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Growing Trees for a Degrowth Society: An Approach to Switzerland's Forest Sector

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Abstract. Globally, forests are under immense stress. Economic growth can be a reason for this, and its impacts can lead to deforestation and put tremendous harvesting pressure on forests. In light of increasingly popular – and growth-based – bioeconomy strategies, the need for more wood is likely to accelerate. Degrowth, in contrast, rejects economic growth as the central economic principle, arguing that the material throughput of countries in the Global North must shrink to achieve global sustainability. Although the concept has gained importance, there have been no attempts to link degrowth with the forest sector. This article argues that degrowth principles are beneficial to base the forest sector on sustainable grounds, while also the degrowth movement needs to define its relationship to the forest. Against this backdrop, this contribution sets the cornerstone by linking the Swiss forest sector to the central degrowth principles, and discussing possible interrelations and mismatches. Finally, a future research agenda for degrowth and the forest sector is presented.

Keywords: Forest sector; degrowth; sustainable forestry; Switzerland

1 INTRODUCTION

Forests are vital for global ecosystems and a prerequisite for life on Earth. They are home to the majority of terrestrial biodiversity and sequester large amounts of carbon (FAO and UNEP 2020). Moreover, forests have been integral parts of human life, offering livelihoods to people and (thus) being used for economic purposes (Radkau 2012).

In recent years, the importance of wood has increased with regard to its possible role in a sustainable economy, especially within the strategy of a wood-based bioeconomy. Its main assumption builds upon the idea of replacing fossil fuel with the renewable resource wood (Wolfslehner et al. 2016). In the past years, this approach has received increased attention, in science and policymaking.

The concept of degrowth, in contrast, calls for a more fundamental economic transformation. It aims for a renunciation of economic growth as a primary aim of policymaking (Parrique 2019). While research on degrowth has accumulated over the past years, with ever more fields of study being analysed from a degrowth perspective (Weiss and Cattaneo 2017), examining the forest sector with a degrowth lens remains to be done. Exploring this blind spot can also help to base the forest sector on sustainable grounds. Moreover, degrowth considers itself more than a mere economic notion, but as an all-encompassing idea (Parrique 2019). In that context, it aims at (re)defining key principles of the design of societies and economies – and in order to fulfil this goal, it is inevitable to include the forest sector.

Against this backdrop, this contribution will first link the forest sector with degrowth principles on a macro level and discuss where possible linkages are already present and where gaps are (still) existent. In doing so, it takes the Swiss forest sector as the case to be discussed, as it is in a special situation. Switzerland's economy is deeply embedded within the globalised economic structures and so is its forest sector. At the same time, the domestic forest sector is dominated

by one of the strictest forest laws worldwide, regulating the use of forest resources and strongly protecting forest cover, while the overall per capita consumption of forest-based products in Switzerland exceeds the needed area (Hirschberger and Winter 2018). This situation – with strong domestic regulatory laws, while exceeding the per capita wood consumption that can only be upheld via imports – shows the ambiguity within the Swiss case, which makes it interesting to be approached with a degrowth lens. Second, the article presents an outline for future research, setting out issues and (research) questions that could be addressed when dealing with the forest sector from a degrowth perspective in future.

The article is structured as follows: the first section introduces the topic. In the second section, degrowth is depicted in more detail and introduced as an approach by illuminating the principles it is based upon. Later, these serve as the analytical lens in the discussion. The third section shows how the forest sector is embedded in the global economy and highlights how the wood-based bioeconomy seeks to green the economy without questioning the growth paradigm. The last part of this section briefly presents the few studies in which degrowth has been considered together with different aspects of the forest sector, which highlights the relevance of this case study to bring them together. The fourth section then outlines the Swiss forest sector as the case. The main discussion then takes place in the fifth part, linking the six principles of degrowth to the Swiss forest sector. In the sixth part, a future research agenda is summarised by presenting possible research questions. The last section concludes.

2 DEGROWTH AND ITS PRINCIPLES

Degrowth builds upon the idea that to achieve sustainability and ensure a good life for all humans within planetary boundaries, the material throughput of industrialised economies must shrink (Martínez-Alier et al. 2010). Consequently, many – but not all – sectors of the economies would diminish, while degrowth emphasises that this process has to be performed intentionally

and planned (in contrast to a recession). Against this backdrop, degrowth highlights that ‘the incommensurability of values between a social system based on accumulation of wealth and economic efficiency with the aim of unlimited growth is incompatible with a complex and limited ecosystem’ (Ford and Kuetting 2020, 290). To achieve this transformation, a radical change of values is inevitable (Nesterova 2020).

