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Policy failures in mobile and complex contexts:
Translating EU energy policy in Finland

Abstract

Rooted in policy mobility and complexity theory, the study conceptualizes policy failure based on unexpected events, behaviour, self-organising capacities and path-dependencies. Complexity theory enables a special emphasis on particular capacities of each context that shape policy mobilities, translations and implementation. The study approaches policy failures by emphasising both the unpredictable and stable characteristics of political systems. A case of wood energy subsidies in Finland, part of national translation of EU renewable energy policy, provides an empirical example. The policy failed despite government and parliament approval and allows conceptualizing the role of uncontrollable features for the success of policy implementation.

Keywords: Policy mobility; policy failure; complexity theory, renewable energy, Finland

Introduction

Generating, executing and maintaining transnational policies is a vast political and geographical challenge faced by policy makers in supranational policy organisations. For example, the functioning of the EU depends on the creation and implementation of regulation, standards and strategies that concern EU citizens and jurisdictions. However, the paths towards policy implementation vary spatially due to differing socio-political settings, historical aspects and natural environments, while outcomes vary due to influence and emulation (Padgett 2003; Peck & Theodore, 2015), and sometimes policies are considered to have failed (Baker *et al.* 2016, Kortelainen and Rytteri 2017).

Framed by literature on policy failure, policy mobility and translation, and complexity theory this study discusses the processes on how and why policies fail (see Oppermann and Spencer 2016). As a theory based analysis, it is framed by an empirical example: Finland's translation of the 2009 Renewable Energy Directive (RED) and its 2010 national policy instrument, the "Act on Energy Support for Low-Grade Timber" (AESLT), which was intended to increase bioenergy use in Finland.

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The government created this policy instrument to provide financial support for the harvesting of small-sized wood for energy production. However, its design did not meet expectations and the instrument can be perceived as a failure on several grounds. First, the European Commission (EC) did not accept the subsidy proposed by the Finnish government and accepted by the Finnish Parliament. Second, statistics showed that coal consumption increased by 47% in 2013 and had replaced wood chips in energy production. Third, with an unstable wood energy market companies were unwilling to invest in wood energy production despite the promised subsidies (see Kortelainen and Rytteri 2016). To shed light on the questions of why and how policies fail, this paper scrutinises the processes that lead the EC to refuse this policy and forced the Finnish government to revamp it. It further evaluates how coal replaced wood in energy production despite new renewable focused policies and why the Finnish policy discourse and wood energy market resulted in instability when the aim was stability.

Conceptually, the study is framed by policy mobility, complexity theory, and policy failure discussions. The policy mobility and mutation approach, as employed by political geography scholars, views policy as a moving and contextually transforming entity (see Peck and Theodore 2010; Clarke *et al.* 2015; Albrecht 2017). From this perspective, we emphasise the problems that national complexities cause for policy operationalisation and implementation. Complexity theory (e.g., Cilliers 2005; Martin and Sunley 2007; Cairney 2012) offers conceptual tools to analyse the processes invoked in policy mobility and translation, and provides a theoretical framework to explain policy failures. The following chapter presents a conceptual framework on how to understand processes of policy failures in mobile and complex contexts.

Policy (failures) in mobile and complex contexts

Policy translation

There is a growing geographical literature of policy mobility and mutation which has evolved around the question of how political ideas and practices move across space. In political science there is a longer tradition of policy transfer studies on the movement of political ideas (Dolowitz and Marsh 2000; Benson and Jordan 2011). This literature has focused on the key actors in transferring policy ideas and models as well as the institutions and practices involved. More recently, political geographers have entered the research field but they tend to deploy the terms mobility and mutation instead of transfer. With this, geographers emphasise that policy does not move as a ready-made package but as bits and pieces which have to be assembled with local specificities in order to have an effect. This means that no policy model or procedure takes place everywhere uniformly as policy mobility always entails change and mutation (e.g., Peck 2011; McCann and Ward 2012). Although policy mobility studies form a heterogeneous group of approaches and theoretical roots, they have some common features that are important for this study. Policy formation is a *socially constructed process* and thus mutations of policy are interpreted as a field of adaptive connections with power relations and contested interactions among involved actors. This makes policy mobility a *collective activity* which always involves a variety of actors and their composition depends on the issue and geographical context (Peck and Theodore 2010; 2015; McCann and Ward 2012; Clarke *et al.* 2015, Albrecht *et al.* 2017).

To approach the process of policy mutation in complex contexts we can conceptualise the process as policy translation. In translation, common definitions are negotiated, roles and identities settled, calculations carried out and objectives set; in other words, the original ideas and aims of policy are shifted and translated to match the requirements and problematizations of eac h spatial context (Stone 2012; 2017). It includes the ways policy makers and their environments make sense of policy and seek to make it meaningful and workable for a certain context (Kortelainen and Albrecht 2014). Moreover, policy has to be socially and spatially embedded in the target audience by connecting it to particular problems or opportunities within each locality, region or nation (Jones *et al.* 2014). New spaces are entered and actors enrolled through translations which simultaneously both shape the identities and interests of 'local actors' and modify the mobile policy itself (Albrecht 2017). Without this mutability and fluidity, a transnational policy would be restricted in its mobility and due to a resistance to local translation processes in different places (Clarke *et al.* 2015) its presence would take the form of a colonial power relation rather than a common instrument.

