



ELSEVIER

Contents lists available at ScienceDirect

## Environmental Science and Policy

journal homepage: [www.elsevier.com/locate/envsci](http://www.elsevier.com/locate/envsci)

# Combining the Institutional Resource Regime (IRR) framework with the Advocacy Coalition Framework (ACF) for a better understanding of environmental governance processes: The case of Swiss wind power policy

Kevin Blake<sup>a,\*</sup>, Stéphane Nahrath<sup>a</sup>, Karin Ingold<sup>b</sup>

<sup>a</sup> Public Policy and Sustainable Development, Swiss Graduate School of Public Administration, Lausanne University, CH – 1015, Lausanne, Switzerland

<sup>b</sup> Policy Analysis and Environmental Governance, Political Science Institute, Bern University, Fabrikstrasse 8, CH – 3012, Bern, Switzerland

## ARTICLE INFO

## Keywords:

Institutional Resource Regime  
 Advocacy Coalition Framework  
 Local Regulatory Arrangements  
 Wind power  
 Environmental governance  
 Switzerland

## ABSTRACT

This article demonstrates the analytical added value of combining the Institutional Resource Regime (IRR) approach with the Advocacy Coalition Framework (ACF). To this end, we use the example of Swiss wind power policy and demonstrate the necessity of combining the two theoretical frameworks so as to understand why a more supportive policy regime (market incentives, clearer environmental regulations, inter-sectoral coordination mechanisms) for Swiss wind power during the 2000s and 2010s, did not lead to an increase in the number of wind turbines in Switzerland. In order to evaluate the explanatory capacity of such a theoretical combination, we analyze and compare two cases of wind power policy implementation: the successful case of Mont-Crosin and the failure of Tramelan. More concretely, we first analyze each of the cases through the institutional lenses of the IRR framework. After assessing IRR explanatory capacities and shortcomings, we then test the explanatory added value of the ACF and demonstrate that policy beliefs and advocacy coalitions are central explanatory factors of wind power project siting success or failure. We conclude by discussing the theoretical potential of combining the two frameworks in a future research agenda.

## 1. Introduction

One of the major issues of present environmental governance is the sustainable management of (common pool) resources (e.g. Ostrom, 1990; Bromley, 1992; Ostrom et al., 1994; Baden and Noonam, 1998; Buck, 1998; Ostrom, 2000; Burger et al., 2001; Ostrom et al., 2002). The *Institutional Resource Regime* (IRR) framework has been developed to address this very issue (e.g. Knoepfel et al., 2007; Gerber et al., 2009). It provides an analytical framework to understand the institutional causes and conditions of (un)sustainable resource uses and management (Lieberherr et al., 2019, this issue).

Recently, the IRR framework has been used to analyze conditions for the sustainable development of an *economic activity*, such as tourism (Bréthaut, 2013a), irrigation (Schweizer, 2015a), mining (Condo Salas, 2017), wine making (Laesslé, 2018) or coffee production (Dusan Lopez, 2019).<sup>1</sup> By focusing on a given economic activity, implemented within a specific territory and exploiting various natural resources, researchers have sought to identify actors' strategies leading to IRR implementation arrangements and outcomes. However, clear causal explanations of

these arrangements and outcomes still remain to be developed by IRR researchers, as empirical studies have remained mainly descriptive in this regard until now. In a nutshell, the IRR is both an analytical and normative framework, which highlights the role of institutional factors to understand policy outcomes (i.e. policy success and failure), primarily in the domain of sustainable resource management; but which lacks a theoretically sound explanatory hypothesis regarding the foundations of actors' strategies.

On the other hand, such an explanation of actors' strategies is at the very heart of the Advocacy Coalition Framework (ACF). More precisely, the ACF addresses the core issue of the role of policy beliefs and preferences in the explanation of policy formulation and change. But in doing so, it tends to leave aside implementation issues and seems to have difficulty in explaining the quality of policy outputs, as well as policy success and failure.

Hence, using the IRR framework to explain policy success and failure is certainly relevant, but is insufficient, as it falls short in identifying who the ideological pushers of the change are. The main aim of this paper is to *demonstrate how the combination of the IRR and*

\* Corresponding author.

E-mail addresses: [kevin.blake@unil.ch](mailto:kevin.blake@unil.ch) (K. Blake), [stephane.nahrath@unil.ch](mailto:stephane.nahrath@unil.ch) (S. Nahrath), [karin.ingold@ipw.unibe.ch](mailto:karin.ingold@ipw.unibe.ch) (K. Ingold).

<sup>1</sup> See de Buren (2015: 51–54) for an exhaustive list of IRR applications between 2000 and 2015.

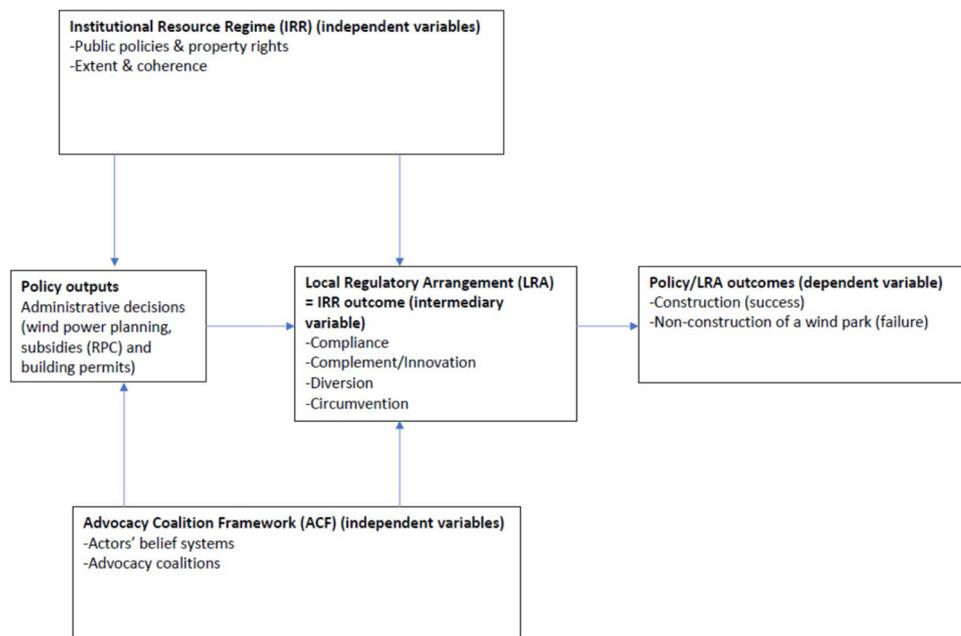


Fig. 1. Research design.  
Source: authors.

*ACF frameworks can substantially contribute to provide robust answers to the – both theoretically and practically relevant – following question: “how to explain policy success and failure?”*

In order to demonstrate the complementarity of the two frameworks, we illustrate the pertinency of such a combination (between the IRR and ACF) by explaining implementation success and failure of Swiss wind power policy. As a matter of fact, in a recent research project (*Gouvéole*<sup>2</sup>), we used the IRR framework so as to explain the low outcomes of wind power policy in Switzerland: so far only a few wind turbines (37) have been sited, despite the fact that substantial legal, economic, technical and human resources (e.g. market incentives, clearer environmental regulations, inter-sectoral coordination mechanisms) have been dedicated to this policy program.<sup>3</sup> Using case study research, we compared examples of success and failure<sup>4</sup> in order to identify the most relevant explanatory factors of these contrasted outcomes and to explain the very low number of wind turbines sited. By comparing institutional factors between cases, our initial hypothesis has been – in accordance with the basic postulate of the IRR framework – that the IRRs’ features and designs largely explain the siting outcome. However, empirical case studies have not only demonstrated that institutional factors are not the unique explanatory dimension, but they also showed that it is not the most pertinent for explaining, not only policy outputs (wind power planning and building permits), but also local actors’ implementation arrangements as well as policy outcomes (i.e. the (non) construction of wind turbines). Indeed, actors’ beliefs and coalitions, which support or oppose the implementation of a project in a given territory, have been discovered to be of crucial importance for explaining the building of what the IRR framework proposes to

<sup>2</sup> The objective of this project was to explain the difficulty of building wind parks in Switzerland despite the ambitious objectives pursued by – and substantial resources allocated to – the Swiss wind power policy.

<sup>3</sup> Suisse Eole (n.d.). Les statistiques de l’éolien en Suisse et dans le monde. Retrieved August 27, 2019, from <https://www.suisse-eole.ch/fr/energie-eolienne/statistiques>.

<sup>4</sup> We consider the construction of a wind park as a “success” and the political deadlock or the abandonment of such a project as a “failure” of the implementation of wind power policy according to the explicit objectives of Swiss federal wind power policy.

conceptualize as “Local Regulatory Arrangements” (LRA, see section 2.2 below for a definition of the concept), which are considered as a central explanatory factor of policy success and failure (i.e. policy outcomes).

In order to explain the outcomes of these siting procedures, explanatory factors of actors’ strategic rationales are needed for understanding the dynamics of LRA building. To this end, we have mobilized the Advocacy Coalition Framework (ACF), as it offers testable agency-related theories, precisely based on actors’ beliefs and coalitions, which provide us with relevant complementary explanations of the three abovementioned processes (policy outputs, LRA building and policy outcomes).

It is noteworthy that, generally, the ACF mostly focuses on policy formulation. However, we claim – and this is also an originality of our contribution – that, *combined with the IRR framework*, it is also well-suited to explain implementation processes (i.e. LRAs and policy outcomes). Additionally, the choice of using this cognitivist framework, is based on the more general postulate that *spatial development policies*, such as the building of wind parks, *do not just induce interest-based conflicts, but involve social norms, values, representations, namely, in a nutshell, “beliefs”*.

