Enhanced Governance Options for Regulatory and Economic Instruments

6

Abstract

We developed a bundle of political-legal measures. These measures should ideally be adopted at EU level to avoid ecologically counterproductive shifting effects and competitive disadvantages (and thus also social acceptance problems), especially since parts of the corresponding regulatory measures are only legally permissible at EU level. The proposals are oriented towards climate and biodiversity goals and the avoidance of the aforementioned governance problems. To this end (and furthermore the greatest possible freedom) quantity governance systems are most effective when not directly targeting forests due to their heterogeneity but central damaging factors. In that, our study confirms our earlier research findings from other areas of sustainability governance. With regard to the dominant regulatory and subsidy-based governance for forests we show that it remains necessary to supplement these quantity governance systems with certain easily graspable and thus controllable – i.e. little exposed to the typical governance problems – regulatory and subsidy regulations.

We propose three quantity control systems for all fossil fuels (cap zero at the beginning of the 2030s) as well as animal products at the level of slaughterhouses and dairies (reduction target around three quarters) and for pesticides; supplementary border adjustments at the EU's external borders; a regulatory protection of old forests (and peatlands by the way) with almost no exceptions; extension of the livestock-to-land-ratio established in organic farming to all farming; far-reaching restriction of bioenergy use to certain residues flanked by import bans; national and international complete conversion of all agricultural and forest subsidies to "public money for public services" to promote nature conservation and afforestation in addition to the quantity control systems; clearer definition of forests; a total ban on certain disposable products regardless of their

J. Stubenrauch et al., *Forest Governance*, Environmental Humanities: Transformation, Governance, Ethics, Law,
https://doi.org/10.1007/978-3-030-99184-5_6

material and an obligation of full recycling or biodegradability for bioplastic products.

6.1 Governance Problems and Limits to Quantity Governance Directly Aimed at Forests – and Potentials for (Limited) Improvements by Regulatory Law

We have seen that regulatory law and subsidy law related to forests in the EU (and in its foundations in international law) are often inadequate. These instruments insufficiently protect primary and semi-natural forests in Europe. They do not sufficiently curb illegal deforestation in third countries. They do not define bindingly and with legal certainty what can be understood by sustainable forestry, i.e. monocultures/plantations are not excluded. They promote the energetic use of woody biomass, palm oil and soybean oil and thereby direct and indirect deforestation. They do not sufficiently promote recycling and reuse (cascade use) of resources. To the extent that meaningful actions are subsidised, these actions are chronically underfunded at the EU and national levels (via EAFRD) while the international subsidy regime (REDD+) offers too many loopholes.

The regulatory law issues can theoretically be eliminated relatively easy. For example, to prevent corruption in some European countries, special EU authorities could monitor regulatory law in more detail and should be granted corresponding competencies. However, this approach would most likely not work in most developing countries due to lacking institutional structures. Instead, payments for ecosystem services seem useful in these countries (see next section).

It is questionable whether corrections in regulatory law and subsidy law alone are sufficient. These governance approaches (as seen) are typically not able to effectively solve quantity problems, but the conservation and expansion of forests is a quantity problem (as is the protection of climate and biodiversity as a whole). Addressing individual areas, products, or actions typically leads to the governance problems discussed above: enforcement problems, shifting effects, rebound effects, problems of depicting (only the problem of lacking ambition could in theory be solved easily by more ambitious regulations). In previous articles we demonstrated that these governance problems can be best addressed by economic instruments such as cap-and-trade approaches (Ekardt 2019; Stubenrauch 2019; Weishaupt 2019; Garske 2020; Garske and Ekardt 2021). Policy instruments should – with a view to depictability and enforceability – preferably be based on easy-to-grasp parameters on a broad substantial and geographical scale to avoid shifting and rebound effects. But as regards forestry, trying to precisely address the GHG and biodiversity relevance of a certain forest, takes us once again to the limits of economic instruments in addressing a heterogeneous parameter. The wide range of emissions (and biodiversity decrease) and their precise measurement entail that ambitious cap-and-trade approaches are not suitable as a primary instrument. In that, forestry offers comparable policy challenges like peatland conservation measured against the above-mentioned climate and biodiversity targets (Ekardt et al.