Inevitably, policy translation is not a smooth and controlled exercise but always a challenging, multiple and contested manoeuvre that seldom manages to gain support from all stakeholders. Resistance may occur and, if opposition is strong enough, instruments derived from policy translation may fail. Similarly, translation processes that create a mismatch with the initial aims and targets at the site of transnational policy design, in our case Brussels, might face consequences resulting in failure, but not always (e.g., Albrecht 2017). In this context, the definitions of failure must be regarded related to the rationalities of the translating or designing entities and not as a normative product. Additionally, people, natural environments or economic and material processes sometimes refuse to behave as expected in policy calculations. In other words, contexts always contain complex, unstable and uncontrollable entities and properties which policy designers and makers have to deal with, but which are difficult to predict when translating policies.

Principles of complexity thinking

Complexity theory offers a valuable framework to understand the unpredictable, unstable and uncontrolled aspects of processes in which policies face unexpected changes in the contexts of translation. In general, complexity theory aims to explain how complex behaviour emerges from the interaction between collections of simpler components, how small actions can have large effects and large actions can have small effects and, consequently, why the behaviour of social and natural systems is hard to predict or control (see Cairney 2012).

The principles of complexity thinking have been described by emphasising different features and implications in various disciplines (e.g., Mitleton-Kelly 2003; Cilliers 2005; Heylighen *et al.* 2006; Martin and Sunley 2007; Cairney 2012), but the following points are essential. Complexity stems from the conceptualisation of systems as entities formed by components that influence one another and which are connected by mechanisms that define input and output between components. The existence, stability and evolution of a system are dependent on feedback loops. Negative feedback maintains stability in a system, whereas positive feedback drives change. Systems exhibit emergence, the capacity to self-organise and interaction between system elements without intentional coordination. If negative feedback loops do not dampen emergent process, it may change relations and mechanisms operating inside the system, and result in a change of the whole system.

Elements of a complex system interact with each other and their environments, as well as with different systems. This interconnectivity and interdependence explains how processes in one system may affect related systems. The impact varies with the characteristics of a system and its elements. The main focus when studying complex systems is in the relationships between components of one system and between different yet related systems. Thus, if a system is conceptualised as a constellation maintained by the interaction and feedback between its constituent elements, systems themselves cannot be seen as stable entities but products of continuous processes (Heylighen *et al.* 2006; Martin and Sunley 2007).

Systems are also sensitive to initial conditions and, consequently, the operation of the system is dependent on its history. This feature is conceptualised as path-dependence. It suggests that if policies or technologies are established and resources devoted to them, there are usually economic, political, cultural or mental incentives to invest more resources in pathways that support the initial preferences (e.g., Pierson 2000; Martin and Sunley 2006; Cairney 2012). Continuously, the success or perceived success of a chosen path, or low resistance towards an established path, produces increasing negative feedbacks to a system (see Pierson 2000), and over time it becomes increasingly costly or difficult to choose a different path. In terms of translation, path-dependency is not necessarily tied to the regime in itself but is integrated through the multiple understandings of involved actors that guides the processes of translation within a complex system (Albrecht *et al.* 2017).

Other concepts utilised to describe various behaviours emerging from essential features of complex systems are, for example, dissipative systems, autopoeisis, bifurcation and co-evolution. This diversity of concepts implicates the problem pointed out by Paul Cilliers (2005: 258): "To fully understand a complex system, we need to understand it in all its complexity...(but)...There is no human way of doing this." The description or the model is a reduction of complexity, some aspects of the system are always left out, and knowledge gained by any description of a complex system is always relative to the perspective from which the description, for instance an act of policy translation, was made. In framing

the complexity of a system there is no a priori procedure for deciding which description is suitable for certain purposes. "We cannot make purely objective and final claims about our complex world" (Cilliers 2005: 259). This does not mean that we lack the ability to comprehend, at least, parts of complex systems, but we have to be modest about our claims and acknowledge that our knowledge of them is always provisional (Cilliers 2005; Human and Cilliers 2013).

Methodologically, the impossibility to create descriptions about complexity in all its complexity means that we cannot examine all the relationships in a system or between systems. "The relationship between a complex system and its environment or context is in itself a complex problem" (Heylighen *et al.* 2006: 16). Consequently, the identification of constituent elements, flows and connections which form the boundaries and identities of the system become the aim of analysis (Heylighen *et al.* 2006; Martin and Sunley 2007). While achieving exhaustive knowledge about all constituencies and interactions within each system is not feasible, analysis requires a focus on certain relationships within or between systems that define the nature of its broader context (Heylighen *et al.* 2006). Thus, especially changes in relations become the object of study, and the notions developed to describe relations, like emergency, path dependence or co-evolution, can work as heuristic concepts to identify essential structures of the system. We must now scrutinise questions of how processes reproduce policy mobility and translation within complex systems.