In this article, we thus investigate the two following research questions:

- 1) *What aspects of the IRR framework can explain success and failure of Swiss wind power policy implementation?*
- 2) *To what extent can the combination of the IRR framework with the ACF enable a more in-depth and convincing explanation to wind power policy implementation successes or failures?*

In order to answer these two questions, we have formulated two hypotheses (located in sections 3 and 5), which are grounded respectively in the IRR and the ACF frameworks. They are then empirically discussed using the two case studies (Mont Crosin and Tramelan wind park projects).

Our research design (Fig. 1) postulates that the explanation of wind power policy outcomes (i.e. the (non) construction of wind parks in Switzerland) – our dependent variable – depends on the way policy outputs (i.e. administrative decisions concerning wind power planning

and building permits granting) are concretized – or not – by (public and private) local actors, within a “Local Regulatory Arrangement” (LRA) (intermediary variable). Furthermore, in order to explain policy outputs and LRAs, we propose to combine the explanatory (i.e. independent) variables derived from both the IRR and the ACF frameworks (presented in sections 3 and 5).

Thus, by using wind power as an example, this article investigates the IRR’s explanatory capacity and some of its limits. Secondly, it offers additional explanations by combining the IRR with another framework, the Advocacy Coalition Framework. The central argument of our article is that although both frameworks can explain policy outcomes with different lenses, their combination, far from being conflicting or rivalrous, is actually complimentary. Therefore, successes or failures of policy processes, are not only the product of institutional factors, but also the consequence of more or less conflictual relations within a policy subsystem between two or more advocacy coalitions whose policy preferences stem from different belief systems.

In order to support this argument, the article is organized as follows: we first briefly present wind power policy and the two implementation cases (success and failure), which are our dependent variable (section 2). We then briefly emphasize the relevant concepts (i.e. institutional dimensions) of the IRR framework which are usually mobilized in order to explain the outcome of an LRA (in our case the (non) construction of a wind farm) and formulate a typical IRR explanatory hypothesis (section 3). This hypothesis is discussed in section 4 and allows an assessment of the IRR’s explanatory capacities and shortcomings. We then briefly present the ACF in order to point out potential additional relevant explanatory factors, and formulate a typical ACF explanatory hypothesis (section 5). This hypothesis is discussed in section 6 and highlights the explanatory added value of the framework. In section 7, we draw some lessons about the possible added value of combining both frameworks and develop some thoughts concerning its epistemological conditions. In the conclusion, we summarize the main empirical and theoretical results, answer both research questions and discuss some potential avenues for a future research agenda.

## 2. Contrasted outcomes in the implementation of Swiss wind power policy

Firstly, the history of Swiss wind power policy is presented. Secondly, two projects (our dependent variable) are presented, a success (Mont-Crosin) and a failure (Tramelan).

### 2.1. Swiss wind power policy history

During the 1990s, federal energy policy supported supply diversification by encouraging renewable energies with three instruments: subsidies, information and regulation.<sup>5</sup> An *experimental* wind program financed pilot and demonstration projects and studies and offered information (expertise) to foster learning among target groups (plant operators, developers, investors).<sup>6</sup> A professional network (Suisse Eole<sup>7</sup>) was also financed to incite market development. Cantons were called upon to regulate spatial development, with non-binding federal planning guidelines,<sup>8</sup> which were implemented variously. Projects

<sup>5</sup> Federal decree (14th of December 1990) for an economic and rational use of energy, RO 1991 1018.

<sup>6</sup> OFEN (1992). *Forschung, Entwicklung und Demonstration im Bereich der Energie in der Schweiz*, 39.

<sup>7</sup> Suisse Eole is an association (Civil Code art. 60). Its members are institutions, organizations, public authorities, companies, individual members ([http://www.suisse-eole.ch/media/ul/resources/SuisseEoleStatuts\\_F.pdf](http://www.suisse-eole.ch/media/ul/resources/SuisseEoleStatuts_F.pdf)).

<sup>8</sup> OFEN (1996). *Éoliennes et protection du paysage*. Berne; OFEN (1998). *Planung von Windenergieanlagen*. Berne; OFEN, OFEV, ARE (2004). *Concept d’Energie Eolienne pour la Suisse: bases pour la localisation de parcs éoliens*. Berne.

however remained rare.

From 2008 onwards, in the context of liberalization<sup>9</sup> and greening of energy policy,<sup>10</sup> a feed-in tariff instrument was implemented (i.e. *rétribution à prix coûtant*, or RPC<sup>11</sup>) to financially support the activity.<sup>12</sup> This *development* policy stems from a new paradigm which crystallized in the federal “energy transition 2050” strategy following the Fukushima accident.<sup>13</sup> Uncoordinated with spatial planning, the instrument induced a “green rush” and high conflict during siting procedures, although EIEs were required from now on.<sup>14</sup>

Seeking to bring order, a *regulatory* period went underway from 2010 onwards, as an attempt to clarify the planning framework. Ironically, the extension of the wind power institutional regime during the 2000s and 2010s did not lead to an increase in siting. On the contrary, opposition increased severely and most wind parks have been blocked (mostly by judicial procedures).

### 2.2. Dependent variable: Mont-Crosin and Tramelan, a success and a failure

Developed in the first period as a pilot project, *Mont-Crosin* is a 16-turbine park, built in different phases, with extensions (additional turbines) and repowering (increase in size of turbines). Its implementation was largely supported and was low in conflict. It brought socio-economic value to the region through financial compensation to public and private land owners (surface rights contracts) and a touristic concept (indirect revenues for the region). Landscape and nature measures negotiated with NGOs, public authorities and various citizens, were based on avoidance (“landscape pockets” concept, turbine displacement), mitigation (burial, recycling, camouflage, technological modification of turbines) and compensation (aesthetic and nature revitalization).

Appearing in 2006, *Tramelan* is still (after 14 years) blocked in judicial appeals. It had similar LRAs to the Mont-Crosin case. In regard to socio-economic redistribution, part of the turnover is to be redistributed to the landowners and the “host” Commune. In relation to environmental measures, avoidance (displacement or elimination of turbines due to landscape and noise impacts), mitigation (slowing of regime or stopping of turbines to limit noise and bird/bat impacts) and compensation (revitalization measures for birds) measures were sought.

Whereas relations were financially more redistributive in the successful case, there were more environmental measures in the latter. Additionally, the most affected neighbors in Mont-Crosin received compensation for leasing their land, whereas in Tramelan, a majority of affected neighbors were injured-third parties of the policy, without financial compensation.

The concept of LRA (Aubin, 2008; Bréthaut, 2013b; Schweizer, 2015a,b; Viallon et al., 2019) offers a descriptive account of the conclusion of different types of agreements, indications on inter-individual relations, as well as the overarching legal framework. It suggests that the implementation of IRR regulations is far from being automatic, as the enforcement of rules is mediated by local actors (cf. Fig. 1), who usually develop various strategies regarding policy (instruments) implementation, depending on their beliefs and interests. More concretely, policy implementation actors can develop *four different strategies* (Kellner et al., 2019 and Viallon et al., 2019 in this issue). They can (1) try to make sure that the rules are *enforced* in a manner *compliant* with

<sup>9</sup> Federal Electricity Supply Act (ESA), RO 2007 3425.

<sup>10</sup> (Revision of the) Federal Energy Act (EnA), RO 1999 197.

<sup>11</sup> *Kostenorientierten Einspeisevergütung* (KEV) in German.

<sup>12</sup> Ch. 2, Annex of the Ordinance on energy supply (OApEI), RO 2008 1223.

<sup>13</sup> Swiss Confederacy (s.d.). *Energy Strategy 2050*. Retrieved August 27, 2019, from <https://www.uvek.admin.ch/uvek/en/home/energy/energy-strategy-2050.html>.

<sup>14</sup> Wind power infrastructures, n° 21.8 of the OEIE Annex.

the legal requirements; (2) *complement* the existing rules by enriching or specifying them and/or improving the coherence of their implementation; (3) *circumvent* the rules by voluntarily deciding not to apply or respect them; and (4) *divert* the rules by using them for achieving different objectives than the ones originally planned by the law.

However, the concept of LRA is *not* able to explain *in itself* siting outcomes. We must thus rely on the IRR and the ACF to explore the causes of success and failure.

### 3. Using the IRR framework to analyze an economic activity: concepts, design and method

Grounded in institutional economics and property rights theory (e.g. Schlager and Ostrom, 1992), as well as public policy analysis (e.g. Knoepfel et al., 2011), the IRR considers institutions as the key factor of sustainability (i.e. sustainable use of (natural) resources). Combining institutional economics (property (i.e. mainly use) rights allocation) and public policy analysis (impacts of public law instruments), the framework’s foundational idea was to consider that resources are *simultaneously* governed by *both* of these State-sanctioned mechanisms (Knoepfel et al., 2007; Gerber et al., 2009; Knoepfel et al., 2011; Varone and Nahrath, 2014). These ensembles, termed Institutional Resource

Regimes, are composed of rules which can be categorized as more or less *extended* and *coherent*. Extent is the capacity of a regime to regulate the different uses (i.e. goods and services) of a given resource, as well as the rivalries between these uses. Coherence is an evaluation of the level of friction between different rules within a regime. The central hypothesis of the framework is that, the more integrated (extended and coherent) a regime is, the less conflictual and the more sustainable the use of natural resources will be. Less sustainable IRR typologies are *non-existent* (no regulation at all) and *simple* (a limited number of goods and services are regulated in a coherent way), as well as *complex regimes* (the majority of the goods and services actually used are regulated, but in a way that is incoherent), the latter being considered to be more efficient, but still insufficient to guarantee the sustainable use of resources (Knoepfel et al., 2007: 486–491; Gerber et al., 2009: 806).