2020). This is remarkable in so far as these cap-and-trade instruments, if they are linked to easily comprehensible control variables or governance units such as fossil fuels or livestock products, can otherwise handle governance problems very well and react to various motivational factors. If, however, a problem of depicting arises and cannot be dealt with by switching to an easily comprehensible control variable, economic instruments reach their limits. Knowledge about the exact relevance of a given (or potential) forest – or even single trees – seems still too fragmentary. This also causes issues with the baseline for calculating the emissions balance.

In contrast to peatland governance, the policy challenge of forests cannot simply be solved by some very ambitious and more or less exemption-free command-and-control obligations. Duties to rewet peatlands can make sense in general and are relatively easy to enforce. In contrast, it is pretty obvious that humankind will have to go on using forests in an economic way. Therefore, bans work only for some important areas where any kind of economic activity should be prohibited. For all other areas – and for afforestation –, other governance options are required.

6.2 Quantity Governance Addressing the Drivers of Deforestation (Livestock, Fossil Fuels)

The most important option is (once again) to radically address the drivers that cause deforestation and lacking areas for afforestation, namely livestock farming and fossil fuels in various sectors. To this end, earlier publications demonstrated that ETS approaches for fossil fuels and livestock on EU level are highly promising (Stubenrauch 2019; Ekardt 2019; Ekardt et al. 2018a, b; Garske and Ekardt 2021; Weishaupt 2019; Henders et al. 2015). The EU proposals of July 2021 point in the right direction as they plan to broaden the scope of fossil fuels covered by the EU ETS and intend to strengthen its cap. However, the cap would still be not ambitious enough, loopholes (such as LULUCF-related economic instruments of transnational climate law like the CDM or similar economic instruments under Art. 6 PA) would continue to exist, and old certificates would not be erased. Going precisely these steps is what has to be done to implement an effective quantity governance for fossil fuels. So far, the EU proposals are still not in line with Art. 2 para. 1 PA. Furthermore, there is no proposal for a livestock ETS. Our proposal is as follows (in detail see Weishaupt et al. 2020):

Livestock farming including animal feed is an important issue for deforestation and is a result of high consumption of animal products. This makes dietary shifts towards a more plant-based diet, which is more efficient and needs much less area per calorie, a valuable option in reducing the need for agricultural land. Enhanced technology like optimal fertiliser application or eating animal-derived food that leads to less CH_4 emissions can decrease the emissions of livestock farming. But the area needed (that is putting pressure on forests) barely changes. To reduce the area needed for animal husbandry and animal feed, reducing livestock animals seems to be most (cost) efficient, practical and predictable approach. To this end, various governance options have been debated including an import ban for animal feed, a

tax on animal food and a ban on mass livestock farming. However, no ambitious instrument – measured against the radical global environmental targets – was ever implemented (neither in the EU nor somewhere else) or currently planned (this is still true with regard to the EU proposals of July 2021). International or even European taxes do not seem likely because EU taxes require consensus decisions in the council of ministers. National taxes will not have a noticeable effect in a globalised world and will cause shifting effects. In contrast to EU taxes, emissions trading (capping the number of animals or capping the GHG emissions of the agricultural sector) only needs a qualified majority in the council of ministers and a majority in European Parliament (Art. 192 TFEU). An ETS depends on addressees and governance units that can be easily assessed and controlled. Due to the high number of livestock farms (6.2 million alone in the EU), addressing the processing sector (13,000 slaughterhouses, 5400 dairy producers in the EU; Weishaupt et al. 2020 with further references) seems to be a more viable approach. Individual animal or output-based emission for kilogram of animal product can serve as governance unit.

A livestock ETS would drastically lower the number of livestock animals and most likely decrease imported feed (like soy from rainforest regions) due to more grazing within the EU (see again Weishaupt et al. 2020 on the tenable number of remaining livestock which is the relevant information for defining the cap of a livestock ETS). The latter effect can be intensified if livestock farmers are required to produce a certain amount of animal feed themselves. This shows that there are governance options to reduce livestock farming in the EU (or elsewhere) resulting in much less pressure on land systems, less deforestation for animal food (especially in the Amazon) and thereby contributing to free up land area for sustainable afforestation or reforestation. An ETS for fossil fuels and livestock farming would also reduce food waste which also causes land pressure (Garske et al. 2020).