The fact that endless economic growth will ultimately lead to the collapse of the world’s ecosystems became prominent with the Club of Rome’s 1972 report ‘Limits to Growth’ (Meadows et al. 1972). Scholars with different disciplinary backgrounds took up the report’s findings, yet the neoliberal development sidelined the growth critique. It was only at the beginning of the 2000s that the ideas revived on a large scale. It was also then when degrowth emerged as a (concrete) political concept (Parrique 2019), serving as an ‘alternative economic imaginary’ (Schoppek 2020, 133).

Degrowth’s focus on early industrialised countries results from the fact that ‘[t]he vast majority of ecological breakdown being driven by excess consumption in the global North, and yet has consequences that disproportionately damage the South’ (Hickel 2020b, 5). This also implies that degrowth does *not* aim at lowering the material throughput universally in all countries – it is first and foremost a concept for the Global North (Hickel 2020b, Demaria et al. 2013). At the same time, there have been attempts to link degrowth to the Global South. For example, Dengler and Seebacher (2019) discuss degrowth’s implications for Global South countries if its ideas are implemented in the Global North, while also noting that degrowth scholars must be careful not to reproduce colonial conceptions. Other researchers have highlighted possible overlaps between degrowth and (indigenous) concepts of a ‘good life’ and see potential for collaboration (Kothari et al. 2014, Acosta and Brand 2017). Either way, recent developments show that degrowth research is increasingly becoming aware of the global dimension it inherently exhibits (Dengler and Seebacher 2019).

While referred to as a multidimensional concept supported by a diverse alliance with different values (Eversberg and Schmelzer 2018), there are certain principles that degrowth is based upon, which also feed back into its goals, thus making them both principles as well as aims of degrowth. Demaria et al. (2013) identified six principles, which will be depicted in more detail below (and sometimes renamed for clarification purposes).

The first of the six principles is **ecology**, which is grounded in degrowth's conception that Nature and non-human beings have value in themselves. These convictions result in calls to give (non-human) Nature a right of its own, e.g. rivers (Hickel 2020a). In order to preserve Nature, degrowth implies lowering the material throughput, which would then possibly result in the reduction of the gross domestic product (GDP). The necessity of lowering the material throughput also relates to the fact that absolute decoupling (of GDP growth and resource use) can most likely never be achieved (Haberl et al. 2020, Mauerhofer 2013, Hickel and Kallis 2019, Ward et al. 2016).

In that context, degrowth highlights that without intact and stable ecosystems, neither the social sphere nor the economy can exist, showing the dependency of humans on Nature (Parrique 2019). In legal terms, degrowth follows the *res communis* approach, suggesting that 'environmental goods are commonly cared for and shared so that appropriation by a single individual is avoided' (Demaria et al. 2013, 196).

The second principle degrowth builds upon is the critique of the Western development model as well as opposing utilitarianism (henceforth **critique of neoclassical economics**). Degrowth criticises the ongoing global uniformisation, based on the Western idea of development and growth that does not allow for different cultures to pursue distinct paths (Demaria et al. 2013). It rejects the *homo oeconomicus* model, i.e. the neoclassical idea of the utility-maximising individual. Moreover, degrowth criticises the increasing 'conversion of social products and

socio-ecological services and relations into commodities with a monetary value' (Kallis et al. 2015, 4) which are generally not intended for sale, in contrast to traditional commodities (Gómez-Baggethun 2015), like wood. Instead, degrowth calls for large-scale decommodification and pushing back of market solutions for many goods and services, arguing for more sharing and reciprocity (Parrique 2019). Social relations and conviviality should be key elements, and not only economic efficiency. Consequently, work must be detached from the concept of productivity, as increased work efficiency often leads to higher resource consumption (Mair et al. 2020).

The third principle relates to the meaning of life and well-being (henceforth **responsible consumption**), where degrowth questions the current dominant Western lifestyle based on 'working more, earning more, selling more and buying more' (Demaria et al. 2013, 197). As an alternative to the acceleration the growth-based system is inherently built upon, a slow, decelerated life is brought forward, which not only benefits Nature but also personal satisfaction (Paech 2012, Alexander 2013). Placing its notion on findings that well-being only increases until a certain income level, as the Easterlin paradox has shown (Easterlin et al. 2010), degrowth argues for voluntary simplicity, which mainly rests upon reducing consumption (Alexander 2013). Thus, resource use and material throughput would decrease, and people would live more sustainably (Paech 2012).