In order to apply the IRR framework for analyzing an economic activity such as wind power production – in a *bottom-up activity centered perspective* (cf. supra) –, one has to focus on the *activity institutional regime* (activity IR in Fig. 2 below). Firstly, it implies to accurately identify and document all the different goods and services (G&S) derived from the various natural resource systems, which are affected (i.e. exploitation, depletion) by the economic activity, as well as the rivalries

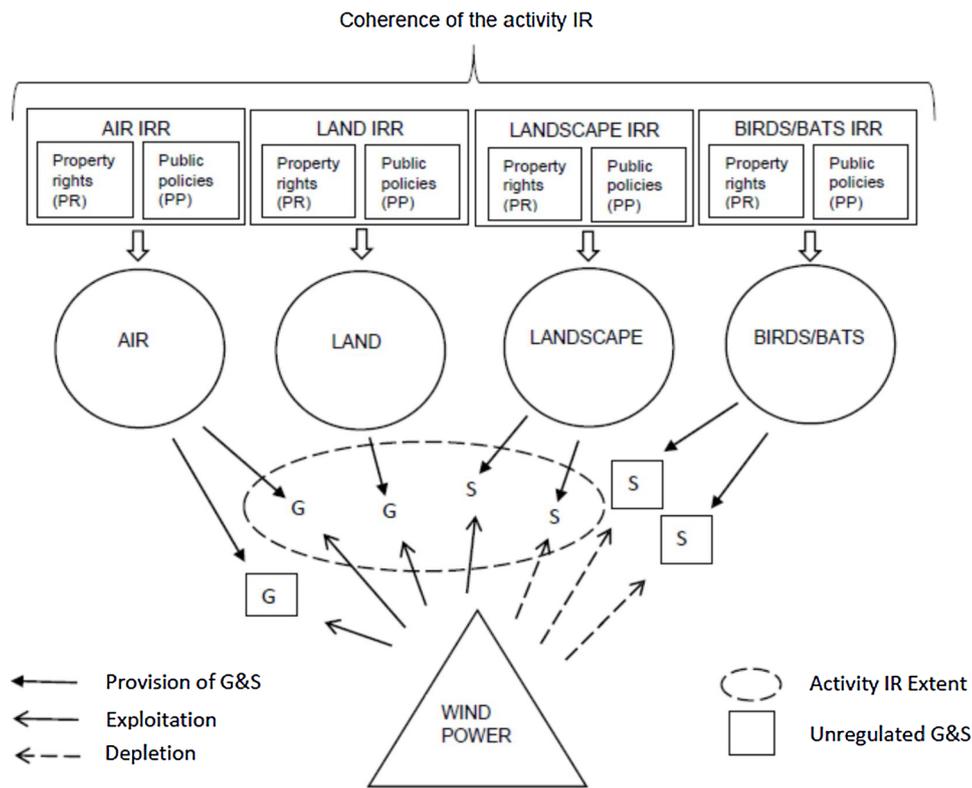


Fig. 2. Wind power institutional regime (activity IR) and its four IRR components (air, land, landscape and birds/bats). Source: authors.

it creates with pre-existing uses of these same resources.<sup>15</sup> Secondly, one has to systematically analyze the existing regulations – originating from public policies (public law) and property rights (private law) – stemming from each of the related IRRs, in order to identify which are the activity-relevant G&S effectively regulated or not by one or the other or by several IRRs. Such an operation allows to formulate a statement on the *extent* of the activity IR. Finally, it implies to investigate the existing or missing coordination mechanisms *between* the related IRRs (inter-IRR coordination) as to formulate a statement on the *coherence* of the activity IR.

An *activity IR* corresponds to the overall set of rules stemming from the various IRRs which regulate each of the resource systems actually mobilized by a specific activity. In the present case, the two main characteristics of a wind power institutional regime (activity IR) are the following:

The *extent* of a wind power IR corresponds to the number of goods and services derived from the (four) various natural resource systems and used by the economic activity (i.e. wind power), which are effectively regulated by the activity IR (i.e. by one or the other or by several IRRs).

The *coherence* of a wind power IR refers to the level of coordination between the (four) different (land, air, landscape, birds/bats) institutional resource regimes (IRRs).

In order to test the relevance of these institutional factors for explaining successes and failures of wind power policy implementation, we formulate the following hypothesis:

**Hypothesis 1.** The success or failure of the implementation of wind power policy depends mainly on the characteristics of the wind power institutional regime: the more integrated the regime, the more successful its outcome.

As a matter of fact, one of the basic assumptions of the IRR approach is that the larger the activity IR *extent* (i.e. covering all – or a large majority of – goods and services mobilized by the wind power production), as well as the higher its *coherence* (substantial coordination between the IRRs' regulations of the G&S involved in wind power production), the more probable the construction of the wind park. Conversely, the less extended and coherent the activity IR is, the less likely the construction of the park will be. The basic idea being, the more *integrated* a regime's architecture is, the more likely that successful local arrangements will be implemented (i.e. leading to the construction of the wind park) because the central use rivalries of the different resources will have been regulated and mediated.

Elements pertaining to the wind power IR were identified by an analysis of Swiss legislation (the Federal Constitution, Civil Code and diverse public policies), as well as various non-binding documents (e.g. guidelines, expertise documents). LRAs were identified through actors' interviews and documents (contracts, conventions).

#### 4. Presentation of the empirical data of the two cases and discussion of the IRR hypothesis

##### 4.1. Wind power (activity) IR

Firstly, a description of the key G&S of the four resources used by wind power and their use rivalries will be presented for each case (Mont-Crosin and Tramelan). Secondly, the two activity IRs will be described and their extent and coherence assessed.

##### 4.1.1. Uses and rivalries of the strategic resources of wind power

In both cases, air and land are key resources for the production of

<sup>15</sup> In the case of wind power production, empirical studies have shown that the most crucial exploited and/or depleted resources are land, air, landscape and birds/bats. Less rivalrous resources are forest, fauna, water.

wind power, whereas landscape and birds/bats are the two most depleted resources by the activity, which puts into peril their sustainable use. In Mont-Crosin, rivalries mostly appeared in relation to landscape whereas in Tramelan, it was related to landscape and birds/bats.

Wind and airspace are two goods provided by the resource air which are used by wind power. Wind is a kinetic energy which exerts its force on the turbine and creates mechanical force which is then transformed into electricity. To exploit wind above ground, turbines use another good, which is airspace.

As to seat the turbine's foundation and related infrastructures (e.g. electric cables, access roads), agricultural land is the central good to acquire in wind power projects. As the demand for agricultural land is rather low in the regions concerned by wind park projects, no rivalry appeared with other activities (e.g. farming).<sup>16</sup>

As a result of the interaction between natural and/or cultural resources of a given environment, as well as human perceptions, landscape is simultaneously material and immaterial. As it cannot be determined solely by objective criteria, Gerber (2006: 64–72) identifies it through its different services to human needs. We additionally consider sound (silence in rural areas) to be an integral part of this resource. In the case of Mont-Crosin, the aesthetic service produced by the interaction between wind power and the pre-existing landscape, was exploited to promote the project and attract tourists. However, in both cases, visibility of wind power infrastructures was also seen as depleting the resource and was thus rivalrous with pre-existing landscape/soundscape uses. In the Mont-Crosin case, these were related to ecological (biodiversity), cultural (historic and built heritage area) and aesthetic uses. In the case of Tramelan, there were additional rivalries related to quality of life and socio-economic (estate and land value, tourism) issues. Nuisances produced by wind power noise emissions were also detrimental to a land- soundscape good, which is silence.

As a biological resource, birds/bats are the most impacted type of fauna by wind power. Not only in relation with direct impacts (collision), but also disruption of habitats (which influence reproductive success, feeding behaviors) and migratory paths. Birds/bats impacts also deplete pre-existing human uses of the resource (e.g. scientific, leisure).

##### 4.1.2. Extent and coherence of wind power (activity) IR

Wind power did not appear in an institutional vacuum, as its implementation was mediated by different (resource-specific) IRRs and coordination mechanisms related to land use planning and authorization procedures.<sup>17</sup> In the Mont-Crosin case, gaps and incoherencies existed within the emerging activity IR. In later projects such as Tramelan, federal, cantonal and regional policies increased the extent and (to some extent) the coherence of the activity's IR.

In **Mont-Crosin**, the activity IR is *simple*: medium extent and low coherence (see Table 1). In relation to extent, although diverse goods and services are exploited/depleted by wind power, there is a lack of activity-specific rules. (1) Wind has no property rights, nor public policies and is freely appropriable. (2) Use of airspace is mainly defined by property rights on land.<sup>18</sup> Such an absolute right is limited by a few public policies on aviation,<sup>19</sup> military infrastructures<sup>20</sup> and

<sup>16</sup> In the case of Tramelan, there was a rivalry with another promoter in the same area. Because of a lack of editorial space, we will not go into this aspect here.

<sup>17</sup> In Switzerland, large-scale projects are coordinated through land use planning law (Federal Act on Spatial Planning - SPA). Its central instrument is based on different plans located at the cantonal (master plan), regional (master plan) or communal (general or special plan) level.

<sup>18</sup> Civil Code art. 667.

<sup>19</sup> Ordinance on Aeronautical Infrastructures (OSIA), RO 1994 3050.

<sup>20</sup> Federal Act on the Army and Military Administration (LAAM), RO 1995 4093.

