build coalitions around those, actors will choose the strategy they perceive as the most suited to their objectives. Passivity, concretisation, diversion, circumvention, innovation are the five potential competing strategies we identified in an earlier contribution (Schweizer 2013):

- *Passivity*: when an actor choose not to act (i.e. not to mobilize or refer to a given rule) in order to favour the status quo (deliberate inaction), or when inaction is not a choice but is induced by an insufficient endowment in policy resources (suffered inaction)
- *Implementation*: when an actor seeks to implement a rule or activate a right as closely as possible to its formulation and its intent
- *Diversion*: when an actor seeks to implement a rule or activate a right to other ends than intended in its formulation
- *Circumvention*: when an actor tries to resist to the implementation of a given rule, either by invoking another one, or by knowing that its behaviour won't be punished (circumvention '*en règle*', as Bourdieu 1986: 41 put it).

-
- *Innovative implementation*: when an actor tries to develop an *ad hoc*, tailor-made solution to address a given problem, going further than what is provided for in the institutional regime

In this research, a specific focus will be put on strategies of innovation by non-state actors.

3. Results

The success or failure of innovation strategies is defined as the dependant variable. An actor-based perspective is adopted to assess this variable, which will be qualified *from the point of view of the (coalition of) actors pursuing the innovation strategy*. More concretely, we will evaluate the degree of success of an innovation strategy by answering questions related to three criteria:

- *outputs*: do the (coalition of) actor(s) obtain a modification of the regulatory arrangement in a way that is congruent with their strategy? (i.e. formal or informal materialization in the regulatory arrangement)
- *impacts*: in the continuity, do the (coalition of) actor(s) obtain a modification of the actors' behaviour in a way that is congruent with their strategy? (i.e. effects in the 'real' world)
- *feedback loops*: do the (coalition of) actor(s) obtain a modification of the institutional regime in a way that is congruent with their strategy? (i.e. institutionalization of the strategy and potential transfer to other cases)

Each of these criteria will be evaluated on a scale in relation to the answer given to the related questions: yes, partly, or no. This approach is in our opinion interesting for two reasons. Because, on the one hand, it sets a standard for evaluating the degree of success of a given strategy from an actor-centred perspective; and because, on the other hand, it brings back into the analysis the seminal question of 'who gets what, when and how' (Lasswell 1936), that is the identification of the winners and losers of the game.

Methods

The research is at the interplay between theory-testing and theory-building (Eisenhardt 1989), with the primary goal of broadening our understandings of implementation processes, and the secondary goal of strengthening empirical knowledge regarding endeavours of innovative implementation. Despite an important conceptual and theoretical background, we followed a mainly inductive logic. The operationalization of the analytical framework was indeed not given *a priori*, but progressively emerged through constantly going back and forth between the existing literature, conceptual assumptions, and empirical observations. This concretely resulted in a research process neither linear, nor mechanical, but that rather went in fits and starts – the conceptual, methodological and empirical always going hand in hand in an iterative process.

The research design is case-centred, comparative, and explorative, relying on the "intensive investigation of a small number of cases" (Hall 2008: 304). It is 'case-centred' because it aims to grab the singularity of each case under investigation, those being defined as bounded empirical phenomena composed of "complex configurations of events and structures" (Ragin 2000: 57); 'comparative' because it assumes that "knowledge can be derived directly from the study of cross-case patterns" (Ibid.), and therefore aims to highlight empirical regularities across cases in order "to increase the confidence that the causal process observed is not idiosyncratic in one of them" (Hall 2008: 315); and 'explorative' because we decided not to formulate *ex ante* causal hypothesis at this stage, but rather to test more generally the explanatory power of the framework developed in figure 1.

In more details, each of the three cases under inquiry is centred on a specific environmental or resource issue that constitutes the starting point of the analysis: a water catchment protection in Lombok island, Indonesia (specific issue: reforestation of watersheds); an industrial landfill in Bonfol, Switzerland (specific issue: remediation of contaminated sites); and an irrigation network in Nendaz, Switzerland (specific issue: prevention and reparation of flood risks). The focus is put on the collective action addressing these issues at a very local level, with a specific emphasis on the strategies of non-state actors. The three cases were selected among the wide pool of empirical knowledge provided by our respective field works (numerous in-depth case studies). Not as formalized as what more deductive approaches would require, the selection was based on an intuitive and empirically grounded process. The elements taken into account were in that sense some specific features that made the cases empirically relevant with regards to our research question. With the goal to shed light on regularities related to the “the particular pathways that individual cases follow to arrive at their specific values on the dependent variable” (Mahoney & Goertz 2010 : 237) in highly different context, we applied the following logic: we chose what we perceived as highly different cases within which a (coalition of) non-state actor(s) tried to pursue an innovation strategy (invariant). Table 3 recapitulate the main characteristics taken into account:

Table 1: Description of cases characteristics

Case	Type of issue	Context
Lombok (Indonesia)	- reforestation of watersheds	- emerging country
Nendaz (Switzerland)	- prevention and reparation of flood risks	- most developed liberal-democracy
Bonfol (Switzerland)	- remediation of a contaminated site	- most developed liberal-democracy

Case studies

Case 1: reforestation of watersheds in Lombok (Indonesia)²

1. Inputs: embedded layers of context

A traditional way to efficiently produce drinking water is to catch raw water from underground aquifers in (or under) forest areas. Trees provide a passive protection (few activities) and forest soil an active service of filtration and purification. This widely known natural interdependence is used all over the world. Because any changes in the land uses upstream impact the water quantity and quality of the springs downstream, regulations of recharging areas appear to be central.