A third quantity governance system for pesticides would be useful, too. Targeting the producer level, this instrument would play a central role for land use as a whole, but a less for forestry. Quantity control for pesticides would lead to price increases and reduce the overall use of pesticides along the determined quantity limit. As a result, various environmental problems – primarily biodiversity loss – in agriculture and forestry are addressed. This would be in line with the Farm-to-Fork strategy's goal of halving pesticide use in the EU, although we cannot discuss details, relevance, pros and cons in detail in the present contribution.

Effective EU sustainability policy is best achieved when, at the same time, a kind of climate club is formed with as many other states as possible taking similar measures and establishing uniform environmental standards. Otherwise, global problems remain unsolvable, and shifting effects will occur. Uniform standards can be established in international environmental treaties or anchored in plurilateral free trade agreements as they are currently negotiated and adopted in large numbers (Heyl et al. 2021). At the same time, border adjustments (see Ekardt 2019) have to be introduced to target those states that do not participate – again to avoid shifting effects, with ecologically and economically detrimental consequences. Such border adjustments or eco-tariffs create incentives for other countries to join the climate

club. In line with that, in July 2021, the EU Commission proposed to introduce a border adjustment for the EU ETS. The same would have to be enacted for the livestock ETS and the pesticides ETS. Compared with civil law regulations, these instruments are a more promising way to establish global supply chains with uniform standards.

6.3 Additional Role of Subsidies and Regulatory Law – and Developing a Definition for Sustainable Forest Management

In order to achieve all environmental goals in agriculture and forestry, quantity governance systems of the kind mentioned have to be supplemented by regulatory and subsidy regulations with certain easily graspable and thus controllable governance units – i.e. little exposed to the typical governance problems. Notabene, subsidies cannot replace cap-and-trade approaches addressing the drivers of deforestation (on the following see Ekardt 2019; Ekardt et al. 2015). Changes in subsidies are inferior to establishing caps and levies, despite some similar effects, since subsidies cannot achieve the drastic reductions in terms of fossil fuels and livestock products. Moreover, especially cap-and-trade schemes are more cost-efficient than subsidy schemes since they have a more market-oriented structure. Furthermore, caps and levies have a broader scope than subsidies since they are usually more likely to address, e.g., both the acquisition and the efficient use of products. Social distribution issues do not only arise with caps or levies as subsidies are not for free either. In forestry, too, subsidy law and regulatory law should therefore focus on individual points where the effect of quantity control systems is not sufficient and where at the same time the problems of depicting, shifting and enforceability are not expected. In principle, EU regulations are again preferable because of their greater scope which avoids shifting effects (that come with competitive disadvantages for national economies and can weaken the social acceptance of environmental policy measures).

An ETS for livestock products should be supplemented by a livestock-to-land ratio (no longer for organic farming only), which moderately limits the number of animals per hectare and thus avoids a concentration of the remaining livestock and corresponding regional nutrient surpluses. In doing so, an optimal synergy of climate and biodiversity protection is achieved. If in contrast the reduction of livestock numbers was pursued solely by a livestock-to-land ratio, the flexibility of farmers would be low and the costs of the system correspondingly higher (Garske 2020; Weishaupt et al. 2020; Garske and Ekardt 2021).

As a framework, the no-debit rule in the LULUCF sector should also be tightened to set negative emissions as target. In fact, the ongoing amendment process of the regulation addresses this topic – however over a presumably (too) long period of time (the concrete level takes us back to the debates on targets and potentials; see Chaps. 1 and 4).