**Table 1**  
Mont-Crosin (success).

Resources	Wind power exploitation/depletion (G & S)	Extent of activity IR	Coherence of activity IR
Air	Wind	Absence	No coordination between wind power activity, land use planning & environmental policies (absence of EIEs) Lack of criteria for weighing of interests (energy/environment/land use)
Land	Airspace Agricultural land	PR driven, few PP PR driven, lack of activity-specific PP	Coordination was progressively increased through regional and cantonal master plans
Landscape	Aesthetic Ecological Socioeconomic Cultural	PP driven, lack of activity-specific rules	
Birds/Bats	Ecological Scientific Leisure	PP driven, lack of activity-specific rules	
<b>Qualification</b>		<b>Medium extent</b>	<b>Low coherence</b> <b>Simple Activity IR</b>

meteorological instruments.<sup>21</sup> (3) Land use is property rights<sup>22</sup> and building-permit driven (i.e. as an exceptional construction outside of the building zone).<sup>23</sup> Master or strategic planning only appeared in later project versions. (4) Protection of landscape and heritage interests is based on conservation instruments.<sup>24</sup> State intervention outside these protection zones is problematic.<sup>25</sup> Property rights only concern the fundamental resources which compose landscape (e.g. air, land) and not its totality. (5) Noise emissions are regulated by an ordinance, non-specific to the wind power activity, as well as by restrictions imposed to land owners in private law.<sup>26</sup> (6) Depletion of birds/bats is regulated through a zoning logic (habitat protection and conservation of sites).<sup>27,28,29</sup> Outside these zones, protection is very limited. Coherence of the activity IR was low, as land use planning and Environmental Impact Assessment (EIE) procedures were not required and no planning guideline existed. Coordination and weighing of interests were project specific. As legislation became more demanding, a specific regional master plan for future extensions was developed and the project was integrated *ex-post* in two other regional and cantonal master plans. Coherence was thus increased through time.

In **Tramelan**, the activity IR is **complex**: strong extent, medium coherence (see [Table 2](#)). In relation to extent, (1) the 2004 federal concept (non-binding) and regional master plan (legally binding) identified the windiest sites in the country, with Tramelan being one of them. These two regulations clearly contribute to increase activity IR extent. (2) There was no modification of airspace regulations. (3) Identification of appropriate sites (within the agricultural zone) was regulated *ex-ante* through the regional master plan, and a later cantonal master plan. (4) *Ex-ante* selection of Tramelan in the regional master

plan confirmed the respect of landscape protection legislation. EIEs on landscape were also required. (5) Noise regulation was strengthened through the introduction of non-binding minimal distances to dwellings (300 m in the 2004 federal concept, 500 m in the regional master plan), as well as through federal and cantonal directives on noise.<sup>30</sup> (6) Additional protection of birds/bats appeared in 2003, with specific protection measures for endangered birds (conservation program). EIEs on birds/bats were required from 2008 onwards. Guidelines<sup>31</sup> and expertise by specialized (NGOs and scientific) organizations during planning procedures were also provided.<sup>32</sup> Coherence was medium, as the site was identified *ex-ante* in the 2004 federal concept and in the first regional plan. It was also integrated *ex-post* in successive regional and cantonal master plans, with positive (site identification with various criteria and additional studies) and negative (exclusion) areas. This enabled a first weighing of interests between energy, land use and environmental interests. Additional coordination mechanisms were based on EIE procedures and the 2010 federal planning recommendations.<sup>33</sup> The local land use plan procedure for the project also increased coordination at the regional/local level.

Regulatory gaps and incoherencies in the activity IR have thus been significantly reduced. However, the regime remains **complex**, as administrative and judicial decisions remain difficult in siting procedures because the weighing of interests between exploitation/depletion and protection remains uncertain (lack of clear legal and political directions). Additionally, although site selection criteria in planning instruments enables a certain weighing of interests, there can be a disjunction between site identification at the general level and the rigor and complexity of site-specific weighing of interests.

<sup>21</sup> Federal Act on meteorology and climatology (LMét), RO 2000 664.

<sup>22</sup> Civil Code art. 641, 655, 667.

<sup>23</sup> Federal Act on Spatial Planning (SPA), RO 1979 700, art. 24; Bernese Cantonal Construction Act (LC), 1985 721.0.

<sup>24</sup> Federal Act on the Protection of Nature and Cultural Heritage (NCHA), RO 1966 1694; Bernese Act on the protection of nature RSB 1994 426.11.

<sup>25</sup> Landscape planning remained quite basic, although some federal guidelines were offered in 2001 on how to locally integrate a project (OFEFP (2001). Esthétique du paysage – guide pour la planification et la conception de projets. Guide de l'environnement No 9).

<sup>26</sup> Annex 6, Federal Noise Abatement Ordinance (NAO), RO 1987 338; Civil Code art. 679, 684B.

<sup>27</sup> Ordinance on the Protection of Nature and Cultural Heritage (NCHO), RO 1991 24, art. 14.

<sup>28</sup> Federal Act on the Protection of Nature and Cultural Heritage (NCHA), RO 1966 1694, art. 5, 18a and 23b.

<sup>29</sup> Federal Act on hunting and the protection of mammals and wild birds (LChP), RO 1988 506, art. 11.

<sup>30</sup> Fiche d'information sur le bruit des installations éoliennes; BECO (2012) Protection contre le bruit émis par les installations éoliennes. Évaluation selon l'ordonnance sur la protection contre le bruit.

<sup>31</sup> L'OFEV, l'OFEN, Suisse Eole et le centre suisse de coordination pour la protection des chauves-souris (n.d.). Windparkanlagen Schweiz, pauschale Vorgehensweise.

<sup>32</sup> Station ornithologique de Sempach, La Fondation pour la protection des chauves-souris en Suisse et le Centre de coordination ouest pour l'étude et la protection des chauves-souris.

<sup>33</sup> OFEV, OFEN, ARE (2010) Recommandations pour la planification d'installations éoliennes. Berne.

**Table 2**  
Tramelan (failure).

Resources	Wind power exploitation/ depletion (G&S)	Extent of activity IR	Coherence of activity IR
Air	Wind Airspace	Apparition of PPs (guidelines, master plan) No change	Coordination through planning guidelines, cantonal/regional master plans with site selection criteria, which enable a first weighing of interests
Land	Agricultural land	More PPs (guidelines, master plans)	Local land use planning include wind power activity
Landscape	Aesthetic Ecological Socioeconomic Cultural	More PPs (EIE requirements, master plans, regional studies, prescriptions)	EIE obligations  Lack of clear legal and political criteria for the weighing of interests at the local level
Birds/Bats	Ecological Scientific Leisure	More PPs (EIE requirements, prescriptions, information)	
<b>Qualification</b>		<b>Strong extent</b>	<b>Medium coherence</b> <b>Complex Activity IR</b>

#### 4.2. Discussion of hypothesis 1

A paradoxical result stems from our analysis, which tends to invalidate our IRR hypothesis suggesting that the more integrated the regime is, the more likely the siting would be. Whereas the Mont-Crosin case is a simple regime, it is successful, whereas Tramelan is a failure with a more integrated regime (even though it remains a complex regime, as there are still important incoherencies). A paradox thus appears: *although the various resources have become regulated in a more coherent and extended way, this does not lead to more successful policy outcomes.*

The IRR thus demonstrates that significant leeway offered by a simple activity IR can, under certain conditions, lead to a successful LRA enabling the construction of the wind park. Whereas a complex IR with numerous regulations can actually impede successful policy outcomes, probably because of the increase in the extent and complexity of the activity IR which creates new incoherencies susceptible of being exploited by wind power opponents. This phenomenon has been analyzed and conceptualized by [Bolognesi and Nahrath \(2020\)](#) in terms of an “institutional complexity trap”.

Thus, if the LRA concept helps us describe and qualify the different results of the policy implementation processes, the IRR framework encounters some difficulties in explaining this paradoxical result. Therefore, we must investigate alternative means of explanation by focusing, with the ACF, on sociopolitical factors (actors, beliefs and strategies) as to why successful or failed LRAs emerge.

#### 5. Using the ACF framework to analyze an economic activity: concepts, design and method

The Advocacy Coalition Framework was developed in the mid-1980s by American political scientists ([Sabatier and Jenkins-Smith, 1993, 1999; Sabatier, 1998](#)), in order to better explain the dynamics and outputs of policy processes. One of their objectives was, in reaction to the oversimplification of the dominant rational choice approaches within US political science ([Sabatier and Schlager, 2000](#)), to highlight the crucial role of *knowledge* (e.g. technical information, scientific expertise, learning, etc.), *ideas* and (individual and collective) *beliefs* within policy processes.

Therein, the ACF conceptualizes the policy process as a combination

of various sub-processes of struggles, negotiations and learning between a number of advocacy coalitions which lead to the formulation of policy orientations and solutions dedicated to the resolution of one or more specific public problems within a policy subsystem ([Fig. 3](#)). These policy subsystems are themselves embedded in historical configurations of relatively stable external parameters acting simultaneously as structural constraints and mechanisms of resource allocation to the members of the various advocacy coalitions.

One of the crucial theoretical propositions of the ACF is to consider that advocacy coalitions are an aggregate of individuals and/or groups, who share similar beliefs concerning (1) the definition of the public problem to be solved and (2) the formulation of policy solution(s) (i.e. general policy orientation and causal model, policy instruments to be implemented, policy outputs to be produced and outcomes to be achieved). Thus, each of the coalitions is struggling and negotiating within the policy subsystem in order to impose its own policy preferences.

In a nutshell, in the ACF perspective, unlike institutional economics (and to a certain extent IRR) approaches, the crucial explanatory factors of policy outputs and outcomes (as well as actors' strategies leading to LRAs) are not (only) the institutional incentives, but rather (individual and collective) actors' belief systems, which constitute the principle of aggregation (i.e. the “glue”) of the advocacy coalitions, and which guide actors' behaviors and strategies within the policy subsystem.

The ACF concept of “belief system” distinguishes three different “layers” (or types) of beliefs which are hierarchically organized:

The *deep core beliefs* constitute the deeper layer of a belief system. It consists of the most fundamental beliefs and ontological values. It contributes to define the most general and fundamental normative guidance and principles (e.g. conception of “human nature”, religious beliefs, conception of the human-nature relationship, social justice, etc.).