In Indonesia, however, the situation is problematic in that respect. Following the decentralization at the beginning of the 2000s, a collapse of the state authoritarian control over forests has been observed. The island of Lombok in Eastern Indonesia experienced a so intensive deforestation and transformation of forests into gardens that the provincial environment agency noticed that 50% the springs had dried up. On a small arid island with limited water resources and increasing needs of an urbanizing population, where desalination is not affordable, this “Forest for Water” issue is vital.

These destructions took place in a context of unclear property rights attribution and lacunar sectoral public policies. Property rights definition is problematic because the ministry of forestry claims exclusive ownership where local communities consider forests as their traditional lands. Simultaneously, the very sectorial approach of the forest policy limits the implementation of water protection in forest areas. The institutional regime must thus be considered as weak in the present case, with only limited effects on concrete land use behaviors.

Since the mid-2000s, ecological economists have promoted Payments for Environmental Services (PES) to solve such problems. Based on the concept of “coasean transaction”, PES do not rely on public regulation but consist of bilateral agreements. The idea is that beneficiaries of environmental services (in the present case the water consumers) should pay the service providers (the land users), in order to adapt the behavior of the latter and, in doing so, guarantee the service. In a weak institutional context such as the one related to the Indonesian forests, much hope has been put on PES.

2. Social interaction process: actors’ network, policy resources, interests and strategies

West Lombok regional administration failed to protect forests in the recharging areas of the water catchments. Observing the degradation, different local actors decided to work together to promote PES as an alternative: the regional water supply company (PDAM), the regional program of the WWF Indonesia (WWF-NT), and a NGO supporting local communities (Konsepsi). This activism was not oriented by chance, but was a clear strategy to attract attention and funding through the implementation of a new type of regulatory arrangement. With limited policy resources, but well aware of the opportunities around PES, the coalition raised support from international actors (ICRAF, UNDP and Ford Foundation). In short, they managed to “surf the wave” of the PES trend. In accordance to our framework, this initial actors’ network can be described as widely open, with cooperative relations and heterarchical type of coordination. Members mobilized organization, consensus and information policy resources to obtain financial and communication support from international actors.

The coalition started by documenting the problem, assessing the value of the environmental services, and measuring the water consumers’ willingness to pay. Based on encouraging results, the coalition tried to implement pilot-projects. This paved the way for the establishment of punctual arrangements (in form of PES), which turned in a second phase into a regional incentive policy de-

² The detailed Lombok case study will be published soon (De Buren 2013) and available online.

signed to secure the “Forest for Water” service in West Lombok. The PES were indeed innovative, but circumvented the regional administration. Initially only an observer, the regional government managed in 2007 to take the lead by promulgating a regional regulation on environmental services management. This transition is a highly complex process during which the early coalition managed to be incorporated in the new implementation structure. For the regional government, this embedment of the scheme in a policy is a way to control the process and the money transfers. According to our framework, the openness decreased, the interaction became more hierarchical, and relations turned to bargaining type involving policy resources such as political support and consensus.

3. Results: outputs, impacts and feedback loops

We consider the results of the described process as a successful innovation strategy in reference to our indicators (outputs – impacts – feedbacks on the institutional regime).

- *Outputs (yes)*: the local actor’s coalition managed to implement some PES, a success that has been widely praised and communicated. The concrete activities consist of reforestation and land use conversion (rice fields transformed in agro-forest plots).
- *Feedbacks (yes)*: the communication around this output led, in a second step, to a more crucial result: the creation of a new incentive regional policy by which farmer groups have the opportunity to request funding for afforestation activities and local community strengthening activities. In order to cover the costs of these activities, the regional government set a new tax on water consumption. In that sense, the payments switched from voluntary transactions (bilateral) to a compulsory fee and a decision to allocate funds (unilateral). Thus, the new policy deleted the initial PES and created a new type of actors’ network. This change came through a modification of the institutional regime that gave the opportunity to the two NGOs to be embedded in the implementation structure, thus strengthening their position.
- *Impacts (no)*: an additional element to be discussed is the apparent lack of impact. The regional incentive policy is implemented without any targeting based on hydrogeological studies. This means that activities are conducted independently of their benefits for ground waters, sometimes far away from water catchments. Based on that, we cannot describe a success when it comes to the impacts. However, from the point of view of the coalition members, this does not diminish the success of their strategy. Long discussions with them convinced us that their objectives were not limited to water protection, but more focused on the achievement of PES, the politicization of the issue, the capture of external funds, and their own promotion.

4. Conclusion: explanatory factors of the results

This case shows how a non-state actors’ coalition can concretely influence a public policy. The specific Lombok context, where the institutional regime is too weak to influence actors’ behaviors, is a key starting point. When mobilizing PES, actors did not plan to modify the institutional regime, but only to create an *ad hoc* regulatory arrangement. The embedment, by the regional government, of the PES scheme into a public policy is rather a consequence (feedback loops) of a first success in terms of output. Thus, we consider it as a success even though it was not strategically planned at the beginning of the process. In this case, the importance of (indirect) institutional stakes (communication, marketing, funding capture, etc.) seems to be higher than the (direct) substantial issue (water quality and quantity). The main result for the coalition’s members is also institutional: their embedment in the policy implementation structure. In other words, their role and position in the network of actors became institutionalized, granting them access to future decision-making processes.