Another regulatory approach that could be implemented relatively quickly is an unconditional and comprehensive protection of natural and old-growth forests in

developed countries under nature conservation law, especially in the EU. These forests sequester the most carbon and contain the greatest biodiversity. Protection could be achieved by establishing protected areas with strict prohibitions and controls. To avoid corruption, special EU authorities could monitor the process and should be given appropriate competencies. However, this approach would most likely not work in most developing countries. For these countries, subsidies in the form of payments for ecosystem services can be established (see below). In the area of forestry, however, it is comparatively obvious that humankind must continue to use forests economically. Therefore, total bans on forests only work for some important areas where any kind of economic activity should be excluded. Likewise, a total drainage ban on peatlands in the EU is useful, combined with a requirement to rewet most peatland sites (except in e.g. populated areas), as the (former) peatland locations are known and enforcement would be relatively easy.

Furthermore, the use of bioenergy should be restricted entirely or limited to residues. Exceptions could be made for individual flowering plants (Hennig 2017); conversely, it seems essential for biodiversity that a large part of dead wood remains in the forest. To these ends, an import ban on energetic biomass and a complete end to domestic bioenergy subsidies are useful. All these regulatory approaches are relatively easy to handle and do not suffer from problems of depicting and enforceability. This could replace the sustainability criteria regime in its current form, which suffers from well-known governance problems of regulatory and subsidy instruments. Alternatively, a moderate increase in general levies on land use would be conceivable (Hennig 2017; Ekardt 2019). An open question is whether in addition to the regulation of livestock farming and bioenergy, further import bans to e.g. protect rainforests are necessary and legally feasible under global trade law.

The previous proposals do not replace concrete instruments for the restoration of forest ecosystems and reforestation, which should be oriented towards mixed forests. To this end, subsidies appear necessary. In the EU, these subsidies could be combined with a reform of the CAP. For a sustainable bioeconomy, subsidies should only be provided for public services as a supplement to the instruments already presented. For example, subsidies could target famers and foresters by remunerating forestry and nature conservation measures. For developing countries, "standards in exchange for money" could be applied by including such countries in the ETS approaches addressing the drivers of deforestation and providing those countries the revenues of the system to address specified purposes such as afforestation.

In theory, Payments for Ecosystem Services such as REDD+ offer financial incentives for land owners to enhance the environmental performance of the land by allocating a financial value to certain ecosystem services (e.g. carbon sequestration or protection of biodiversity) (Banerjee et al. 2017, 2). Certain improvements of the system could be discussed. Clear tenure rights are important to allocate money to the responsible unit, and effective administrative structures are important to enable enforcement and avoid corruption (Alix-Garcia and Wolff 2014, 371 et seq.). Transaction costs need to be minimised to achieve high participation (Banerjee et al. 2017, 30). Wang and Wolf (2019) find that there are important co-benefits from PES schemes. Because ecosystem degradation frequently affects marginalised

communities and people, PES schemes can provide a financial income to these people while at the same time conserving the ecosystem services they rely on. Also, illegal logging and hunting can be prevented if the underlying driver (poverty) would be addressed. However, the overall situation remains highly ambivalent. On the one hand, a monetary transfer to the Global South is clearly required. On the other hand, shifting effects due to production replacements (to a forest area which is not included in a PES system) can hardly be avoided – one of the reasons why sustainability criteria for bioenergy failed (Sect. 5.3.5) (Alix-Garcia and Wolff 2014, 372). However, the problem is likely to be partly addressed by other proposed measures including especially the livestock ETS combined with border adjustments, import ban for bioenergy and fossil phasing out.

All these measures will not only trigger technical innovations, but also frugality. This is generally true for quantity governance instruments, but particularly important for forests. The described quantity governance systems reduce the pressure of use on forests. This is especially important for the plastics discourse because fossil-fuel based plastic products can frequently be replaced by woody or agriculturally grown biomass products. However this replacement seems justifiable only if the introduced instruments initially reduce the pressure of direct and indirect land-use changes at the expense of forests. In addition, certain products – such as disposable plates and cutlery, regardless of the material – could be banned altogether, combined with import bans as these are easily enforceable regulations. Above all, bioplastics should be required to be fully recycled or biodegradable in the natural environment and not only under laboratory conditions, and better protected against harmful effects with regard to microplastics (see in detail Stubenrauch and Ekardt 2020).