Policy mobility in complex systems

To interpret policy mobility and translation using complexity theory requires a focus on the influence of complexity on systems of policy mobility. As Martin and Sunley (2007: 595-596) argue, "complexity is not something that just bolts on to or can be blended with existing conceptual/theoretical framework to add a complexity perspective...the task is to construct an ontologically defensible framework based on this conception." Policy mobility is described hereafter as a non-linear process of policy movement between different and internally heterogeneous systems. In the policy mobility concept policies are translated and mutate based on their employment in different systems. There are, however, flows and connections between the systems and with political, social and economic subsystems that shape localised translation processes. Thus, policy ideas, models, treaties and directives are framed by and create mechanisms and relations between systems; for instance, shared moral understanding, knowledge and discourse formulated to advance change in other political systems.

Taking EU transnational policy processes as an example, Bulmer and Padgett (2005) write about voluntary governance mechanisms based on 'soft incentives' such as guidelines, benchmarks and non-binding targets. The aim of such soft governance instruments is the creation of policy spaces where competition, peer-to-peer evaluation from other states, and non-governmental organisations create (moral) pressure to achieve given targets. Other forms of relations and mechanisms are created through discursive incentives based on scientific knowledge production and which are conceptualised as epistemic communities. These communities are part of a complex system and promote organisational learning, shared understanding, and contain non-scientific incentives, like transnational advocacy networks, which are formed around shared principles and ideas and rely on persuasion or socialisation (Stone 2004; Dunlop 2009; Downie 2014).

However, informal rules and soft compliance mechanisms entail the weakest form of policy mobility elements and are most prone to disruption caused by the complexity of systems, especially where guidelines, benchmarks and targets oppose embedded national preferences (Bulmer and Padgett 2005). Due to their binding character, coercive mechanisms, such as standards or binding targets, implemented by member states and political sub-systems within EU political system are less prone to disruptive events. Together, all these mechanisms combined to influence the Finnish case of mobility and translation processes, create the complexity of the system in question and contain facets that explain eventual policy failure. The translation of mobile supranational policies into national domains can be understood in what Bulmer & Badgett (2005) call the domestication of EU legislation. Thus, adjusting an EU policy, in our case RED, to suit domestic (national, regional) perspectives (Kortelainen and Albrecht 2014; Albrecht *et al.* 2017). The translation capacities of such processes differ concerning the mechanisms they are primarily embedded in (coercive, voluntary, discursive). Furthermore, in treating the socio-spatial contexts of policy translation as complex systems the domestication of policies can

create unexpected new processes. It can alter established mechanisms and processes, enable interaction in novel ways and create emergent processes, or the inheritance of past policies can restrict the freedom to develop innovative solutions to policy problems (Albrecht 2015). Additionally, policy translation processes can create feedback mechanisms which affect (upper) level political systems.

Following the interaction of systems, multiple elements inside systems, and feedback mechanisms between them, complexity theory argues that small policy actions can produce unexpected changes. The stability or turbulence in a mobile policy system depends on the balance between many-faceted processes: some processes and feedback loops reinforce change in the system while other processes and feedback loops balance or dampen disturbances, and the combined impact of these is difficult to predict, as is their impact on perceived success or failure. Having introduced a novel understanding to integrate policy mobility conceptualisations within a framework of complex systems, we now turn to the question of what defines success and failure and what are the tipping points for the related processes.

Identifying policy success and failure

To evaluate the complexity of policy processes resulting in success or failure, we turn to the study of policy failure. In their studies Bovens & t'Hart have argued that evaluations of the successfulness of policies are contested constructs, and interpretations are shaped by framing contests between policy designers and critics (Bovens & t'Hart 1996; 2016). Expressed with policy mobility concepts, definitions of failure or success are socially constructed as part of policy translation processes. We acknowledge that identification of policy failure is fundamentally an interpretative phenomena lying in the eyes of beholders. Yet, in most cases intersubjectively verifiable judgements about success or failure can be made as independently verifiable claims about policy outcomes are compared with objectives set by policy makers (see Howlett, Ramesh & Wu 2015), in our case the aims of EU RED or within Finnish national translations of it. In order to make these judgements the framework developed by Allan McConnell (2010; see also 2016) is very useful. First, his analysis recognises that there are differences in success and failure in terms of policy *-processes*, *-programs* and *-politics*. In policy processes governments identify problems, weigh the pros and cons of different choices, consult stakeholders, and make decisions. Policy programs give concrete form to the intentions of policy. Programs combine the resources and tools of government, like laws, tax incentives and guidelines. Policy processes and programs have political consequences in terms of their relevance to winning votes. Governments do politics and they may prove successful regardless of the actual achievements of practical programs and processes. These three strands of policy have their own logic for success, and policy can be more successful in one realm than in another.