Case 2: flood risks prevention and reparation in Nendaz (Switzerland)³

1. Inputs: embedded layers of context

Nendaz is a touristic resort situated in the Swiss alpine canton of Valais where, although tourism replaced agriculture as the major economic activity in the 1970s, the latter remains important. Like in many other places of the canton, the crops grown there have been watered since time immemorial by open-sky water channels (*bisses*) hollowed out of the ground or attached to the sides of vertiginous precipices. Far from representing the relics of a bygone agro-pastoral age, *bisses* are now conceived as “multifunctional objects” (Reynard 2005) at the interface between agriculture (mean of supplying irrigation water) and tourism (hiking on their maintenance paths).

This diversification of uses does however not go without saying. Rather, it raises several issues among which flood risks can be a major concern with such open-sky channels. This risk is, indeed, intensified in two ways: the growing number of tourists and dangerous behaviours (depredation, obstruction) increases the likelihood of such events, while the multiplication of habitations alongside *bisses* amplifies potential consequences. In 2012 for instance, an overflow caused by several intentional obstructions of the *bisse Vieux* (one of the main *bisses* of the Municipality), although rapidly contained, could have caused major damages. In this context, the main concerns regard both prevention (appropriate maintenance, control of behaviours) and reparation (civil liability).

Built and (historically at least) managed by local user groups (*consortages*)⁴, *bisses* are characterized by self-organized modes of governance whose continuity has been guaranteed by the Swiss Civil Code (art.59 al.3). Although few provisions directly concern irrigation, public policies designed to address water or other related questions also have an indirect effect (Schweizer & Knoepfel 2013), not without provoking contradictions with the traditional community regulation. In that sense, the institutional regime must be considered as complex. As for civil liability, the Swiss Code of Obligations states that the “owner of a building or any other structure is liable for any damage caused by defects in its construction or design or by inadequate maintenance” (art.58 CO). A 1973 cantonal judgement confirmed that *bisses* must be considered as a “structure” in the sense of this article, and that *consortages* shouldered the related liability (RVJ 1973 326). In this context, *consortages* executive bodies (*comity*) appear to be in a tricky situation in case of flood events because of the potentially high financial costs of civil reparation.

2. Social interaction process: actors’ network, policy resources, interests and strategies

Since the beginning of the 1990s, the *Consortage* of the *Bisse Vieux* (CBV) has been particularly active in putting risks and liability issues on the agenda. Alone or in coalition with other *consortages*, it obtained evolutions of the regulatory arrangement towards more polycentric governance structures. Although the role of traditional *consortages* remained significant, some tasks related to maintenance and exploitation have progressively been transferred to other local actors (Municipality, Tourism office), while cantonal entities also started to play a more important role. The structure of the actors’ networks can thus be described as strongly open and horizontally coordinated.

In recent years, the regulatory arrangement was perceived as unsatisfying by the CBV, who once again pressured to obtain some evolutions. More concretely, it made a double request in August 2010: to give *consortage* leaders the possibility to impose fines in order to improve the control of behaviours (‘fines request’); and to conclude a bilateral agreement with the commune regarding civil liability, towards a form of shared liability (‘civil liability request’). The fear of the financial consequences of an overflow (in relation to the civil liability of art.58 CO) seems to be the most important

³ The detailed Nendaz case study is published (Schweizer 2012) and available online.

⁴ They provide interesting examples of common-pool resources (CPR) governance (Ostrom 1990).

driver behind this strategy. The interest is thus both self-centred and substantive (the goal is to obtain concrete impacts in the 'real' world).

In a first step, the CBV did not get any concessions. Isolated in the actors' network, unable (or more precisely uninterested) to initiate a coalition, and facing a strategy of total passivity from the Municipality, it was not in a position to negotiate; its bargaining efforts clearly appeared unsuccessful. It is only after the flood event of 2012 that things began to take off: the consortage decided to alert the media, and to cut off water (mobilization of policy resources force, infrastructure and information). In this second step, the nature of the relations clearly moved towards confrontation. If no compromises were reached regarding the 'fines request' – local authorities made it clear that such a possibility would not be granted to non-state actors, the Municipality accepted to take over civil liability until the end of the irrigation season, and to reach a more perennial solution for 2013. At the beginning of the 2013 irrigation season however, even though the temporary agreement has expired and despite the Municipality commitment, no long-term solution has been reached⁵.

3. Results: outputs, impacts and feedback loops

The process described above represents a case of partial success for the innovation strategy. Regarding the three indicators identified, the results are the followings:

- outputs (*partly*): the outputs of the process take the form of both a temporary arrangement (agreement regarding civil liability limited to the 2012 season) and a series of 'non-decisions': no decision related to the 'fines request'; and no perennial decision related to the 'civil liability request'. Hence the CBV was able to modify the regulatory arrangement in a way that is only partially congruent with its initial strategy.
- impacts (*partly*): in the same vein, the impacts on actors' behaviour are only partial: inexistent in relation to the 'fines request' (consortage members cannot impose fines); limited to 2012 with regards to the 'civil liability request' (the consortage is liable again for year 2013). In that sense, the aforementioned regulatory arrangement does not resolve the 'civil liability issues' on the long term (at least not for the moment).
- feedbacks (*none*): the analysis shows no modification of the institutional regime. It is however interesting to note that such a generalization never was an objective of the CBV. The problem was constructed as a local one, and was never taken to cantonal or national arenas. The CBV clearly did not seek an institutionalization of the proposed solutions (modification of the rules of the game), but only an implementation in the case of the bisse Vieux (modification limited, so to say, to one specific game).