Furthermore, countries could improve definitions of forests in regulatory law. Palm or timber plantations are almost useless for climate and biodiversity protection. Therefore, they cannot be considered forests. Changing the 2006 IPCC guidelines appears useful (Aalde et al. 2006). The current text says: "The Guidelines provide methods for estimating and reporting sources and sinks of GHGs only for managed forests, as defined in Chap. 1. Countries should consistently apply national definitions of managed forests over time. National definitions should cover all forests subject to human intervention, including the full range of management practices from protecting forests, raising plantations, promoting natural regeneration, commercial timber production, non-commercial fuelwood extraction, and abandonment of managed land." The text could be enhanced by further (and stricter) distinguishing natural forests, managed forests and plantations. According to the new EU Taxonomy, sustainable forest management is defined as the usage of forests and forest land in a way, and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems. Reforestation needs to increase the heterogeneity of forests, include a diverse composition of tree species and subspecies, and improve structure and density of forests in order to benefit the climate. The integration of autochthone species in a concept of mixed forests is

listed as one starting point (Schoene and Bernier 2012; Verkerk et al. 2020). The new generation platform (Riahi et al. 2017), which was launched in 2007, and climate smart forestry (CSF) (Nabuurs et al. 2017; Kauppi et al. 2018) provide further (albeit legally non-binding) approaches to support well-managed forests (Riahi et al. 2017). However, binding standards for the sustainable planting of trees and forest management are not established thus far.

6.4 Outlook

We have seen that forest governance requires governance options that follow a comprehensive approach, not only addressing forests. If done correctly, forest protection, reforestation and afforestation can offer valuable ecosystem services such as carbon sequestration, biodiversity and climate protection as well as sustainable livelihoods for people. The possibilities of forests to mitigate climate change are significant but limited. This makes forest (protection) instruments important, but not a substitution for a rapid decline in fossil fuel use and livestock farming. In fact, addressing these drivers is a major policy approach for forest policy. In any case, forest protection on a global and also European level goes hand in hand with an effective change in consumption patterns through legal instruments – not only, but especially in the industrialised nations. Successfully implementing frugality strategies for the demand of forestry- or agriculture-based energy and energy-intensively produced food- and feedstuff as well as increasing reuse and recycling of resources in general will be decisive to protect forests as large carbon sinks and biodiversity reservoirs. Quantity governance can address the drivers (also) of deforestation. Even if legal frameworks at the transnational level are clearly preferable due to their broader scope and to avoid economic disadvantages, also national legislation may have to be addressed and amended. For instance, some details of subsidies and regulatory law may be governed on national level. In any case, sustainability research can learn a lot from analysing forests and their governance from history until today. The problem of depicting as well as of shifting (or ILUC) effects are the most severe governance issues that call for effective and coherent governance solutions.

References

Aalde H et al (2006) Chapter 4 Forest land. In: 2006 IPCC guidelines for national greenhouse gas inventories. Volume 4: Agriculture, forestry and other land use. Hayama, Japan

Alix-Garcia J, Wolff H (2014) Payment for ecosystem services from forests. Annu Rev Resour Econ 6:361–380. https://doi.org/10.1146/annurev-resource-100913-012524

Banerjee S, Cason TN, Vries FP, Hanley N (2017) Transaction costs, communication and spatial coordination in payment for ecosystem services schemes. J Environ Econ Manage 83:68–89. https://doi.org/10.1016/j.jeem.2016.12.005

Ekardt F (2019) Sustainability – transformation, governance, ethics, law. Environmental humanities: transformation, governance, ethics, law. Springer, Heidelberg

Ekardt F, Wieding J, Garske B, Stubenrauch J (2018a) Agriculture-related climate policies – law and governance issues on the european and global level. Carbon Clim Law Rev 12:316

Ekardt F, Wieding J, Zorn A (2018b) Paris agreement, precautionary principle and human rights: zero emissions in two decades? Sustainability 10. https://doi.org/10.3390/su10082812

Ekardt F, Jacobs B, Stubenrauch J, Garske B (2020) Peatland governance: the problem of depicting in sustainability governance, regulatory law, and economic instruments. Land 9. https://doi.org/10.3390/land9030083

