

: Learning from forestry innovations for the European Green Deal. A research approach

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: ABSTRACT

Forests and wooded lands are important in the European Green Deal (EGD). This growth strategy for a sustainable green transition in Europe goes hand in hand with constraints for production-oriented forestry and emergent bioeconomy strategies, thus challenging established practices. Therefore, forestry innovations may be key to facilitate the implementation of the EGD. Linking innovations with broader policy goals requires lesson-drawing of policymakers at different levels of European governance. The article reveals enablers and barriers of innovations in forestry and arrives at two hypotheses on forest-related policy learning for the EGD: First of all, policymakers' beliefs determine lesson-drawing on the role that forests and forestry can and should play in Europe's ambitious growth strategy. Secondly, genuine interest in experiential knowledge and deliberation about 'what works' in innovation practice can help generate ownership of the forest sector in the EGD.

: KEYWORDS

Forest, forestry, innovation, policy learning, European Green Deal

: 1 INTRODUCTION

The European Green Deal (EGD) is the current growth strategy of the European Commission (EC). It was published in December 2019 when Ursula von der Leyen took office as President. It aims at transforming the European Union (EU) into a „modern, resource efficient and competitive economy“, and is committed to zero emissions of GHG by 2050, a decoupling of economic growth from resource use, and the social principle of “no person and no place left behind.”

Forests and wooded lands play important roles in the EGD. They account for 43% of the land in the EU and provide a wide range of ecosystem services, including natural habitats and water regulation, carbon storage and sequestration, wood and non-wood products. Without forests, the commitment for carbon neutrality in 2050 will not be achievable. For example, the annual mitigation effect of EU forests via contributions to the forest sink, material and energy substitution was estimated at 567 Mt CO₂eq per year or 13% of total EU emissions (Nabuurs et al., 2017). This figure informed adoption

of the Land Use and Land Use Change & Forestry (LULUCF) regulation in 2018, which included forests into the Union's climate mitigation targets.

The EGD emphasizes the supporting and regulating ecosystem services of forests but downplays forests' provisioning and cultural services. Its focus on biodiversity, nature protection and carbon sequestration in current forest-related EU policies hampers production-oriented forest management regimes and the forest-based bioeconomy (Aggestam and Giurca, 2021; Köhl et al., 2021). Moreover, the EGD does not acknowledge needs for adaptations in forest management. Forests play multiple functions for society, business, and the environment. To sustain them under global climate change impact, however, requires dedicated efforts and increased skills of forest owners and managers.

Accordingly, forests and forestry have great potential to facilitate the ambition of a sustainable green transition in Europe yet face significant challenges. Innovations in forestry may be key to support the implementation of the EGD. Innovation is understood here as "the process of making changes to something established by introducing something new" (Mann et al., 2022: 283; Weiss et al., 2020). Such processes of making changes include technologies, products, processes, or management approaches that seek to improve the provision of forest ecosystem services (FES) (Hansen et al., 2019; Louda et al., 2023).

The present article argues that EGD implementation can benefit from forestry innovations if facilitated by policy learning. Empirically, it directs attention to "lesson-drawing" about adoption of a specific innovation program of Common Agricultural Policy (CAP) in forestry and how it relates to the EGD. The lesson-drawing notion was introduced by Rose (1993; 2004) and is used frequently in policy and science. Lesson-drawing can lead to the "updating of knowledge and beliefs about public policy", as Dunlop and Radaelli (2020: 1125) have put it, and result from social interaction, personal-organizational experience, and/or provision of new or different evidence. Clearly, "policymakers do not seek fresh ideas for their own sake but to promote political satisfaction" (Rose, 2004: 2).

To develop the research approach that links learning from forestry innovations with the EGD, the article progresses in three steps. First, the methods and research context are explained, including document study and the policy learning approach. Secondly, initial results from the desk research are presented. The article concludes with hypothesis about policy learning from innovation practice in forestry in the context of the EGD.

■ 2 METHODS

This section describes the bodies of literature and documents which underlie the methodology for research on policy learning about forestry innovations in European governance. These include: (1) Policy documents on the EGD and its assessment in forest policy analysis, (2) Recent studies on innovations in forestry, and (3) Conceptual articles on policy learning. The implementation of a specific CAP measure for innovations in agriculture and forestry is the research context. It is described at the end of this section.