4. Conclusion: explanatory factors of the results

From an apparently unfavourable initial situation (clear provision regarding civil liability in the institutional regime, isolated position in the actors' network, incapacity to initiate a coalition or to engage in bargaining interactions), the CBV nevertheless managed to obtain some outputs and impacts partially congruent with its strategy. The pivotal elements here seem to be the conjunction of a case-specific event (the flood of 2012) and a capacity to mobilize and combine its policy resources at the right time: *information* (alert of the media); *infrastructure* and *force* (shutting-down of the water supply); and *time* (good timing: just after the flood event *and* in the middle of the irrigation season). It is interesting to note that, in that respect, the temporary agreement of 2012 was not obtained through cooperation (collaboration, mutual trust) or bargaining (exchange of policy resources), but rather through more conflictual relations; it was only when clearly challenged and confronted that the Municipality consented to some compromises.

⁵ Situation in May 2013.

Case 3: disposal site in Bonfol (Switzerland)⁶

1. Inputs: embedded layers of context

Even in Switzerland, a most developed liberal democracy often praised for its environmental records, public regulations concerning the management of industrial waste remained particularly lacunar throughout most of the 20th century. The responsibility for the storage and elimination of industrial waste frequently provoked disputes between firms and public authorities, and fly-tipping was relatively common. The situation changed when the national authorities enacted the first law on the protection of the environment in 1983, which clearly attributed the responsibility to eliminate waste in an innocuous way to its producer. However, this paradigmatic shift emerged too late to avoid the pollution of the soil and water of about 50'000 sites because of the anarchic deposit of industrial and – sometimes – household waste into the ground.

After the definitive prohibition of toxic waste storage in the ground in the beginning of the 1990s', the national authorities drafted a new ordinance on the remediation of contaminated sites in 1998, which commanded to secure and decontaminate the most polluted areas. This new institutional context must be considered as "strong", since most of the adverse effects of dumpsites would now come under the rule of coherent regulations. However, the exact modalities and objectives of remediation were purposely left open, implying negotiations during an implementation phase initially characterized by neo-corporatist types of actors' networks (quasi-horizontal coordination between a few number of private firms and the sub-national administration).

It is in this context that in 1998, the comparatively small and low developed canton of Jura (nearby the French border) requested a consortium of famous chemical multinationals⁷ to fully remediate a site near the small village of Bonfol. This site had been contaminated by an industrial landfill – the second biggest of this type in Switzerland – which had been used by the chemical multinationals to store various sorts and arts of toxic chemical waste including dangerous dioxins.

2. Social interaction process: actors' network, policy resources, interests and strategies

Unsurprisingly, the request met a frontal resistance of the firms, which had developed a sophisticated rhetoric about the fact that Bonfol site was in reality already conform to the law and that full remediation was unnecessary. Conflicting negotiations between public authorities and the chemical multinationals had been going on for almost two years when Greenpeace occupied the site and launched an impressive shock campaign involving more than 100 volunteers dressed in bacteriological suits and gas masks. This episode came to be known as one of the most famous environmental controversies in Switzerland.

The public pressure became such that the multinational companies backed down in 2000 and accepted to remediate the site. Greenpeace, now regrouped within a collective of NGOs, were integrated in the process through the creation of a deliberative and opened platform including public authorities from all levels of governance, as well as private companies. Sub-national state authorities had the formal authority to steer the process. However, its lack of information and technical expertise resulted in a *de facto* dependency and horizontality of state coordination mechanisms with firms and NGOs. The NGOs used this actors' network structure to push for higher environmental integrity in the remediation process, and tried to make a case out of this as to enshrine stronger environmental standards in formal regulations. Through their technical expertise, the NGOs manage to point out several weaknesses in the approach championed by the multinationals in the first remediation plan proposed in 2003. They raised awareness around the gaps in the remediation plan, pushing the sub-national authorities to request numerous revisions.

⁶ The detailed Bonfol case study is published (Dupuis & Knoepfel 2013) and available online.

⁷ Including BASF Schweiz AG, Clariant, Novartis, Syngenta, Roche, Rohner, CABB AG and Henkel.

The relations between public authorities and NGOs on the one hand, and chemical multinationals on the other hand were conflicting. They involved disputes over the environmental objectives to be achieved and the cost of the remediation, in relation to which the firms requested a public participation. Craftily, the firms managed to bypass the deliberative platform in which the NGOs had gained influence. They concluded a new exclusive agreement with the sub-national authorities, stating that future decisions regarding the remediation would have to be taken behind closed doors, excluding NGOs, in exchange of the firms' guarantee to assume the full costs of remediation.

This new agreement paved the way for the formation of a new coalition between chemical multinationals and sub-national authorities, who shared a common interest in realizing the remediation as quickly as possible and complying minimally with the requirements of the institutional regime. The NGOs, although deprived from their main canal of influence on the decision process, did not give up and tried to realize their strategy of enhancing the environmental integrity by other ways. Showing a remarkable ingenuity, they rented a land nearby the site of Bonfol and used the right of appeal as conferred to neighbors against the spatial planning procedures implied by the remediation. The case was heard by an administrative court and, following lengthy discussions, the chemical firms ultimately conceded to most of the NGOs demands.

3. Results: outputs, impacts and feedback loops

We consider the results of the described process as a successful innovation strategy in reference to our indicators (outputs – impacts – feedbacks on the institutional regime).