McConnell's conceptualisation of successfulness goes further by developing a fivefold typology to differentiate intermediate categories between complete success and failure. Policy is defined as a *success* "if it achieves the goals that proponents set out to achieve and attracts no criticism of any significance and/or support is virtually universal" (McConnell 2010: 351). The second best alternative is *resilient success*, which means that a government achieves its policy in broad terms, but has to accept small modifications, setbacks and some level of opposition. *Conflicted success* means that a government has to accept that the result was not what was initially intended; there might be time delays, significant modifications, resource shortfalls and/or communication failures. *Precarious success* is a near failure, where outcomes fall short of intentions and opposition is substantial. Policies may achieve minor gains, but they are far from what was intended, and the costs of the achievements are remarkable. Policy *failure occurs* "even if it [policy] is successful in some minimal respects, if it does not fundamentally achieve the goals that proponents set out to achieve, and opposition is great and/or support is virtually non-existent" (McConnell 2016: 671).

This framework offers a conceptual tool to provide a nuanced description of policy failure in complex policy translation processes. Based on this typology, the policy example employed here for analysis, AESLT, can clearly be considered a policy failure because it met strong resistance and failed to meet the expectations set by the designing entities. Yet, due to the complexity of the system involved, the evaluation of failure in the terms of policy processes, programs and politics is less clear and is further discussed below.

Finland's forestry domain as a complex system

Empirical case study and methods

This empirical case provides an example of policy failure, mobile policy and complex systems. First, we describe the pre-RED policy context in Finland, differentiate the policy systems which had essential connections to renewable energy policy, and establish what kind of dynamics existed within and between those policy systems. This provides the necessary understanding of the so-called *Forest industrial super system* (FISS) and its socio-economic context in which RED translations evolve. Second, we describe and analyse how the arrival of RED in Finland, and which kind of processes, relations and feedbacks emerged from national translation processes. We briefly introduce how the Finnish government unsuccessfully aimed to include rationalities from the FISS into RED design processes before shifting our focus to how the Finnish government attempted to domesticate RED aims throughout its translation of the final 2009 policy. We then analyse the general energy policy guidelines introduced by the Finnish government, particularly the introduction of AESLT and the contested feedback it received, as well as peat energy policy in Finland. The focus of this empirical data concerns the main effects that were intended to appear from AESLT, and how the actual outcomes impacted the complex dynamics inside established policy systems and between systems. The Finnish policy makers intended effects and goals also reflect part of the definitions related to the judgement of policy failure and success hereafter. Finally, the empirical section scrutinises the political process that followed the EC's rejection of AESLT, its failure, and explicates the role of the energy market within these complicated political processes.

Our analysis focuses on arguments about the pros and cons of wood for energy use, the development of the political process and the kind of conflicting interests involved in the processes preceding and surrounding the configuration of AESLT. Additionally, the analysis scrutinises the connections that were developed towards existing domestic policy practises in the RED translation process. The empirical data of this analysis largely rests on interviews and document data collected in Finland within two interlinked research projects between 2012 and 2016. While the empirical material is primarily employed for the sake of conceptualising policy failures of mobile policies, a more profound description of the Finnish case can be found elsewhere (Kortelainen and Rytteri 2017).

Forest industrial super system

RED did not enter an empty space in Finland, but a field already filled with existing policies and complex interconnected policy systems. Particularly the role of the forest industry has been of the utmost importance in Finnish economy and politics, and systems of forest, energy, trade, regional and climate policies have been developed in relation to it.

During the creation of the forest sector society, as sociologist Tarmo Koskinen (1999) has characterised development from the 1920s to the 1980s, forestry companies and their representatives formed a strong lobby whose interests were favoured in political decision making concerning industrial, trade and natural resource policies. All major political parties had close relations with the forestry sector, and the profitability of the forest industry was interpreted as advantageous for the whole society. However, as the ideal of complete success is rarely met (McConnell 2010), political decisions to favour the forest industry also repeatedly raised discussion about the equitable distribution of prosperity and social justice (see Rannikko 1995; Koskinen 1999). For critics of the system, the resulting development was largely described somewhere between resilient success and failure (see Lehtinen 1991; Donner-Amnell 1991). Nevertheless, the main parties generally interpreted the policy process, programs and political consequences as a success. Consequently, they have always assured that the interests of the forestry industry are well represented when policies that might affect their competitiveness have been discussed and decided.

Under the FISS, securing the availability and growth of raw material for the forest industry has been the driving force in Finnish forest policy (Rytteri *et al.* 2016). Consequently, principles to direct all wood to industrial use were introduced in the 1960s. The production of sufficient valuable wood for the industry requires the thinning of young forest stands, which paradoxically produces small diameter wood of little use to the industry. By promoting the burning of wood for energy, some demand for

small diameter wood was created. Since the 1970s, the result has been a forest policy system within which the government supports limited energy use of non-industrial wood.

The potential of energy wood, especially where subsidies are required to market small diameter wood, is a contested political question and the answer depends on varying interpretations of the importance of small-scale energy production in national and regional economies. This makes it a question of regional policy. Traditionally, forest owner interest groups and their political representatives have supported the utilisation of wood energy as a source of income and to increase rural economic activity. Generally, this idea is part of the decentralisation of economic and political power in Finland. Rhetorically, decentralisation is very much supported among rural representatives, yet in practise a certain level of centralisation is promoted for the competitiveness of the forest industry. Consequently, it has been a common aim to achieve balance between centralisation and decentralisation in the regional policy system.