The *policy core beliefs* include the actors' fundamental beliefs regarding a given policy subsystem. It is the “translation” of the deep core beliefs into the logic of the policy subsystem. Policy core beliefs provide a frame which determines the policy preferences of a coalition's members; that is the way in which their members perceive and interpret the public problem to be solved within the subsystem, as well as conceive the “causal model” of the policy solution they are trying to impose. It also defines and hierarchizes the basic action principles of the

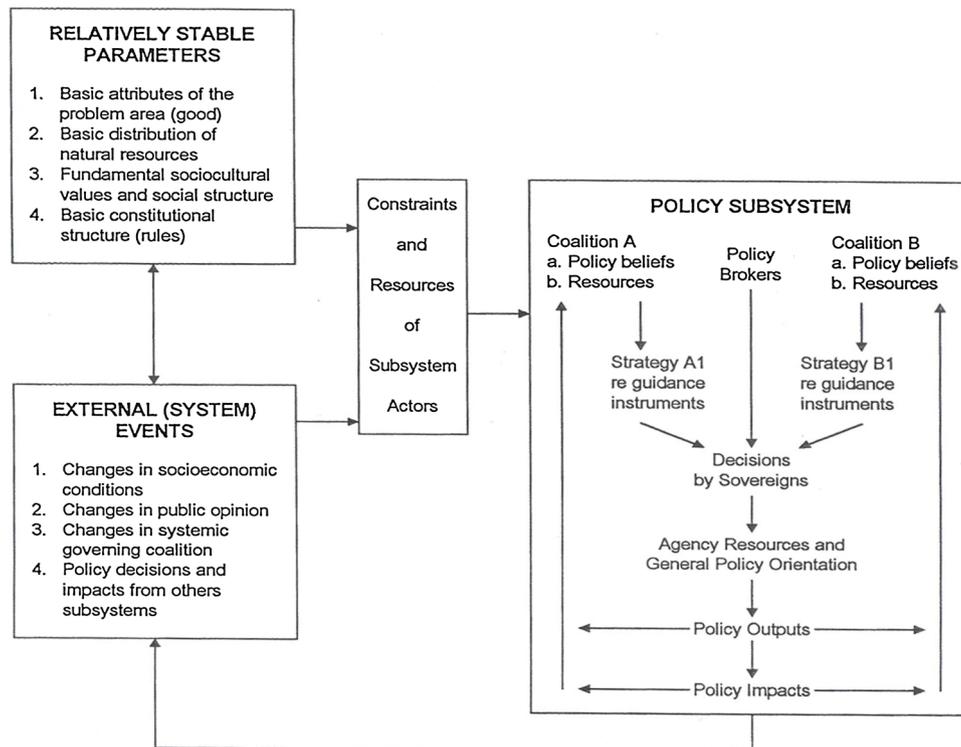


Fig. 3. Advocacy Coalition Framework (ACF).  
Source: Sabatier and Jenkins-Smith (1999:121).

coalition regarding a specific policy issue (e.g. phase out of nuclear power versus guarantee of energy provision, landscape protection versus development of wind parks, etc.). Finally, it also directs the strategies implemented by the coalition regarding institutional and substantial aspects of the policy – notably the choice of policy instruments (e.g. regulatory versus incentive).

The *secondary aspects beliefs* refer to convictions or preferences regarding more specific and limited aspects of the policy program. These aspects may concern technical decisions or administrative procedures (public inquiry, opposition and appeal, delivery of building permits, etc.), that do not affect the whole policy subsystem. Although stemming from the policy core beliefs, the secondary aspects enjoy a relative operational and managerial autonomy, which makes them more easily negotiable.

One of the main theoretical propositions of the ACF is that these three different layers are diversely affected – and susceptible of being modified – through the more or less conflictual confrontations between advocacy coalitions. While the deep core is hardly susceptible to encounter any modification at all (it would be a sort of “religious conversion”), the policy core is only susceptible to change in case of substantial changes of (some of) the external parameters or of more or less harsh external events or shocks. Compared to the two first layers, the secondary aspects are more susceptible to change during the policy

process. Such modifications, which do not imply changes of the fundamental components of the belief system but only marginal adjustments, usually result from *learning processes* across coalitions during which technical arguments are shared and/or managerial and procedural rules and procedures are negotiated.

In the ACF perspective, policy formulation and implementation are the result of the more or less conflictual confrontation between two or more advocacy coalitions, the policy preferences of which are shaped by their respective belief system.

Regarding the empirical puzzle discussed in this article (explanation of wind power policy implementation successes and failures), we are hypothesizing that the ACF might adequately complement the IRR’s explanations through the following contribution: it brings actors’ beliefs back in, by focusing on (individual and collective) belief systems as the main explanatory factor of actors’ strategies within policy processes. It thus provides clear, reasonable and empirically testable theoretical propositions of actors’ policy preferences and strategies, and develops a clear and pragmatic conceptualization of the dynamics of actors’ configurations in terms of advocacy coalitions. In doing so, the ACF allows the articulation, in a very promising way, of institutional and agency-based explanations of policy processes and LRAs.

In order to test the ACF’s propositions, we propose a second hypothesis concerning the explanation of wind power implementation

successes and failures:

**Hypothesis 2.** Success and failure of wind power policy implementation are the result of the more or less conflictual confrontation of the various advocacy coalitions' belief systems.

Thus, the more coalitions differ on deep core and policy core beliefs, the higher the risks of conflicts and policy lock ins or failures. Conversely, the more coalitions' divergences deal with secondary aspects beliefs, the more likely it is that coalitions will develop learning processes producing LRAs susceptible to lead to the construction of a wind park.

In order to conduct our analysis, a large qualitative data base was collected: primary (30 interviews, hearings, written documents) and secondary (750 articles press review) sources. Two main methods were used to analyze the cases. Firstly, a *minimalist understanding* of process-tracing was used. Events, causes, mechanisms and main actors<sup>34</sup> were identified within a historical narrative text (Beach, 2017: 4). Secondly, qualitative content analysis was used to uncover the beliefs of the principal stakeholders with a semi-structured questionnaire. Additional statements (hearings, written documents, press articles) were also added. These were regrouped in a data base and were submitted to deductive content analysis (Elo and Kyngäs, 2008) based on the structured matrix of belief systems offered by ACF scholars (Sabatier and Jenkins-Smith, 1993).

## 6. Empirical results of Mont-Crosin and Tramelan case studies

### 6.1. Advocacy coalitions of wind power

In Mont-Crosin, a Pro-development coalition collaborated with a smaller coalition concerned with the environmental impacts of the activity, with which it managed to negotiate agreements to implement the project. In Tramelan, three coalitions progressively formed and the subsystem was particularly conflictual: a Pro-development coalition, a Pro-regulation coalition and an Anti-wind power coalition. Whereas negotiation was possible with the first, it was impossible with the second.

#### 6.1.1. Mont-Crosin (1995–2014)

**6.1.1.1. Pro-development coalition. Composition:** Federal and cantonal authorities (transport, communications & energy departments) and agencies (energy, wind power program), professional association (Suisse Eole), local authorities, supporters of the local community, planners, engineers, various energy utilities, land owners, regional tourism and economic promotion.

**Policy beliefs:** The project is developed by a cantonal energy utility which collaborates with a wide coalition of actors (cited above). Various value systems ranging from economic development to ecological modernization orientations are thus present (*deep core*). The cognitive glue of the coalition rests on a motherhood idea: their support of the *experimental* nature of wind power policy. However, each subgroup of actors, interprets wind power activity and its policy within their sectoral problem-agenda (i.e. energy, regional development, private enterprise). The different potential goods (clean, profitable and indigenous electrical supply, jobs, taxes, etc.) and services (positive symbolic value, knowledge) produced by the activity, are valued as potential solutions to their respective policy problems (e.g. global warming and pollution, energy dependency, deindustrialization, political legitimacy, lack of technical knowledge). These beliefs form a complementary mosaic, where the project is viewed not only as a pilot project experience to develop green energy but also as a touristic product which can federate local actors, resources and produce revenues

<sup>34</sup> Regularity of presence over time (i.e. ten years), as well as participation in coordinated behavior led us to identify different actors.

for the region (*policy core*). In relation to *secondary aspects*, the project design is mostly decided by the utility, in collaboration with the other actors. It opts for a low-risk, "small steps strategy". This helps to foster learning in relation to the different (technical, environmental, legal, social, economic) aspects of the project. In relation to potential conflictual interests to the project (environment and social impacts), environmental measures (avoidance, mitigation, compensation) were found in relation to landscape and nature impacts. Socio-economic benefits were used as a form of compensation for the nuisances (landscape impact, noise) to the local community (tourism concept) and neighboring land owners (land rent).

**6.1.1.2. Environmental protection coalition. Composition:** Nature, heritage and landscape NGOs, federal commission for the protection of nature and landscape, federal and cantonal environmental protection agencies, cantonal and regional land use planning agencies, neighboring estate owners.

**Policy beliefs:** These actors are mostly concerned with limiting the impacts of economic and infrastructural development on the environment in its eco-systemic, historical, cultural and aesthetic dimensions and ensuring a coherent development (*deep core*). Wind power and its policy are supported as a contribution to resolving pollution and global warming. However, renewable energy interests must be weighed in relation to their impact on the local and regional environment and landscape (*policy core*). The organizations demand that existing legislation be applied and propose some additional site selection criteria. Within this framework Mont-Crosin is accepted as a site for development. In relation to project specifics, the coalition will demand avoidance of sensitive nature and landscape areas, mitigation (camouflage, burial of infrastructures) as well as compensation (nature revitalization) measures. Later in the process, a landscape study, as well as planning instruments will be demanded in relation to the extension of the park (*secondary aspects*).

#### 6.1.2. Tramelan (2006–2016)

**6.1.2.1. Pro-development coalition. Composition:** Same types of actors as in the Mont-Crosin case (but with a weaker support from the local population), as well as federal and cantonal planning and environmental agencies which have joined the coalition.