- *Outputs (yes)*: the coalition of NGOs manages to shape a regulatory arrangement that goes beyond the environmental protection standards of the institutional regime. Their demands were more precisely materialized by a judgment that includes provisions related to a strengthening of the remediation techniques; more transparency in the monitoring and communication related to the state of the environment during the remediation; and the consultation of NGOs for any further and significant requirements.
- *Impacts (yes)*: the decision obtained by the NGOs had clear impacts on the behavior of the actors involved in the remediation. All activities, monitoring and evaluation reports produced since the beginning of the concrete remediation process in 2009 indeed demonstrate congruent impacts in the form of the compliant behavior of the chemical companies.
- *Feedbacks (no)*: the judgment pronounced by the court did not result in a modification of the institutional regime and the action of the NGOs pertains to the specific case of Bonfol. This is due to the fact that the right to appeal of NGOs in this case concerned the revision of a single local level spatial planning procedure, which is not related to the higher-level institutional regime of contaminated sites.

4. Conclusion: explanatory factors of the results

The relative success of the NGOs' strategy in producing outputs and impacts can be explained by the conjunction of several mechanisms. First, the fact that the institutional regime did not define strictly goals and techniques of remediation trigger the perception of NGOs that the prescriptions on environmental integrity should be strengthened. Second, the structure of the actors' network combined with the repartition of policy resources appeared essential to understand the success of the innovation strategy. NGOs disposed and mobilized resources in terms of organization and force as to occupy the site of Bonfol and employed the wide popular support related to this action to request the network to open. The skewed repartition of information and expertise on remediation techniques created horizontality in the coordination and allowed the NGOs to weight on the decision process. Finally, after their exclusion from the actors' network, NGOs manage to obtain what they wanted by using in their favor the law, which stemmed from the acquisition of land (infrastructure).

Results comparison and discussion

The presented cases provided in-depth empirical accounts of the social interaction processes related to three strategies of innovative implementation: from a coalition of NGOs in Lombok (PES scheme implementation); from an individual non-state actor in Nendaz (requests related to the prevention and reparation of flood risks); and from another coalition of NGOs in Bonfol (enshrinement of higher environmental standards for remediation processes). In this comparison and discussion section, we come back to the degree of success of these attempts of innovation, before identifying empirical regularities in the individual pathways that led to these results.

Degree of success of the innovation strategies

Table 2 summarizes, based on the three levels identified to qualify the dependent variable, the degree of success of the innovation strategies from the perspective of the actors pursuing it:

Table 2: comparison of the degrees of success of the innovation strategies

	Outputs (<i>modification of the regulatory arrangement</i>)	Impacts (<i>modification of the actors' behavior</i>)	Feedbacks (<i>modification of the institutional regime</i>)
Lombok	Yes	No (<i>but secondary objective</i>)	Yes (<i>in a second phase</i>)
Nendaz	Partly	Partly	No (<i>but not targeted</i>)
Bonfol	Yes	Yes	No (<i>but secondary objective</i>)

As illustrated in table 2, the innovation strategies met, from an actor-based perspective, with various degrees of success. If no case demonstrates full congruence (three 'yes'), the strategy appears to be quasi-successful in two cases: Lombok and Bonfol. Indeed, the coalitions involved in these cases obtained results (and in particular outputs) congruent with their strategies. The two levels for which the evaluation is negative appeared in fact secondary in their perspective: surprisingly, the coalition of NGOs did not mainly focus on effectively changing actors' behaviors in Lombok (*impacts* were not dominant); and, because of an anticipation of the difficulties to modify the institutional regime, the main objectives were case-specific in Bonfol (*feedbacks* were not dominant). From the point of view of the coalitions, the results are thus congruent with their main goals; that is why we are talking of *quasi-success*. Following the same reasoning, the success in the case of Nendaz must be considered as only partial: the consortage obtained only mitigated results on the two levels it targeted.

More generally, our fieldwork illustrates how field actors do not necessarily aim to succeed on all three levels. If feedback loops on institutional regimes can be part of the strategy, leading, if successful, to cases where concrete action precedes policy (Barrett & Hill 1984), this is not systematically the case: the strategy was clearly case-specific in Nendaz, and feedbacks only secondary in Bonfol; in Lombok, feedback loops were obtained without being initially part of the strategy. In other words, field actors do not necessarily seek an institutionalization of their strategy (modification of the rules of the game), but sometimes only pursue case-specific interests (modification limited to one specific game). In fact, if modifications of the institutional regime through feedbacks surely are attractive, in the sense that they set in stone a given innovation and ensure its transfer to other cases, they can be very difficult to obtain (in terms of policy resources, etc.).

More surprisingly, if we move from an actor- to a problem-based perspective, our cases highlight how innovative and creative strategies are not necessarily positive in terms of environmental integrity. Actors – even beneficiaries such as NGOs – pursue their own interests, which do not only aim at improving the 'environment': here they want to stabilize their position in the actors' network (Lombok, Bonfol), there their interests are mainly financial (Nendaz). In the case of Lombok, we even show that substantive stakes in terms of impacts were relegated after institutional issues. The positive gap we expected may thus in fact be neutral, or even negative when it comes to problem solving.

Regularities in the individual pathways

Innovation strategies emerged, and (partially) succeeded, independently of the type of institutional regime, i.e. even in strong (Bonfol) or complex (Nendaz) ones. On a closer look however, it seems that innovative implementation is probably facing fewer obstacles in weak institutional regimes (Lombok) or when it targets elements that are not explicitly regulated in strong or complex regimes (Bonfol, where the modalities and objectives of remediation were purposely left open). On the contrary, innovation appears more difficult where a clear rule exists (civil liability in Nendaz).