The balance in regional policy is also related to the balance of trade, economic diversification and export growth. Within this system of trade and competition policy, the aim is foremost to ensure the competitiveness of the forest industry. Forest industry export growth has been seen as the backbone of the national economy, and every policy measure to support this aim has been regarded as a success. However, such mono-sector dependence is problematic, especially for single industry dependent communities (see Kortelainen and Rannikko 2014). From this perspective, the diversification of economic sectors utilising wood, for instance by adding an energy component, were seen as promising developments. Yet, the diversification of economic activities in Finland has lacked support and subsidies if they threatened forest industry competitiveness. In other words, within the system of markets and competition, policy support for emerging development is evaluated in relation to forest industry competitiveness.

Finnish energy policy and energy infrastructure development has also been aligned with the FISS. The choice of nuclear power as the main electricity source in Finnish energy policy is based on the forest industry's past and present support for new nuclear power stations. Consequently, politicians have concluded that nuclear power is required to guarantee forest industry competitiveness (see Kojo and Litmanen 2009).

Following the oil crises in the 1970s and early 1990s, some forestry professionals and forest owner representatives began to support wood based energy. Nevertheless, the increase of wood for energy was seen as threat to the forest industry while peat was seen as the most promising domestic energy source due to its non-threatening properties in regard to the forest industry's raw material supply. Therefore, peat has been strongly supported as an energy source by the Finnish state. Congruently, the Finish energy policy system is balanced by taxes and subsidies so that the energy sector's demand for wood is restricted as a means to protect the forest industry's inexpensive supply.

With the rise of climate policy in the 1990s, peat became a contested energy source. Internationally it was largely interpreted as a fossil fuel and, consequently, its utilisation represented non-renewable energy and unsustainable climate policy. In the EU level debates on sustainable and renewable energy sources the Finnish government argued that peat was an important domestic energy source because it increased energy supply security and energy production profitability. In EU policy design processes related to RED criteria Finland tried to introduce peat as a "slowly renewable energy source," but failed (Kortelainen and Rytteri 2016). Thus, for carbon emission mitigation policy peat could not be employed as a solution, nor could energy wood due to the constraints within the FISS described above. The solution was nuclear power. This solution from the energy policy system meshed well with the FISS (Fig. 1), built to support Finnish forest industry.

Disturbance of the FISS

RED had to be translated within the socio-economic context of the FISS. The coercive mechanisms of RED demanded member states to reach a country specific share of energy from renewable sources by 2020; for Finland it is 38% of energy production. Thus, the directive established common binding rules and aims on renewable energy for member states. Yet, RED is a good example of a mobile policy combining coercive, discursive and voluntary elements of policy that enable policy translation processes to fill in and modify policies (Kortelainen and Albrecht 2014; Albrecht *et al.* 2017).

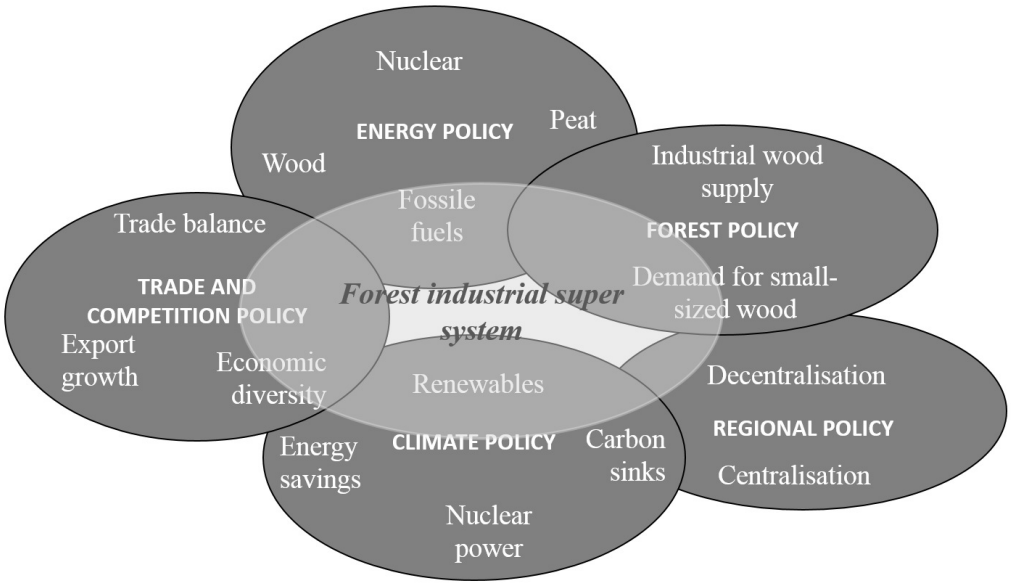

Figure 1. Forest industrial super system in Finland.