■ 2.1 LITERATURE STUDIES

2.1.1 EGD-related policy documents

EU policies and strategies that relate to forests and forestry are abundant. Here a narrow focus on the EGD is applied and a content analysis conducted to single out how forests and forestry are covered in the text and which cross-references to other policy documents are made. Moreover, literature from forest policy analysis that examines the EGD is referenced to highlight the contested landscape of EU forest-related policymaking.

2.1.2 Research on innovations in forestry

Eighteen articles and one book chapter on innovations in forestry and agroforestry, published mainly between 2019 and 2023, are reviewed (Table 1) to identify definitions of innovation in forestry and the influencing factors (facilitators and barriers). Moreover, contributions from management studies and a MSc thesis are included to explore the OECD definition of innovation (“Other”), which informs many studies on innovations in forestry. The search was based on existing knowledge of the research field, ScienceDirect (key words: forest, innovation), and recommendations from peers.

Table 1. Research base innovations in forestry

No of articles	Journal Title	Country of research context	Methodology
9	Forest Policy & Economics	Cross-country (Europe, international)	Literature review Case study Comparative analysis
2	Ecosystem Services	Cross-country (CZ, SK, AT, FI, DE, IT)	Comparative analysis
2	Land Use Policy	Cross-country (Europe)	Comparative analysis Case study
2	Land	Cross-country (Europe)	Comparative analysis Case study
3	Other journals dedicated to land use, environment, and policy	Individual countries (PT, SI, USA)	Case study Comparative analysis
4	Other	Cross-country (international)	Literature review Case study

2.1.3 The lesson-drawing concept in the policy learning literature

Research on policy learning is based in political science. It emerged in the late 1980s/early 1990s to broaden the range of explanatory variables for policy change. Whereas power and interests have dominated past accounts, debate and argument have then been emphasized (see Héritier, 1993; Majone, 1989; Sabatier and Jenkins-Smith, 1999; Sotirov et al., 2017). The “argumentative turn” to policymaking directs attention to beliefs and assumptions about causality and responsibility, needs and interests, preferences, and obligations. It allows us “to examine closely the communicative and rhetorical strategies that planners and analysts use to direct attention to the problems and options they are assessing” (Fischer and Forester, 1993: 14).

The “lesson-drawing” notion is a pragmatic concept that fits nicely with the research context of the present article. It refers to policymakers’ lesson-drawing from “foreign experience” to improve public policy “at home” (Rose, 2004: 4). This process evolves through different stages, including search for lesson-drawing opportunities and scanning of alternatives, sensemaking to decide how lessons from abroad can fit national circumstances, identification of means and ends of a lesson, adoption, and evaluation. Outward looking behaviour and problem-oriented search trigger learning.

2.2 Research context

In the last CAP programming period (2014-2020), the EU introduced funding for so-called Operational Groups (OGs). These are action and result-oriented groups of at least two partners such as farmers, forest managers, researchers, advisors, businesses, environmental and interest groups who are interested to jointly advance a new idea and put it into practice. The legal basis is the EU Regulation 1305/2013 on support for rural development. It includes the European Innovation Partnership approach. This approach aims at knowledge transfer, cooperation, and development of knowledge bases in rural areas and at strengthening the links between research and innovation for the purpose of a “competitive agricultural and forestry sector that works in harmony with the natural resources on which it depends”.

So far, 2,788 OGs have been implemented in Europe, yet only 141 in forestry (status: April 2023) (Eyenga, 2023). OGs meet several enablers of innovation in forestry: they provide access to new knowledge and financial resources, are multi-actor partnerships, and facilitate adaptations to changes in markets and society (see below). The research on policy learning from innovation practice in forestry will therefore focus on OGs in forestry. Since forestry is often characterized as traditional and mature with a weak innovation orientation (see Weiss et al., 2020; 2021), forestry OGs represent more-likely cases of innovation.

■ 3 RESULTS

3.1 Forests and forestry in the EGD

The EGD consists of eight elements. Forests and forestry are mentioned in three of them, namely: (1) Preserving and restoring ecosystems and biodiversity, (2) Increasing

the EU's climate ambition for 2030 and 2050, and (3) From 'Farm to Fork': designing a fair, healthy and environmentally-friendly food system. Table 2 shows, which goals the EGD foresees for forests, the legislative basis it is referring to for pursuance of these goals, and the type of policy instrument for definition of measures.