**Policy beliefs:** The project is developed by a branch of a large cantonal utility (Sol-E) seeking to develop its productive portfolio in a changing context of energy liberalization, greening of energy policy and green energy subsidizing (RPC). On the contrary to the experimental nature of Mont-Crosin, Tramelan is more industrial. The amount of information produced during the *experimental* period leads the different actors of the coalition to support the energetic, economic and environmental relevance of the activity. Wind power has become one of the pillars of the energy transition in Switzerland.<sup>35</sup> In their view, it can produce direct economic revenue through the RPC for the developers and the region and produces low environmental impacts. Indirect economic returns due to the symbolic added value of the activity have mostly disappeared, as the activity has lost its innovative quality. The coalition supports planning efforts of the activity in the best sites across Switzerland (which is the case for Tramelan), in an industrial perspective (*policy core*). Acting as the project owner and developer, the utility takes all the major technical, environmental, financial and land use decisions (*secondary aspects*). Environmental and social impacts are taken care of through various avoidance (suppression, displacement of turbines), mitigation (temporary activity suspension, change of exploitation regime) and compensation measures (revitalization). Socio-economic compensation is developed through land renting.

<sup>35</sup> The gradual evolution of the height of the turbine enables the exploitation of higher winds, increases productivity and enables exploitation in new sites.

6.1.2.2. *Pro-regulation coalition. Composition:* environmental protection NGOs, regional planning agencies.

*Policy beliefs:* Their *deep core* is composed of values related to the protection of biodiversity and regional development. Their *policy core* continues to view the development of renewable energies positively as a means to produce local indigenous green energy, although it has demonstrated its limited energetic and economic value and should be developed with restraint. Since the introduction of the RPC in 2008–2009, they fear the dissemination of the activity and therefore demand better regulation at all governance levels (federal, cantonal, communal) as well as spatial concentration of the activity. In relation to their guiding instruments, they demand binding planning instruments, encourage research into problematic areas (birds/bats, landscape), environmental measures to limit impacts (displacing turbines, mitigation, compensation) and socio-economic redistribution at the regional level between communes. Identified within the regional plan, the project of Tramelan is considered as a priority. Therefore, technical demands in relation to the project (displacement of certain turbines, information on certain environmental impacts) are limited (*secondary aspects*).

6.1.2.3. *Anti-wind power coalition. Composition:* Land owners, local opponents, anti-wind power groups and federations, neighboring authorities and their population, landscape and heritage protection NGOs.

*Policy beliefs:* Their *deep core* concentrates on the preservation of aesthetic, socioeconomic and cultural aspects of landscape and heritage (*deep core*). In *policy core* terms, these actors have grown skeptical or totally against the siting of wind power for energetic (low energy production), economical (small market, existence of subsidies, low economic return), environmental (damage to landscape, heritage, nature because of height and number of turbines,) and human health and quality of life reasons. The coalition demands to stop the development of the activity or at least seriously limit its development with a national binding instrument. Alternative renewable energies and energy conservation measures should be supported instead of building wind parks. The *secondary aspects* are based on an intense criticism of the technical, environmental, socioeconomic and procedural quality of various projects. In the case of Tramelan, to limit noise nuisances to housing, a minimum of at least 500 m distance should be respected. Visual impacts negatively affect the landscape of its inhabitants (Tramelan and neighboring Communes) as well as their quality of life, but also tourism, land value, and protected areas. Finally, the project largely impacts bats/birds, in particular certain endangered species and excludes voices (impacted neighboring communities) which should have their say in the project.

## 6.2. Discussion of hypothesis 2

The analysis of the different policy belief systems in each case, demonstrates that wind power policy implementation outcomes are mainly due to the more or less divergent social construction of (wind power) policy rationales and meanings, as well as to the more or less conflictual mobilization of different coalitions.

Table 3 presents a synthetic overview of the relationships between *ACF based independent variables* on one side, and the *type of LRAs* and *policy outcomes* (dependent variable) on the other side.

This synthetic overview (Table 3) allows to point out the role of the following ACF variables for the explanation of LRAs and policy

outcomes:

1) *Number and size of coalitions:* these two analytical dimensions seem to contribute significantly to the explanation of policy outcomes. The successful case (Mont-Crosin) is characterized by a smaller number of coalitions (only 2), which are asymmetric: one large and powerful Pro-wind and one small, weaker Environmental protection. There is no Anti-wind coalition. The non-successful case (Tramelan) is characterized by a larger number of coalitions (3) with two large and conflicting (Pro- and Anti-) coalitions dominating the more fragmented policy subsystem. Thus, the promoters of the project (Pro-development coalition) faced two different series of demands formulated by the Anti-wind and the Pro-regulation coalitions. The growth of the size of the Anti-wind coalition, as well as its increasing organizational capacity, which allows an accumulation of political resources, contributed to the increasing conflictuality of the Tramelan subsystem.

2) *Convergences/divergences of deep and policy core beliefs:* The successful case is characterized by less divergent coalition belief systems. A minimum consensus on central policy beliefs prevails; in particular: the relevance of testing experimental wind power infrastructure, the statement that wind power as an activity is able to rally various sectoral interests, the importance of redistributing socioeconomic compensations to local community, and the necessity of environmental compensations. The non-successful case is characterized by very inconsistent belief systems. The industrial approach of the Pro-wind coalition, which considers wind power as a pillar of the Swiss energy transition strategy 2050 is completely opposed to the preservation approach characterizing the Anti-wind belief system, which considers wind power as completely irrelevant. This highly polarized constellation of belief systems contributes to marginalize the third belief system of the small Pro-regulation coalition. As a result, the different coalitions' belief systems clash over almost all major policy beliefs: the energetic and economic relevance of wind power, the environmental impacts of wind turbines and the effects of wind turbines on human health.

3) *Room for maneuver in the negotiations on secondary aspects:* The more consensual (and successful) subsystem offers substantial room for maneuver for negotiations between the two coalitions on secondary aspects. More particularly, actors agree on the necessity of environmental measures as well as on the redistribution of socioeconomic compensations to local actors. In the non-successful case, the profound contradictions between coalitions' belief systems hinder any negotiation on secondary aspects.

These differences between the features of the two contrasted policy subsystems explain the differences between the two LRAs. In the successful case, minimum consensus on central policy beliefs encourage policy actors to develop compliance and even complement strategies (e.g. use of the wind park for tourism). These strategies enable the construction of the wind park. In the non-successful case, the conflicting belief systems lead the opponents to develop circumvention strategies, which obstruct the compliance strategy of the Pro-wind coalition, as well as the complement strategies of the Pro-regulation coalition; and thus, hinder the construction of the wind park.

One can conclude that the ACF analysis of core values of the different coalitions' belief systems, as well as of their conflictual relations, can largely explain the observed differences of wind power policy outcomes within the two cases.

**Table 3**  
Coalitions, belief systems, LRAs and policy outcomes.

Coalitions	Deep/policy cores	Secondary aspects	LRA	Policy outcomes
<p><b>Mont-Crosin</b></p> <p>Pro-wind: large coalition involving authorities from all institutional levels, cantonal energy utility, professional associations, local population, other economic sectors (tourism, economic promotion)</p> <p>Environmental protection: medium size coalition involving nature, heritage and landscape protection NGOs, federal commission for the protection of nature and landscape, federal and cantonal environmental protection + land use planning agencies, neighboring estate owners</p> <p><i>No radical opponents</i></p>	<p>-Experimental activity</p> <p>-Possible tourist valorization (double dividend)</p> <p>-Complementary mosaic of beliefs (global warming and pollution, energy dependency, lack of deindustrialization, political legitimacy, lack of technical knowledge)</p> <p>-Limitation of environmental impacts of economic and infrastructure development</p> <p>-Wind power as a contribution to resolve pollution and global warming issues</p> <p>-Mix of the following policy principles: limitation, mitigation, compensation</p> <p>-Balance of interests between renewable energy and local/regional environment/landscape protection</p> <p>-Industrial approach</p> <p>-Energetic, economic and environmental (low impacts) relevance of wind power</p> <p>-One of the pillars of Swiss energy transition strategy 2050</p> <p>-Mix of the following policy principles: limitation, mitigation, compensation</p> <p>-Simultaneous protection of environment and regional development</p> <p>-Production of local indigenous green energy (but limited energetic/economic value)</p> <p>-Should be developed with restraint</p> <p>-Strengthening of regulation in order to avoid uncontrolled dissemination</p> <p>-Preservation of aesthetic and cultural landscape and heritage</p> <p>-Skeptical or against wind power</p> <p>-Stop or drastically limit wind power activity (for energetic, economic, environmental and human health/quality of life reasons)</p> <p>-Support alternative renewable energy</p>	<p>-Small steps strategy</p> <p>-Learning about technical, environmental, social and economic issues</p> <p>-Environmental measures (landscape, nature protection)</p> <p>-Enforcement and strengthening of environmental law (criteria for site selection, development of new instruments (e.g. EIE, planning))</p> <p>-RPC should generate economic revenues for developers and for some land owners (public, private).</p> <p>-Planning as central policy instrument</p> <p>-Binding planning instruments</p> <p>-Environmental measures</p> <p>-Socioeconomic redistribution at regional level</p> <p>-Binding policy instruments</p> <p>-Increased minimal distance</p> <p>-No visual, noise and birds/bats impacts</p>	<p><b>Minimum consensus on central policy beliefs:</b></p> <ul style="list-style-type: none"> <li>-Wind power as an activity able to rally various sectoral interests</li> <li>-Importance of redistribution of socioeconomic compensations to local community</li> <li>-Necessity of environmental compensations</li> </ul> <p><b>Actors' strategies:</b> compliance and complement</p> <p><b>Conflict on almost all major policy beliefs:</b></p> <ul style="list-style-type: none"> <li>-Energetic and economic relevance of wind power</li> <li>-Environmental impacts of wind turbines (landscape, birds/bats)</li> <li>-Human health and quality of life impacts</li> </ul> <p><b>Actors' strategies:</b> circumvention and diversion</p>	<p><b>Construction of 16 wind turbines</b></p>
<p><b>Tramélan</b></p> <p>Pro-wind: large size coalition involving authorities from all institutional levels, cantonal energy utility, professional associations, federal and cantonal environmental protection + land use planning agencies</p> <p>Pro-regulation: small size coalition involving environmental protection NGOs, regional planning agencies</p> <p>Anti-wind: medium (increasing) size coalition involving land owners, local opponents, anti-wind power groups and organizations (local, regional and national levels), neighboring authorities and population, landscape and heritage protection NGOs</p>	<p>-One of the pillars of Swiss energy transition strategy 2050</p> <p>-Mix of the following policy principles: limitation, mitigation, compensation</p> <p>-Simultaneous protection of environment and regional development</p> <p>-Production of local indigenous green energy (but limited energetic/economic value)</p> <p>-Should be developed with restraint</p> <p>-Strengthening of regulation in order to avoid uncontrolled dissemination</p> <p>-Preservation of aesthetic and cultural landscape and heritage</p> <p>-Skeptical or against wind power</p> <p>-Stop or drastically limit wind power activity (for energetic, economic, environmental and human health/quality of life reasons)</p> <p>-Support alternative renewable energy</p>	<p>-RPC should generate economic revenues for developers and for some land owners (public, private).</p> <p>-Planning as central policy instrument</p> <p>-Binding planning instruments</p> <p>-Environmental measures</p> <p>-Socioeconomic redistribution at regional level</p> <p>-Binding policy instruments</p> <p>-Increased minimal distance</p> <p>-No visual, noise and birds/bats impacts</p>	<p><b>Conflict on almost all major policy beliefs:</b></p> <ul style="list-style-type: none"> <li>-Energetic and economic relevance of wind power</li> <li>-Environmental impacts of wind turbines (landscape, birds/bats)</li> <li>-Human health and quality of life impacts</li> </ul> <p><b>Actors' strategies:</b> circumvention and diversion</p>	<p><b>No construction of wind turbines</b></p>