RED implementation and its domestication started within the national government, parliament and party politics. RED had to be translated and attached to existing energy policies, policy systems and actor rationalities which meant, for instance, discussions concerning such fundamental issues as whether more centralised or decentralised systems should be favoured. At that time (2007 – 2010), the Finnish government consisted of four parties: the Centre, the Coalition Party, the Greens of Finland (Greens) and the Swedish People's Party of Finland. The Centre, the prime minister's party which draws most of its support from rural areas, took up the idea of building and subsidising domestic, particularly rural energy production. Consequently, RED was translated to fit perfectly with the Centre's policy aims. Simultaneously, the future prospects of the Finnish forest industry were discussed. The paper industry's production capacity was declining and mills closing due to major changes in global markets and decreasing demand in Europe (Hetemäki 2008). This challenging atmosphere provided wood-based energy as a promising option for future economic growth and opportunity. Additionally, it supported the challenges and aims set by RED and climate policy.

The Coalition Party, the other major government party, opposed decentralising energy production. It had close ties to big corporations that lobbied for cheap nuclear power, arguing that it would provide the most efficient means to cut CO_2 emissions. As it had previously done, the Coalition Party seamlessly connected climate policy to the traditional aims of Finnish forest and energy policies. Eventually the government succeeded in designing a policy that satisfied the main parties; a new nuclear power plant for the Coalition Party and bioenergy subsidies for the Greens and the Centre. Aligning different preferences and aims in this manner seemed to be an excellent opportunity to seamlessly integrate the Finnish RED translation into the established supersystem.

Some of the RED translation processes continued with the design of AESLT as a policy instrument. The Ministry of Agriculture and Forestry published a draft bill intending to pay subsidies to forest owners in order to support both energy wood harvesting and the silvicultural treatment of young forests. This new subsidy, which connected energy and forest policy, was integrated into the existing forestry subsidy system to promote forest growth, direct energy use primarily from wood not suitable for industrial use and the use of renewable energy. The wood subsidy slightly changed the balance within several policy systems. In climate policy renewable energy gained more support, in energy policy the position of wood was strengthened, but the position of peat and oil were slightly weakened and

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in forest policy the increased demand for small diameter wood became more important. Additionally, AESLT supported decentralisation in regional policy following emphases on trade and competition policy to diversify economic activities.

Consequently, changes inside one policy system had an array of impacts on other policy systems and touched upon a variety of policy aims promoted by various stakeholder groups. Policy systems and the relations between them shifted to slightly different positions. The government's main challenge was to ensure that changes in the policy systems would not be too big in order to avoid problematic changes in political power geometries and particularly in the FISS. But at the same time, changes had to be noticeable enough to have an effect on wood consumption. This subsidy construction was a path-dependent process in which the government emphasised that boosting decentralised bioenergy production should not threaten the competitiveness of the forest industry, a policy goal which had prevailed for decades and assured wide industry support for the previous policies. This balancing act between contradictory aims and creating a balanced policy program resulted in a contested and complex process (see Fig 2).

The complexity of the systems and the consequences of the proposed program were revealed when the ministry received 65 submitted statements weighing the pros and cons of the bill. The major forest sector stakeholders' statements on the proposed bill concerned the implications for energy wood and pulpwood harvesting (see Huttunen 2014). For forest owners, the energy industry and harvesting companies, the proposed energy policy regime lacked sufficient government support and did not challenge the existing forest industry driven logic and its supporting policy regime. In their opinion the FISS would remain undisturbed if not strengthened (Kortelainen and Rytteri 2017). For forestry corporations, the question was about the availability, price and control of raw material, and their statements show concerns about serious implications on timber markets and prices. The Ministry of Employment and the Economy and the Ministry of Finance were also concerned that too much wood would be directed towards energy. The Social Democratic Party (SDP), then the leading opposition party, shared this anxiety (Rytteri and Lukkarinen 2014). These stakeholders argued that the balance of the FISS would be disturbed (a policy failure due to their understanding), thus the initial proposal faced severe criticism.

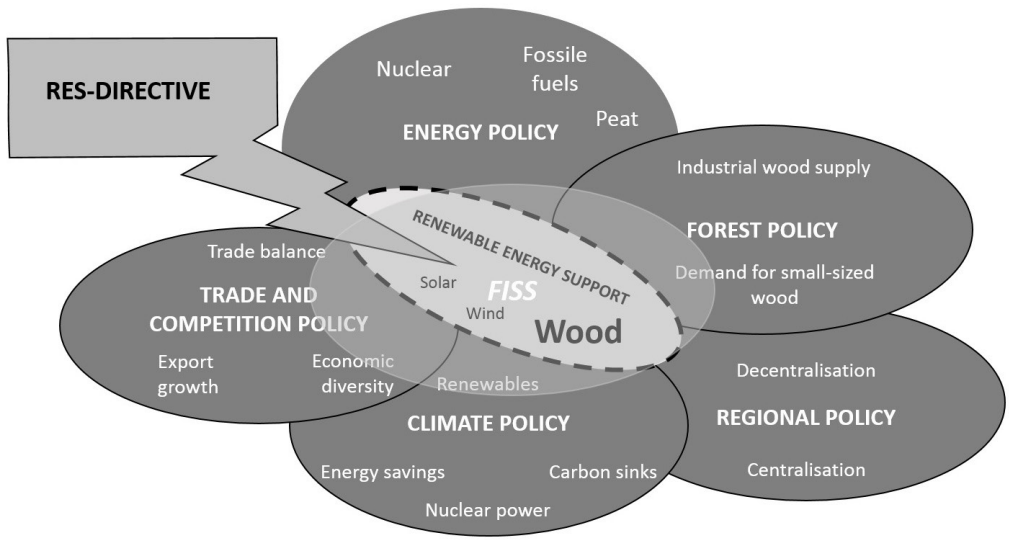

Figure 2. Translated RES disturbance to the FISS.