The combination of EGD goals with policy instruments reveals that "these instruments represent policy domains where the EC has competences [whereas] the EGD barely gives any consideration to the multiple benefits forests provide to society" (Aggestam and Giurca, 2021: 8). Moving beyond this account, Gordeeva et al. (2022: 10-11) argue that the EGD is a policy that furthers economic interests despite its environmental rhetoric, stating that it represents a clever political manoeuvre to gain public and NGO support as well as more power vis-à-vis the Member States on the one hand, while not contradicting the Member States' national (economic) interests on the other hand."

Table 2. Forests and forestry in the EGD and related legislation

EGD element	Forest-related goals	Legislative basis	Policy instruments (and description)
(1) Preserving and restoring ecosystems and biodiversity	<ul style="list-style-type: none"> - Strictly protect primary and old-growth forests - Increase forest and tree coverage, their resilience and contribution to biodiversity, incl. 3 billion tree pledge - Reduce use of forest biomass for energy production 	<ul style="list-style-type: none"> EU Biodiversity strategy, Nature legislation (Natura 2000 network, Nature Restoration Law <i>proposal</i>) RED III 	<ul style="list-style-type: none"> - Regulative - National management planning for Natura2000 sites, with MS monitoring and reporting, and EU infringement procedure; National Restoration Plans to plan and monitor restoration measures for Natura2000 and non-Natura2000 sites, with MS monitoring and reporting - Restriction of forest biomass for energy purposes in favour of cascade use, implementation of stricter sustainability criteria and GHG savings obligations for plants up to 5 MW
(2) Increasing the EU's climate ambition for 2030 and 2050	<ul style="list-style-type: none"> - Increase forest and tree coverage, their resilience and contribution to climate mitigation and adaptation - Increase natural C removals in EU (forests are major sink on land) - Restrict timber harvesting to increase natural forest sink 	<ul style="list-style-type: none"> LULUCF (<i>new</i>), EU climate package "Fit for 55" 	<ul style="list-style-type: none"> - Regulative - Implementation of National Forestry Accounting Plans to reach Fit For 55 obligations: increase of forest sink effect from 268 million t CO₂ annually to 310 million t CO₂ in 2030; sink effect can be increased in different ways (Köhl et al. 2021): increase net increment of forests while maintaining same timber harvest level, abandon forest management on portion of forest area, increase forest area; National accounting plans according to common methodology and monitored by COM

(3) From 'Farm to Fork': designing a fair, healthy and environmentally friendly food system	<ul style="list-style-type: none"> - Increase the mitigation potential of land use and forestry through sustainable production of biomass and afforestation - Provide support for agroforestry systems 	CAP (2023-2027)	<ul style="list-style-type: none"> - Economical (subsidies and incentives) - Measures for forestry are funded in second pillar of CAP (EAFRD = European Agricultural Fund for Rural Development); afforestation measures traditionally most popular, yet representing a very small share of overall funding (less than 5% EAFRD for forestry in past programming periods) - Growing recognition for agroforestry to increase biodiversity and soil organic carbon in farmed landscapes; MS started to provide funding for maintaining existing or setting up new agroforestry systems in their national CAP strategic plans (eco-schemes)
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3.2 Enablers and barriers of innovations in forestry

Analysis of selected studies in the literature on innovations in forestry revealed different influencing factors (enablers and barriers). Table 3 gives an overview. The factors are described with reference to a range of indicators.

Table 3. Enablers and barriers of innovation in forestry

Factors influencing innovation in forestry	Enablers	Barriers
Knowledge and information	<ul style="list-style-type: none"> - access to new knowledge - information about support programs 	<ul style="list-style-type: none"> - new knowledge not available/accessible - information about support programs not available/not accessible
Technology	<ul style="list-style-type: none"> - availability of digital tools ready for practice - shared data standards, interfaces - fairs and platforms for new providers/ solutions 	<ul style="list-style-type: none"> - new technology not available/accessible - shared data standards and/or platforms missing
Values and attitudes	<ul style="list-style-type: none"> - open mindset - entrepreneurial attitude - positive attitude towards change - regional innovation focus 	<ul style="list-style-type: none"> - closed mindset - sceptical attitude/resistance towards change - perceived costs and risks
Cooperation	<ul style="list-style-type: none"> - intra-sectoral cooperation - participation in networks - inter-sectoral cooperation - vertical cooperation across value chain 	<ul style="list-style-type: none"> - small-fragmented forest ownership - closed forestry circles
Resources	<ul style="list-style-type: none"> - skilled labour - finance schemes - tax/subsidy incentives 	n.a.