If institutions certainly matter to a certain extent, our cases nevertheless demonstrate that the (partially) successful “innovative implementation” strategies resulted from complex processes in which various variables and mechanisms interacted. Without denying the diversity of each case, table 3 identifies regularities in the pathways specific to each case: a contextual change or event (input); a capacity for the actors to surf the wave (process); and a certain result.

Table 3: regularities in the individual pathways

	Lombok	Nendaz	Bonfol
1. Inputs <i>Contextual change or event</i>	- general trend towards PES (change in wider context)	- overflow in 2012 (case-specific event)	- enactment of the ordinance on the remediation of contaminated sites in 1998 (change in the institutional regime)
2. Process <i>Capacity to surf the 'wave'</i>	- creativity in the mobilization/combination of policy resources: information; consensus; organization - presence of a coalition in an actors' network characterized by a strong openness; heterarchical coordination; and cooperative relations.	- creativity in the mobilization/combination of policy resources: information, infrastructure, force, time - absence of coalition in an actors' network characterized by a strong openness; heterarchical coordination; and non-cooperative relations.	- creativity in the mobilization/combination of policy resources: information, force, organization, public support, law - presence of a coalition in an actors' network characterized by a strong openness; heterarchical coordination; and non-cooperative relations.
3. Results	<i>Quasi-success</i>	<i>Partial success</i>	<i>Quasi-success</i>

In all three cases, the innovation strategies can be related to contextual changes or events (i.e. to changes in the inputs of figure 1): to an international trend promoting specific market-based policy instrument (PES) in the case of Lombok (change in the wider context); to a new ordinance on the remediation of contaminated sites in Bonfol (change in the broad institutional context); and to a flood event in Nendaz (case-specific event). The latter is particularly illustrative of the importance of ‘contextual’ elements, since it is only after the flood that the Municipality agreed, at least partially, to compromise; clearly this element acted as a turning point. More broadly, these observations highlight the pertinence of the three identified layers of context, and of their conceptualization as a set of constraints of opportunities. The context clearly constraints the choice and behavior of the actors engaged in social interaction processes, but it can also grant them opportunities to engage and succeed in innovation strategies. This specific point echoes the work by Laesslé et al. (2013), who showed that non-state actors in Swiss rural areas could sometimes take advantage of institutional changes or exogenous ‘shocks’ to obtain favorable reconfiguration of the regulatory arrangement.

However, a contextual change does not in itself explain the success of a strategy. The ability of the innovating (coalition of) actors to “surf the wave” seems even more important. The timing issue is evident here, with a necessity to seize the opportunity when it arises. This leads us to the capacity of actors to mobilize/generate/substitute/manage/combine the right policy resource at the right time.

In that respect, our cases showed a strong strategic creativity from field actors. The decisive policy resources are, in this context, not necessarily the ones that could have been expected (money, law), and the apparently “stronger” actors not always the winners. On the contrary, field actors proved to be particularly ingenious, mobilizing and combining policy resource such as information, force, and infrastructure (Nendaz), organization, consensus, and information (Lombok), or information, force, organization, public support, and law (Bonfol).

Another important element in that respect appears to be the presence or absence of a coalition of actors: the two cases where the innovation strategies were taken forward by a coalition (Lombok and Bonfol) proved to be more successful than the one where the innovating actor acted alone (partial success in Nendaz). Indeed, in actors’ network characterised by strong degrees of openness, heterarchical types of coordination, and not necessarily cooperative relations, the fragmentation of power is often high. In this context, the ability to form a coalition around specific interests, and to federate these interests around a common strategy, seems to be crucial in explaining the capacity of certain actors to impose the strategy in question.

The structure of the actors’ networks as such, even when close to the ideal of deliberation and participation advocated by much of the governance(s) scholars, does not seem to yield much explanatory power without the explicit account of actors’ resources, interests, and coalitions. If it can be argued that open networks enable the capacity to influence regulatory arrangement, analyses limited to the structure of actors’ networks are insufficient to explain when and why certain coalitions might come out as winners of social interaction processes. The conjunction of the network structure, the actors’ policy resources endowment, and their specific interests certainly gives a better account of the reality. The positive assumptions sometime associated to collaborative modes of coordination (Bäckstrand et al. 2010) or neo-corporatist countries (Scruggs 2001) in terms of environmental integrity appear in that sense simplistic: in the case of Bonfol and Nendaz for instance, non-collaborative coordination and the use of *force* by non-state actors led to outputs that strengthen (at least partially) regulations related to the environment.

Conclusion

The broad aim of this contribution was to conceptually and empirically explore phenomena of innovation in action – or “innovative implementation” – in environment-related areas, and to propose a framework to assess whether and under which conditions they could be successful. Defined as a strategy by which (coalitions of) actors seek to develop tailor-made solutions to address environmental issues, endeavors of innovative implementation were investigated through three in-depth case studies. Overall, our results highlighted the complexity of the “social interaction processes” related to innovation, within which a broad variety of interdependent exogenous and endogenous variables interact (exogenous changes or events, actors’ networks structure, endowment in policy resources, interests and strategies, presence or absence of coalitions). Hence, adopting a multifactorial approach proved to be necessary to explain phenomena of innovation, speaking in favour of frameworks such as the one proposed in this paper.