System stabilisation

In subsequent ministry meetings the bill was modified to include the demands of the forest industry and the Finnish Parliament accepted AESLT in its modified form. To ensure the stability of the FISS, the government also created a tax mechanism which supported the use of peat and tied it to wood markets. The Finnish Parliament established new energy taxes in autumn 2010 which favoured peat use (Finnish government 2010). The government admitted that peat resembled fossil fuels but claimed it required special treatment in order to maintain the balance in energy and wood markets.

Accepted by Parliament, the government believed that the law could be implemented successfully. From the government's perspective, the policy process of translating RED to policy instrument creation could have been characterised as a resilient success. However, regardless of the modifications made to the wood subsidy and tax treatment of peat, the subsidies developed by the government did not satisfy the forest industry and the Finnish Forest Industries Federation (FFIF) claimed that the subsidies would direct too much raw material towards energy. The FFIF requested that the EC evaluate whether or not the subsidy was distorting competition (Metsäteollisuus, 2011). Shocking the government, the Minister responsible for AESLT considered the complaint an offence towards Finnish parliamentarism. Hence, the policy translation process slipped out of the government's hands, and it was acknowledged that a failure of some degree was possible.

The political landscape changed following the 2011 elections when the Centre became the opposition. Frequently such changes of government and political powers are accompanied by shifting political rationalities to fulfill similar policy aims. The Centre lost its possibilities to direct the policy process in a way that would have secured its intentions regarding AESLT. The main parties of the new government, the Coalition Party and the SDP, were eager to listen to the forest industry. The key ministries arranged with the FFIF to reduce the subsidies, thereby aligning with the aims of the forest industry, and the FFIF withdrew its complaint. However, instability in the wood energy market continued due to the vague content of the new proposal, which made wood energy producers reluctant to invest in new production (Rytteri and Lukkarinen 2014).

Even though it combined a wider set of policy aims, nonetheless the translation by the new policy actors failed when the EC, despite the withdrawal of the FFIF complaint, announced the rejection of AESLT presented by the Finnish government in February 2012 due to a breach of competition regulations. The EC insisted that the subsidy should be allocated to heat and electricity producing plants instead of forest owners. Consequently, it was not possible to combine the existing forest owner subsidy system, traditional forest policy aims and renewable energy policy in the manner that the previous government had planned. This policy instrument, derived from Finnish translation processes to domesticate EU mobile policies, had reached a dead end and the attempt to employ it within the existing FISS had produced a policy instrument that failed not merely through its inability to produce any of its intended outcomes but also because it was deemed unfit for use by a higher policy making level.

Contiguously, the consumption of coal was increasing dramatically. Due to a sudden increase in shale gas production, coal producers were forced to lower their prices and it became cheaper than wood in Finland. This resulted in a very unstable and unpredictable (renewable) energy market. Subsequently, energy producers were not ready to make large investments since the ever-changing national renewable energy policies did not provide energy producers with a reliable investment horizon. The government's attempt to construct a finely tuned and balanced policy program to support energy wood use and maintain the stability of the existing system turned out to rely too heavily on the stability of an economic landscape framed by a path-dependent super system.

The story continued with the planning of a novel subsidy model founded on a new basis. Negotiations about the exact content of the bill proceeded slowly, but eventually the energy wood subsidy level was carefully adjusted to avoid promoting energy use of industrial wood and to assure EU policy coherence. In this new translation round the Finnish government faithfully returned to the legacy of the forest sector society's energy policy of the 1960s and 70s. Finally, in March 2015, a proposal which satisfied the forest industry was accepted by the Finnish Parliament. This new wood energy subsidy did not disrupt the stability of the FISS.

Discussion

We have approached supranational policy-making as a mobile and complex process in order to conceptualise and explain why and how policies sometimes fail. From the complexity theory viewpoint, we first identified the most important policy systems impacting wood energy use. Five separate policy sub-systems, energy policy, forest policy, regional policy, climate policy and trade and competition policy, all have their own mechanisms and dynamics within the system. Moreover, there are mechanisms between the identified systems which tie them closely together. Within and between systems there are mechanisms and positive and negative feedback processes which produce turbulence from time to time, but negative feedback processes, mostly supported by policy programs, have dampened disturbances. Over time the systems have proven to be very stable. This combination of systems has formed a larger system, the FISS (see also Lehtinen *et al.* 2004). Regardless of emergent processes and external and internal turbulence in the identified system and its subsystems, the stability of the FISS has been a remarkable phenomenon that has lasted for decades and created ongoing path-dependencies in the Finnish forest sector (see Kotilainen and Rytteri 2011).