Market	<ul style="list-style-type: none"> - competition - new narratives (forest and health, forest bioeconomy, PES etc.) - market for PES 	<ul style="list-style-type: none"> - competition - dominance of commodity-/production-orientation
Society	<ul style="list-style-type: none"> - changing demands of people in society 	<ul style="list-style-type: none"> - sustained conflict with civil society actors
Government and policy	<ul style="list-style-type: none"> - accessible/supportive guidance in applications for public funding - forest-related policies (climate, nature conservation, hunting, RE, rural development, construction, health, other) 	<ul style="list-style-type: none"> - (perceived) high level of bureaucracy - lack/limited guidance in applications for public funding - command-and-control style of public decision-making - dominance of state forest enterprise/administration - commodity-centred forest policy

The focus on enablers and barriers of innovations in forestry allows to test most factors with Likert-type survey questions. The issue is different with respect to government and policy as influencing factor(s) in innovation. Whereas governments perceived as accessible, supportive, and collaborative may be more likely to facilitate innovation in forestry, there is less clarity about the goals and means of forest-related policies and how they affect innovation.

Nichifore et al. (2020) showed that the decision-making power of owners and managers is rather different across Europe, depending strongly on domestic legislations for forestry, while subsidies and incentives can effectively target policy goals to environmental discourse. Mann et al. (2022: 283) suggested that the current revision of the forest policy framework at EU level under the EGD “poses a window of opportunity for more sustainable FES [Forest Ecosystem Services] provision.” Varela et al. (2022) arrived at a different conclusion for the CAP (2014-2020), which they consider as “inadequate” for maintaining multi-purpose habitats. Hence, the influence of government and policy in forestry innovations seems to be far from unequivocal.

■ 4 DISCUSSION AND CONCLUSION

Linking innovations in forestry with learning for policy goals and measures implies that public policy is not just the result of power and interests but also of debate and argument for the sake of enhanced problem-solving. Forest policy debate, however, is often polarized between environmental-conservationist interests on the one hand and forestry and commodity-oriented interests on the other. Previous studies on forest policy-oriented learning in Germany showed that actor beliefs tend to remain stable and divided in terms of present and future aspects of sustainable forest management (Sotirov et al., 2017). Similar divisions can be observed in European forest governance (Winkel and Sotirov, 2016).

Drawing on Sotirov and colleagues', it can be hypothesized that policy actors who “largely project their past and present core beliefs onto the images of the future scenarios”

(Sotirov et al., 2017: 11), including one in which forests play key roles in Europe's green transition, do not learn substantially but in strategic ways. For example, forest policy actors convinced of the crucial role of multi-functional forestry for the decarbonization of Europe's economy will cooperate with others if it serves their interest to promote the forest-based bioeconomy. In this view, learning from innovation practice will be limited to those areas that fit with the legislative basis of the EGD while stabilizing or even deepening the divisions between the actors involved.

On the other hand, lesson-drawing about 'what works' in innovation practice (and what doesn't) has potential to effect policy change – in terms of reframing and/or abandoning (parts of) policies. As Ludvig et al. (2021) pointed out, such change is not simply the result of experience with bottom-up initiatives but rather the result of a complex dynamic between different levels in forest governance, of networking and coordination, and a shared interest in forestry innovations that are not (merely) profit-oriented (Callegari and Nybakk, 2022). Viewed from this perspective, it is hypothesized that lesson-drawing from innovation practice can generate ownership of the forest sector in the EGD if it is not market-based and due attention given to the feedback loops and sense-making activities of the various actors involved.

Empirical research in the field of forestry OGs and the policy learning setting that encourages lesson-drawing for the EGD will be conducted in the frame of the Horizon Europe FOREST4EU project to test both hypotheses and explore the underlying research approach.

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