In this context, the in-depth knowledge generated by the carefully documented case studies proved to be crucial to account for these complex processes, demonstrating the pertinence of such methodologies. Empirical regularities in the cases pathways were identified, opening interesting avenues for more deductive research, and the diversity of innovative behaviours emphasized. Because actors – even beneficiaries such as environmental NGOs – pursue their own interests in their innovation endeavours, and not necessarily aim mainly at improving the ‘environment’, the somehow *positive gap* we expected may in some cases be neutral, or even negative in terms of problem-solving; innovation is thus not, *per se*, a panacea.

References

- Ansell C. & Gash A. (2008). Collaborative governance in theory and practice. *Journal of public administration research and theory*, vol. 18, pp. 543-571
- Bäckstrand K., Khan J., Kronsell A., Lövbrand E. (Eds) (2010). *Environmental Politics and Deliberative Democracy. Examining the Promise of New Modes of Governance*. Cheltenham: Edward Edgar.
- Bardach E. (1977). *The Implementation Game: What Happens After a Bill Becomes Law*. Cambridge: MIT Press.
- Barrett S. & Fudge C. (Eds) (1981). *Policy and Action: Essays on the Implementation of Public Policy*. London: Methuen.
- Barrett S. & Hill M. (1984). Policy, Bargaining and Structure in Implementation Theory: Towards an Integrated Perspective. *Policy and Politics*. vol.12 (3). pp.219-240
- Bourdieu P. (1986). Habitus, code et codification, *Actes de la recherche en sciences sociales*, vol.64, pp.40-44.
- Bressers H. & Rosenbaum W. A. (2000). Innovation, learning, and environmental policy: overcoming "a plague of uncertainties". *Policy Studies Journal*, vol. 28, pp. 523-539
- Bressers H., de Bruijn T., Lulofs K., O'Toole L.J. (2011). Negotiation-based Policy Instruments and Performance: Dutch Covenants and Environmental Policy Outcomes. *Journal of Public Policy*, vol.31, pp.187-208.
- Bromley D. (1992). The commons, common property, and environmental policy, *Environmental and Resource Economics*, vol.2 (1), pp.1-17.
- Carlsson L. G. & Sandström A. C. (2007). Network governance of the commons. *International Journal of the Commons*, vol. 2, pp. 33-54.
- De Boer C. & Bressers H. (2011). *Complex and Dynamic Implementation Processes. The renaturalization of the Dutch Regge River*. Twente: University of Twente.
- De Buren G. (2013 - forthcoming). *La régulation des interdépendances entre la forêt et l'eau potable en Indonésie; études de cas sur le site de Lombok*. Working paper de l'idheap. Lausanne: idheap. Downloadable soon from www.idheap.ch > publications > working papers
- Duit A. & Galaz V. (2008). Governance and Complexity – Emerging Issues for Governance Theory. *Governance: An International Journal of Policy, Administration, and Institutions*. Vol.21 (3). pp.311-335
- Dunsire A. (1978). *Implementation in a Bureaucracy. The Execution process Volume 1*. Oxford: Martin Robertson
- Dupuis J. & Knoepfel P. (2011). Les barrières à la mise en œuvre des politiques d'adaptation au changement climatique: le cas de la Suisse. *Swiss Political Science Review*. vol.17 (1), 188-219.
- Dupuis J. & Knoepfel P. (2013). *Institutional regimes, policy networks and their effects on the management of contaminated sites. The case of Bonfol industrial landfill in Switzerland*. Cahier de l'idheap no 279, lausanne : idheap. Downloadable from www.idheap.ch > publications > cahier de l'idheap
- Eisenhardt K. M. (1989). Building theories from case study research. *Academy of Management Review*, vol.14(4), pp.532-550.
- Folke C., Hahn T., Olsson P., Norberg J. (2005). Adaptive governance of social-ecological systems. *Annu. Rev. Environ. Resour*, vol.30, pp. 441-473
- Gerber J.-D., Knoepfel P., Nahrath S., Varone F. (2009). Institutional Resource Regimes: Towards sustainability through the combination of property-rights theory and policy analysis. *Ecological Economics*, vol. 68(3), pp.798-809.