Garske B (2020) Ordnungsrechtliche und ökonomische Instrumente der Phosphor-Governance. Unter Berücksichtigung der Wirkungen auf Böden, Gewässer, Biodiversität und Klima. Metropolis, Marburg

Garske B, Ekardt F (2021) Economic policy instruments for sustainable phosphorus management: taking into account climate and biodiversity targets. Environ Sci Eur 33:1–20. https://doi.org/10.1186/s12302-021-00499-7

Garske B, Heyl K, Ekardt F, Weber LM, Gradzka W (2020) Challenges of food waste governance: an assessment of European legislation on food waste and recommendations for improvement by economic instruments. Land 9. https://doi.org/10.3390/land9070231

Henders S, Martin Persson U, Kastner T (2015) Trading forests: land-use change and carbon emissions embodied in production and exports of forest-risk commodities. Environ Res Lett 10:125012. https://doi.org/10.1088/1748-9326/10/12/125012

Hennig B (2017) Nachhaltige Landnutzung und Bioenergie. Ambivalenzen, Governance, Rechtsfragen. Beiträge zur sozialwissenschaftlichen Nachhaltigkeitsforschung. Metropolis, Marburg

Heyl K, Ekardt F, Roos P, Stubenrauch J, Garske B (2021) Free trade, environment, agriculture, and plurilateral treaties: the ambivalent example of Mercosur, CETA, and the EU–Vietnam Free Trade Agreement. Sustainability 13. https://doi.org/10.3390/su13063153

Kauppi P, Hanewinkel M, Lundmark T, Nabuurs G-J, Peltola H, Trasobares A, Hetemäki L (2018) Climate smart forestry in Europe. European Forest Institute, Joensuu

Nabuurs G-J, Delacote P, Ellison D, Hanewinkel M, Hetemäki L, Lindner M (2017) By 2050 the mitigation effects of EU forests could nearly double through climate smart forestry. Forests 8:484. https://doi.org/10.3390/f8120484

Riahi K, van Vuuren DP, Kriegler E, Edmonds J, O'Neill BC, Fujimori S, Bauer N et al (2017) The shared socioeconomic pathways and their energy, land use, and greenhouse gas emissions implications: an overview. Glob Environ Chang 42:153–168. https://doi.org/10.1016/j.gloenvcha.2016.05.009

Schoene DHF, Bernier PY (2012) Adapting forestry and forests to climate change: a challenge to change the paradigm. Adapt Mitig Option For For Manag Chang Clim 24:12–19. https://doi.org/10.1016/j.forpol.2011.04.007

Stubenrauch J (2019) Phosphor-Governance in ländervergleichender Perspektive – Deutschland, Costa Rica, Nicaragua. Ein Beitrag zur Nachhaltigkeits- und Bodenschutzpolitik. Beiträge zur sozialwissenschaftlichen Nachhaltigkeitsforschung. Metropolis, Marburg

Stubenrauch J, Ekardt F (2020) Plastic pollution in soils: governance approaches to foster soil health and closed nutrient cycles. Environments 7. https://doi.org/10.3390/environments7050038

Verkerk PJ, Costanza R, Hetemäki L, Kubiszewski I, Leskinen P, Nabuurs GJ, Potočnik J, Palahí M (2020) Climate-smart forestry: the missing link. For Policy Econ 115:102164. https://doi.org/10.1016/j.forpol.2020.102164

Wang P, Wolf SA (2019) A targeted approach to payments for ecosystem services. Glob Ecol Conserv 17:e00577. https://doi.org/10.1016/j.gecco.2019.e00577

Weishaupt A (2019) Nachhaltigkeits-Governance tierischer Nahrungsmittel in der EU. Beiträge zur sozialwissenschaftlichen Nachhaltigkeitsforschung. Metropolis, Marburg

Weishaupt A, Ekardt F, Garske B, Stubenrauch J, Wieding J (2020) Land use, livestock, quantity governance, and economic instruments—sustainability beyond big livestock herds and fossil fuels. Sustainability 12. https://doi.org/10.3390/su12052053