### 7. Towards a combination of the IRR and ACF frameworks

The analysis – under the double perspective of the IRR and ACF – of the two cases of wind power policy implementation has confirmed the relevance of combining both analytical frameworks. More precisely, it has demonstrated the possible contribution of the ACF to the explanation of actors’ and coalitions’ strategies within LRA formulation processes. In particular, it has shown how the focus on actors’ belief systems – as the main explanatory factor of coalition building – enables to understand coalitions’ preferences and explain actors’ strategies regarding the implementation of wind power policy. It also allows to distinguish the perimeter of the (non) negotiable components of the projects and thus assess the probability of positive or negative LRAs (under the perspective of the wind power policy objectives). In a nutshell, ACF, by deepening our understanding of actors’ cognitive and

“ideational” dimensions (like belief systems, knowledge, expertise and learning), provides relevant agency-based explanatory factors of IRR outcomes (i.e. type of LRA), as well as of policy outcomes (i.e. the (non) construction of wind turbines). Whereas the IRR infers actors’ motivations (i.e. interests) mostly from their *status* (property owners/users and/or policy target groups and beneficiaries), the ACF delves more subtly into the sociological foundations of their strategies by studying their *belief systems* instead of their basic (supposed) material interests. Such an analytical strategy has proven to be relevant and efficient when analyzing political conflicts characterized by the importance of perceptual, symbolical and identity dimensions and values.

On the other hand, the IRR demonstrates how the increasing *complexity* of the wind power IR (substantial rise of extent and limited rise of coherence), created new incoherencies, which, ironically, provided new levers of action for the Anti-wind power coalition.

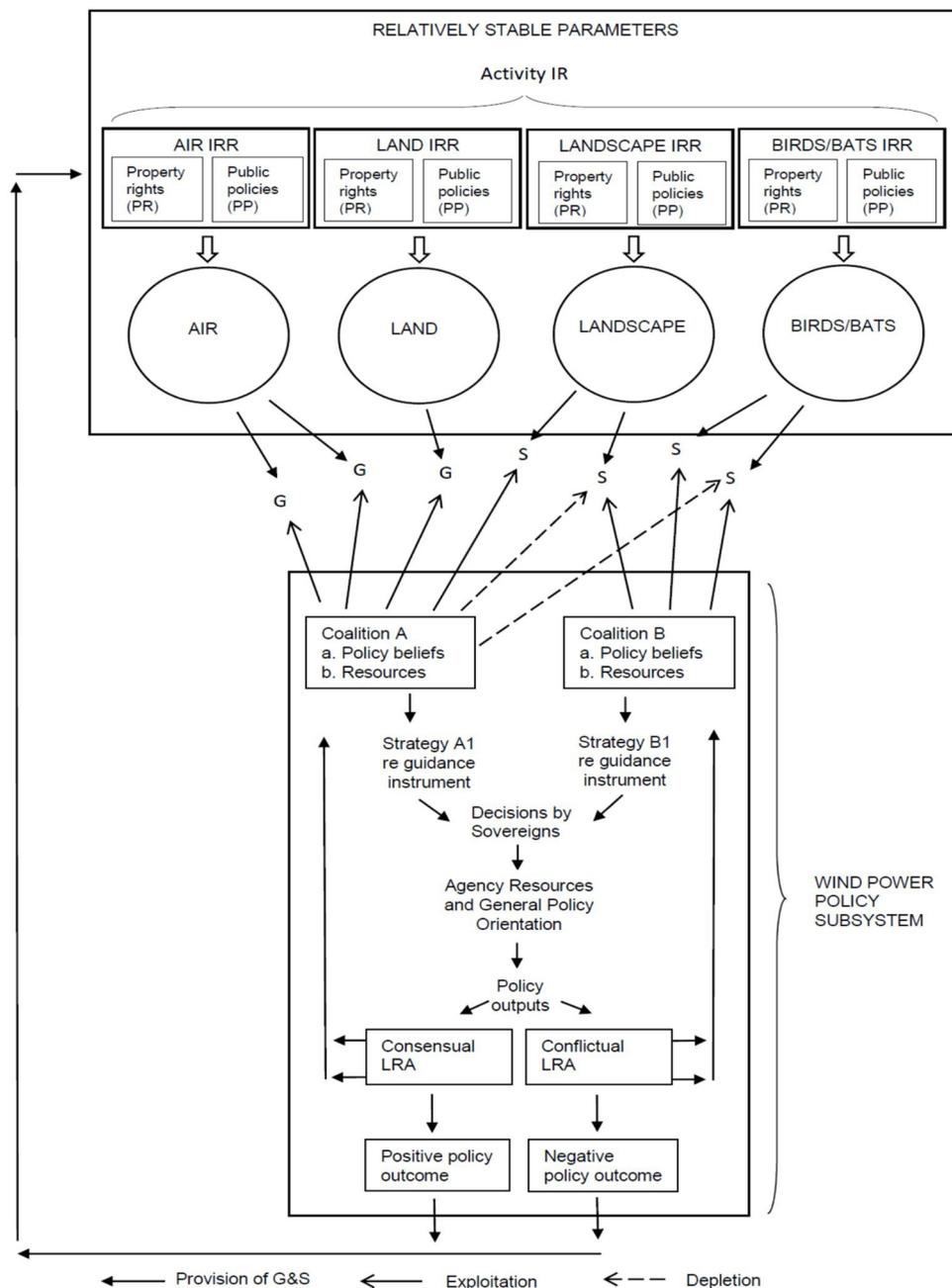


Fig. 4. Combined ACF/IRR framework: the example of the wind power activity. Source: Authors, adapted from Jenkins-Smith et al. (2014: 194) and Gerber et al. (2009: 804).

Fig. 4 portrays a possible combination of the ACF and IRR frameworks by using the example of wind power. Such a combination of both frameworks implies to situate, compare and articulate the different components of each framework (i.e. Fig. 2 and Fig. 3). Our aim has not been to use all the concepts present in both frameworks, but to integrate the most useful ones for our demonstration. We thus propose the following conceptual operations (Fig. 4):

- 1) The wind power activity IR and the different natural resource systems are integrated into the ACF's "Relatively stable parameters". These IRR components correspond to and/or could replace the "Basic constitution structure (rules)" the "Distribution of natural resources" and "Basic attributes of the problem area (good)" of the ACF.
- 2) IRR actors' constellation (resource owners and users) is reframed and divided into two (or more) advocacy coalitions (Pro- versus Anti-wind power). Thus, demonstrating that the ACF's belief system analysis can help explain the alliances which appear between various categories of resource users and owners. Such an analysis also integrates a higher number of actors from non-user categories (e.g. politico-administrative actors, experts).
- 3) Relationships between the different actors (coalitions) are depicted by thin black arrows (coming from the various actors' coalitions located in the policy subsystem and going to G&S), which correspond to resource ownership and use rights claims by the various categories of actors (owners, users or "regulators"<sup>36</sup>) leading (or not) to effective uses. Such a graphic representation thus enables to visually grasp the material basis of the conflict (problem area).
- 4) The ACF's "Decisions by Sovereigns" and "Agency Resources and General Policy Orientation" is left unchanged.
- 5) Finally, the LRA ("Consensual" and "Conflictual") box is integrated within the ACF "Policy Outputs and Impacts".

This way of combining the two frameworks corresponds in our opinion to an "integrated" or "intertwined" combination strategy, in which we integrate (groups of) concepts coming from one framework into the logic of the other and vice versa (Cairney, 2013). Such an integrated strategy allows to create new causal chains (cf. different categories of arrows in Fig. 2), which constitute the real added value of such a combination (see also, Schmid et al., 2019).

However, such an integrated/intertwined combination strategy implies that the two frameworks share the same basic suppositions. After a careful analysis of some of their epistemological foundations, we consider that this is the case. The IRR and ACF both claim to be *analytical frameworks* (and not theories) (Ostrom, 2011: 7–9). They also share a similar conception of what institutions, institutional rules, property rights, social norms and values are. They have the same approach of policy (process) analysis in terms of policy subsystems and use similar criteria in order to identify relevant actors within policy subsystems. These epistemological and conceptual convergences are all but surprising, if we consider the origins of the frameworks, which are both rooted in the emerging environmental policy analysis during the 1980s, and have been more recently (since the late 1990s) influenced by institutional economics and property rights theory (e.g. Sabatier and Schlager, 2000; Knoepfel et al., 2007; Gerber et al., 2009).