The study continued by analysing why AESLT, created as a translation of RED to boost wood energy use, failed. From the perspective of complexity theory we turned our attention towards emergent processes, unexpected events and path dependencies in order to explain the failure of this policy. There were slowly accumulating emergent processes which both supported and hindered the development of the renewable energy policy system. Generally, climate change as a phenomenon, and the global policies designed to mitigate it, created discursive and political incentives to increase the use of wood in energy production. Simultaneously, the production capacity of the paper industry was declining and mills were closing, which spurred the government to find alternative demand for wood. In Finland, the emergence of an energy industry using wood challenged the established relations between economic systems (Åkerman *et al.* 2010). Energy use of wood seemed to be a promising option to proceed, but the emerging process of rapidly growing shale gas production, which lowered coal prices and rendered wood relatively expensive, countered this development. These emergent processes help explain some turns during the policy process.

However, there were also unexpected events which changed the context of the wood energy subsidy. Contrary to the Finnish government's expectations, the forest industry did not accept the changes to forest policy and filed a complaint with the EC. The EC subsequently rejected the law that had already been accepted by the Finnish parliament. The ad hoc fixes to policies made by the Finnish government also had some unintended consequences amid these emergent and contingent processes, which made the policy ineffective and inappropriate in relation to the governance aims of RED. Additionally, the election results during the policy process did not help the political coalition to move forward with the original subsidy program. These sudden shifts were hard to predict, but they had remarkable effects on the policy process.

Still, these emergent and contingent events do not explain all of the main features of the implementation process because development was also strongly influenced by a path dependent way of favouring the industrial utilisation of timber. It should be noted that the influence of path-dependency was not straightforward because the implications of path-dependencies generated by the prevailing forest industry were interpreted in two ways. Generally, path-dependency can be interpreted in opposite ways (Martin 2010). For actors supporting the traditional forest industry, the existing FISS represented a positive and enabling environment where the existing industrial sector could develop its competitiveness and create new businesses out of available raw material. For forest owners and energy producers, the same forest industry dominated business and political context represented a constraint for the emergence of new actors and industries utilising the same raw material. This underlines the social construction of judgements about success or failure (see Bovens & t'Hart 2016). For forest owners, wood energy actors and their representatives, the processes surrounding AESLT were a failure, while for the forest industry, the initially contested processes turned out to be an example of policy success for the FISS.

In this historically developed institutional context it was a truism that the government interpreted the existing industrial forestry system positively. Thus, the government wanted to avoid radical changes in domestic power geometries and the new subsidy had to fit into the existing context. Howlett *et*

al. (2015) argue that policy failures can be better understood by examining a wide range of factors around policy systems and the causes of failure. We agree, and emphasise that the failure of AESLT could not have been fully explained without understanding the complex constellations of policy systems that are scrutinised in this paper. Generally, we argue that complexity theory's viewpoint and concepts offer ontologically defensible ground and valuable tools to explain the balance between political power, path dependencies, emergent processes and unexpected events which determine the destiny and implementation of policies.

Complexity theory conceptualisation also provides means to understand heterogenous features which make policies vulnerable to disturbances. The subsidy introduced and analysed in our case study was planned in such a way that it required the stability of several economic processes and policy systems. The relations between the prices of energy wood, pulp wood, peat and coal were the result of a complicated interconnected system of taxes and subsidies, and this feature rendered the system unstable. Consequently, the policy model introduced was planned to be worka ble in a stable system that did not really exist, which naturally made the policy susceptible to disturbances. This correlates with Bovens & t'Hart's (2016) argument that top-down, monolithic, linear and tightly held policy processes are common causes of failures.

Paradoxically, one part of the explanation for the surprising failure of the policy process, increasing coal consumption and instability on the energy market, was the stability of the path-dependent FISS. In the middle of sudden events and emerging processes political decision-makers eventually made decisions which would not threaten the success of the forest industry. For the government, increasing coal consumption and instability of the wood energy markets were lesser evils than threats to forest industry competitiveness.

Conclusions

To conclude, the mobility and mutation of a policy is constrained and enabled by much larger sets of relations than the policy systems and decision-makers themselves (e.g., Peck 2011, Albrecht 2015, 2017). To fully understand how policy changes and contexts shape policy, it is important to look more carefully at the systems in which policies arrive, the complex relations between systems, emergent processes, and path dependencies influencing the direction and speed of policy processes. Perceived policy failures can be explained by studying processes within and between policy systems. Policy failure is the result of a process which produces unexpected instability and malfunctions within a system defined as the target or mismatches in the political aims of different entities. The reasons for failure resulted from an oversimplified interpretation of the target systems, neglecting mechanisms involved such as emergent processes, unexpected events and path-dependencies. Employing complexity theory allows policy makers and researchers to acknowledge these processes in more detail and explains that some systems are too complex to control completely and thus, create room for change, diversity, adaption and failure.

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