-
- Hall P. A. (2008). Systematic Process Analysis: When and How to Use It. *European Political Science*, vol.7 (3), pp.304-317.
- Hargrove E. C. (1975). *The Missing Link: The Study of the Implementation of Social Policy*. Washington D.C.: The Urban Institute.
- Hill M. & Hupe P. (2009). *Implementing public policies*. 2nd Edition. London : Sage.
- Hjern B. & Hull C. (1982). Implementation Research as Empirical Constitutionalism. *European Journal of Political Research*. Vol.10. pp.105-115
- Hupe P. (2011). The Thesis of Incongruent Implementation: Revisiting Pressman and Wildavsky. *Public Policy and Administration*, vol.26 (1), pp.63-80.
- Jochim A.E. & May P.J. (2010). Beyond Subsystems: Policy Regimes and Governance. *The Policy Studies Journal*, Vol. 38 (2), pp.303-327.
- Jordan A., Wurzel R. K. W., & Zito A. R. (2003). 'New' Instruments of Environmental Governance: Patterns and Pathways of Change. *Environmental Politics*, vol.12(1), pp.1-24.
- Khan J. (2010). Local climate mitigation and network governance: progressive policy innovation or status quo in disguise. In Bäckstrand K., Khan J., Kronsell A., Lövbrand E. (Eds). *Environmental Politics and Deliberative Democracy. Examining the Promise of New Modes of Governance*. Cheltenham: Edward Edgar, pp.197-214.
- Knoepfel P. (2007). Institutional Regimes For Natural Resources: an Innovative Theoretical Framework for Sustainability. In Knoepfel P. (Ed.). *Environmental policy analyses: learning from the past for the future: 25 years of research*, Berlin: Springer Verlag.
- Knoepfel P., Larrue C., Varone F., Hill M. (2011). *Public policy analysis*. Bristol: The Policy Press.
- Laesslé M., Schweizer R. & Tippenhauer L. (2013). *Reconfiguration des institutions locales en milieu rural au sein des économies capitalistes avancées. Etudes de cas en Suisse*. Paper presented at the Colloque 'Circulations et appropriations des normes et des modèles de l'action locale', Montpellier.
- Lasswell H.D. (1936). *Politics: Who Gets What, When and How*. New York: Mc Graw Hill.
- Lemos M. C. & Agrawal A. (2006). Environmental governance. *Annu. Rev. Environ. Resour.*, 31, 297-325.
- Levin K., Cashore B., Bernstein S., & Auld G. (2012). Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change. *Policy Sciences*, vol.45, pp.123–152.
- Mahoney J. & Goertz G. (2006). A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research. *Political Analysis*, vol. 14(3), pp. 227-249
- Newig J., Fritsch O. (2009). Environmental governance: participatory, multi-level – and effective? *Environmental Policy and Governance*, vol. 19, pp. 197-214.
- Nilsson M., Eklund M. and Tyskeng S. (2009). Environmental integration and policy implementation: competing governance modes in waste management decision making. *Environment and planning C, Government & policy*, vol.27(1), pp.1-18.
- Olsson P., Folke C., Hahn T. (2004). Social-ecological transformation for ecosystem management: the development of adaptive co-management of a wetland landscape in southern Sweden. *Ecology and Society*, vol. 9 (2), pp.
- Ostrom E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.
- O'Toole L. J. (1997). Implementing Public Innovations in Network Settings. *Administration & Society*, vol.29, pp. 115-138
- O'Toole L. J. (2000). Research on policy implementation: assessments and prospects. *Journal of Public Administration and Theory*, vol.10 (2). pp.263-288.

Pahl-Wostl C. (2007). Transitions towards adaptive management of water facing climate and global change. *Water Resources Management*, vol. 21, pp. 49-62

Palumbo D. J. & Calista D. J. (1990). Opening up the Black Box: Implementation and The Policy Process. In Palumbo D. J. & Calista D. J. (Eds), *Implementation and the Policy Process. Opening up the Black Box*, Westport: Greenwood Press, pp.3-18.

Pirard R. (2012). Market-based instruments for biodiversity and ecosystem services: A lexicon. *Environmental Science & Policy*, Vol .19-20, pp. 59–68.

Ragin C. C. (2000). *Fuzzy-Set Social Science*. Chicago: University of Chicago Press.

Reynard E. (2005). Governance of Farmer Managed Irrigation Corporations in the Swiss and Italian Alps: issues and perspectives, in: Pradhan P., Gautam U. (Eds). *Farmer Managed Irrigation Systems and Governance Alternatives*. Proceedings of the Third International Seminar of the Farmer Managed Irrigation Systems Promotion Trust, 9-10 September 2004, Kathmandu, pp. 67-86

Scharpf F. (1997). *Games Real Actors Play: Actor-centered institutionalism in Policy Research*. Oxford: Westview Press.

Schlager E., Ostrom E. (1992). Property-Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics*, vol.68 (3), pp.249-262.

Schweizer R., en collaboration avec Knoepfel P. (2011). *Apport du concept d'arrangement régulateur à l'analyse de la gestion des systèmes d'irrigation sous l'angle de la durabilité*. Working paper de l'idheap, 8/2011. Lausanne: idheap.

Downloadable from www.idheap.ch > publications > working papers

Schweizer R. (2012). *Les bisses du Valais. Gouvernance et durabilité, hier et aujourd'hui. Le cas de Nendaz*. Working paper de l'idheap, 11/2012. Lausanne : idheap.

Downloadable from www.idheap.ch > publications > working papers

Schweizer R. (2013). *De la mise en oeuvre à l'arrangement. Regard nouveau sur l'implémentation gap en politiques environnementales*. Paper presented at the LAGAPE seminar "autour de la mise en oeuvre de l'action publique", Lausanne, 24 avril.

Schweizer R. & Knoepfel P. (2013). The impacts of public policies on self-organised resource governance: the case of irrigation in Valais (Switzerland). In Arnaud-Fassetta G., Masson E. & Reynard E. (Eds), *European Continental Hydrosystems under Changing Water Policy*, Munich : Pfeil, 247-257

Scruggs L. (2001). Is There Really a Link between Neo-Corporatism and Environmental Performance? Updated Evidence and New Data for the 1980s and 1990s. *British Journal of Political Science*, vol. 31, pp. 686-692.

Termeer C., Dewulf A., van Lieshout M. (2010). Disentangling scale approaches in governance research: comparing monocentric, multilevel, and adaptive governance. *Ecology and Society*, vol.15(29)

Tichy N. M., Tushman M. L., Fombrun C. (1979). Social network analysis for organizations. *Academy of Management Review*, vol.4 (4), pp. 507-519.

Waarden F. (2006). Dimensions and types of policy networks. *European Journal of Political Research*, vol. 21, pp. 29-52

Winter S. (2012). Implementation. In Peters B.G. & Pierre J. (Eds). *Handbook of Public Administration*. London: Sage. pp.255-263.