## 8. Conclusion

The comparative analysis of success and failure cases of wind power policy in Switzerland has shown that one of the main conditions for a successful outcome is that the members of the various coalitions are

<sup>36</sup> The "regulators" are the (usually political-administrative) actors involved in the regulation of the uses of the resource. These actors can either be members of a coalition or policy brokers in the sense of ACF.

able to develop LRAs based on substantial compensations by developers, to the benefit of negatively affected actors; another condition being a limited divergence between the coalitions' belief systems. On the other hand, the progressive complexification of the wind power (activity) regime during the 2000s and 2010s led paradoxically to an increase in conflict in regard to the siting of wind parks, as it contributed to create new leeway for opponents to develop their strategies. In this regard, the comparative analysis has also shown that this increase in conflict stems from the emergence and progressive consolidation of increasingly divergent belief systems within the wind power policy subsystem, leading to the constitution of competing coalitions which strongly oppose each other.

This paper has also shown some limits of institutional explanations of policy outcomes (cf. the discussion of IRR hypothesis in section 4.2) and the need for additional explanations of actors' (and coalitions') strategies, notably within the process of LRA building. In answer to research question 1,<sup>37</sup> one has to recognize that a purely institutional approach such as the IRR has some difficulties in explaining the political process of LRA building even though it was able to point out crucial contextual aspects of this process. In particular, it has shown how the increasing *complexity* of the wind power IR (substantial rise of extent and limited rise of coherence), created new incoherencies leading to an "institutional complexity trap" (Bolognesi and Nahrath, 2020), which, ironically, provided new levers of action for the Anti-wind power coalition.

In answer to research question 2, one has to acknowledge and stress the fact that the combination of the IRR institutional approach with an agency (and to a certain extent cognitive)-based approach like the ACF seems to be really convincing and promising for a better explanation of the political processes of LRA building, and more generally for further theoretical developments of the IRR framework. If institutions do certainly matter, actors and their cognitive structure do as well. But such a combination does not come without conceptual and methodological challenges which require adaptive work (cf. section 7). This paper has demonstrated, in a large sense, that it is empirically and conceptually feasible.

Although the interaction between institutional and agency-based explanations has been only (very) briefly addressed in this article, we believe that this theoretical contribution could be successfully developed in future studies in a wide variety of natural resource or activity-based domains (i.e. energy, environment or even geo-political conflicts).

## Funding

This work was supported by the Swiss National Science Foundation, grant number 100017\_150258.

## CRediT authorship contribution statement

**Kevin Blake:** Conceptualization, Methodology, Validation, Investigation, Data curation, Formal analysis, Writing - original draft, Writing - review & editing. **Stéphane Nahrath:** Conceptualization, Methodology, Validation, Writing - original draft, Writing - review & editing, Supervision, Resources, Project administration, Funding acquisition. **Karin Ingold:** Conceptualization, Validation, Writing - review & editing.

## Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

<sup>37</sup> The two research questions are formulated in the introduction.

## References

- Aubin, D., 2008. Asserted rights; rule activation strategies in water user rivalries in Belgium and Switzerland. *J. Public Policy* 28 (2), 207–227.
- Baden, J.A., Noonan, D.S., 1998. *Managing the Commons*. Indiana University Press, Bloomington & Indianapolis.
- Beach, D., 2017. Process-tracing methods in social science. *Oxford Research Encyclopedias of Politics*. Oxford University Press.
- Bolognesi, T., Nahrath, S., 2020. Environmental governance dynamics: some Micro foundations of macro failures. *Ecol. Econ.* 170.
- Bréthaut, C., 2013a. *Gestion des réseaux urbains de l'eau en stations touristiques alpines*. Rüegger, Zürich.
- Bréthaut, C., 2013b. Le fonctionnement du réseau d'eau d'une station touristique: spécificités et réinterprétation locale des règles. *Flux* 92, 36–46.
- Bromley, D. (Ed.), 1992. *Making the Commons Work. Theory, Practice and Policy*. ICS Press, San Francisco.
- Buck, S., 1998. *The Global Commons. An Introduction*. Covelo: Island Press, Washington, D.C.
- Burger, J., Ostrom, E., Norgaard, R.B., Policanski, D., Goldstein, B.D., 2001. *Protecting the commons. A Framework for Resource Management in the Americas*. Island Press, Washington, D.C.
- Cairney, P., 2013. Standing on the shoulders of giants: how do we combine the insights of multiple theories in public policy studies? *Policy Stud. J.* 41 (1), 1–21.
- Condo Salas, V., 2017. *Politiques Publiques Minières. Stratégies pour la mise en œuvre de grands projets miniers, entre le succès et l'échec. Quatre études de cas de mise en œuvre de grands projets miniers au Pérou*. Université de Lausanne, Faculté de droit, des sciences criminelles et d'administration publique Doctoral dissertation.
- de Buren, G., 2015. *Understanding natural Resource management. An Introduction to Institutional Resource Regimes (IRR) and a Field Guide for Empirical Analysis (Vol. durabilitas.doc N°1)*. sanu durabilitas, Biel.
- Dusan Lopez, P., 2019. Sustainable coffee: neither markets nor labels nor shorter chains, but inclusive arrangements. *An Institutional Resource Regime Analysis of Local Regulatory Arrangements in Two Colombian Regions*. (PhD in Public Administration). University of Lausanne, Lausanne.
- Elo, S., Kyngäs, H., 2008. The qualitative content analysis process. *J. Adv. Nurs.* 62 (1), 107–115.
- Gerber, J.-D., 2006. Structures de gestion des rivalités d'usage du paysage. Une analyse comparée de trois cas alpins. Rüegger Verlag, Zürich/Chur.
- 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. *Ecol. Econ.* 68 (3), 798–809.
- Jenkins-Smith, H.C., Nohrstedt, D., Weible, C.M., Sabatier, P.A., 2014. The advocacy coalition framework: foundations, evolution and ongoing research. In: Sabatier, P.A., Weible, C.M. (Eds.), *Theories of the Policy Process*. Westview Press, Boulder, CO, pp. 183–224.
- Kellner, E., Oberlack, C., Gerber, J.D., 2019. Polycentric governance compensates for incoherence of resource regimes: The case of water uses under climate change in Oberhasli, Switzerland. *Environ. Sci. Policy* 100, 126–135.
- Knoepfel, P., Nahrath, S., Varone, F., 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*. Springer, Berlin, pp. 455–506.
- Knoepfel, P., Larrue, C., Varone, F., Hill, M., 2011. *Public Policy Analysis*. Policy Press, Bristol.
- Laesslé, M.-N., 2018. *Le goût du vin. Créativité institutionnelle, appellations et culture du vin en Suisse et en Nouvelle-Zélande*. Editions Alphil Presses universitaires suisses, Neuchâtel.
- Lieberherr, E., Fischer, M., Tschannen, A., 2019. Taking stock of institutional resource regime research: a meta-analysis. *Environ. Sci. Policy* 97, 81–89.
- Ostrom, E., 1990. *Governing the commons. The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge.
- Ostrom, E., 2000. Reformulating the commons. *Swiss Political Sci. Rev.* 6 (1), 29–52.
- Ostrom, E., 2011. Background on the institutional analysis and development framework. *Policy Stud. J.* 39 (1), 7–27.
- Ostrom, E., Gardner, R., Walker, J., 1994. *Rules, Games, and Common-Pool Resources*. The University of Michigan Press, Ann Arbor.
- Ostrom, E., Dietz, T., Dolsak, N., Stern, P., Stonich, S., Weber, E. (Eds.), 2002. *The Drama of the Commons*. National Academy Press, Washington, DC.
- Sabatier, P.A., 1998. The advocacy coalition framework: revisions and relevance for Europe. *J. Eur. Public Policy* 5 (1), 98–130.
- Sabatier, P.A., Jenkins-Smith, H.C., 1999. The advocacy coalition framework. An assessment. In: Sabatier, P.A. (Ed.), *Theories of the Policy Process*. Westview Press, Boulder, Oxford, pp. 117–166.
- Sabatier, P., Schlager, E., 2000. Les approches cognitives des politiques publiques : perspectives américaines. *Revue Française de Science Politique* 50 (2), 209–234.
- Sabatier, P.A., Jenkins-Smith, H.C. (Eds.), 1993. *Policy Change and Learning. An Advocacy Coalition Approach*. Westview Press, Boulder.
- Schlager, E., Ostrom, E., 1992. Property-rights regimes and natural resources: a conceptual analysis. *Land Econ.* 249–262.
- Schmid, N., Sewerin, S., Schmidt, T.S., 2019. Explaining advocacy coalition change with policy feedback. *Policy Stud. J.*
- Schweizer, R., 2015a. *Stratégies d'activation du droit dans les politiques environnementales. Cas autour des bisces valaisans*. Rüegger Verlag, Zürich.
- Schweizer, R., 2015b. Law Activation Strategies (LAS) in Environmental Policymaking: a Social Mechanism for Re-politicization? *Eur. Policy Anal.* 1 (2), 132–154.
- Varone, F., Nahrath, S., 2014. Regulating the uses of natural resources: when policy instruments meet property rights. In: Halpern, C., Lascoumes, P., Le Galès, P. (Eds.), *L'instrumentation de l'action publique. Controverses, résistances, effets*. Les Presses, Sciences Po. Paris, pp. 189–220.
- Viallon, F.-X., Schweizer, R., Varone, F., 2019. When the regime goes local: local regulatory arrangements and land use sustainability. *Environ. Sci. Policy* (96), 77–84.