The fourth principle is termed bioeconomics (henceforth **bioeconomics and technology**), which is based on the work of Georgescu-Roegen (1971). He argues that Earth's stock of resources will eventually be depleted if economic growth continues, basing his reasoning on the second law of thermodynamics. As technological efficiency gains are no answer to this fact and are furthermore prone to rebound effects (Mayumi 2017), degrowth favours nature-based solutions as well as low-tech and convivial technologies (i.e. easy to handle and control)

(Kerschner et al. 2018). High-tech should be used if it serves a greater goal, especially regarding sustainability (Lange and Santarius 2018).¹

Democracy is the fifth principle, as degrowth scholars generally call for stronger democratic elements of direct democracy and public participation (Demaria et al. 2013, Asara et al. 2013), which are viewed as key in a socio-ecological transformation (Bonaiuti 2012). Degrowth highlights the importance of democracy as ‘a broad and articulated process of shared learning, self-education, reconstruction of social ties and collective transformation’, which can only be ensured ‘through a democratic participatory and discursive process’ (Bonaiuti 2012, 560). While there are ongoing discussions on whether a representative democracy could fit this concept, degrowth generally acknowledges the benefits of increased public participation, e.g. via public forums.

As the sixth principle, **justice** refers to degrowth’s opposition to domestic and global inequality. Domestically, degrowth rejects the idea that only economic growth can achieve more equality. Instead, degrowth argues for ‘less competition, large scale redistribution, sharing and reduction of excessive incomes and wealth’ (Demaria et al. 2013, 199). Globally, degrowth highlights that the Global North is dependent on materials from the Global South to keep the current growth-based system running. Early industrialised countries are often responsible for ecological degradation and human exploitation in the Global South, e.g. via resource extraction, which Brand and Wissen (2021) term the ‘imperial mode of living’. Often, sustainability strategies,

¹ However, this does *not* imply that degrowth is anti-technology, nor does degrowth reject high-tech solutions. In contrast, degrowth encourages to reflect upon the necessity of technology and digitalisation, that is where it is appropriate and where it is not. As Hickel (2020a) notes, technology is absolutely necessary to fight environmental problems, yet technological efficiency gains will – on their own – just not be enough, especially if driven by ever more economic growth. So while technology is not *the* solution, high-tech as well as technological efficiency gains are necessary for a degrowth transformation (Hickel 2020a). Moreover, Howson and colleagues (2021, 2) highlight that ‘creative digital applications offer a way forward by catalyzing and coordinating popular interest towards sustainable degrowth’.

e.g. the EU's Green New Deal, keep on reinforcing this (Fuchs et al. 2020). To achieve global justice and sustainability, it is vital to change these unjust structures.

3 CONTEXT AND STATE OF RESEARCH

3.1 *The Forest Sector and the Global Economy*

Forests are part of the current global economic growth regime. This becomes obvious when focusing on its most 'valuable' economic sector, forestry, which provides the economically highly demanded resource timber. Concerning the global economy, forestry's value 'has increased over the past few decades at an average annual rate of 2.5 percent' (Schmincke 1995), and from 1980 until 2018, the global product values of forests increased by 377 per cent (FAO 2020). Also in Europe, where forestry is usually considered less important than in other regions, employment within the forest industry increased by nearly 7 per cent from 2004 to 2015 (Eurostat 2018). However, the growth of the forest sector is generally not beneficial for forests, if it is based upon intensified commercial logging, as this is the case in Europe since 2015 (Ceccherini et al. 2020). Moreover, the increased creation of forest plantations, which fosters economic growth, is principally harmful to biodiversity and many other ecosystem services², as they often lack key features of natural forests. While deforestation is linked to the extraction of more wood, forests are also negatively affected by economic growth in other sectors and thus not only by the growth imperative of the forest sector. The most important driver is the often politically promoted growth of the agricultural sector that leads to extensive deforestation (Campos Arce 2019).

² I am aware that 'ecosystem services' is a highly debated concept. I use the term in the sense of Muraca (2016, 143), who acknowledges that often the 'concept is being dangerously used to pave the way to the commodification of "nature", but that it also has the strength of showing that human survival is ultimately dependent on these "services"'.

3.2 The Wood-Based Bioeconomy and its Growth Paradigm

Within the sustainability debates of the past years, the wood-based bioeconomy has received increased attention. Its goal is to replace fossil fuel-based elements in the current economy with wood-based ones (Wolfslehner et al. 2016). Here, the link to the current growth regime of the global forest sector becomes apparent: according to this approach, the economies can be rendered sustainable without having to abolish growth. The wood-based bioeconomy is seen as a *tool* to foster economic growth by ‘sustainable’ means (Wolfslehner et al. 2016). Accordingly, a wood-based bioeconomy relies on ‘green growth’, fitting contemporary dominant approaches within the forest sector, which argue that ‘economic growth and environmental protection are compatible’ (Delabre et al. 2020, 4). In a political context where economic growth is (still) the central paradigm, the bioeconomy concept is attractive. In Europe, several national governments and the EU have bioeconomy strategies and publish respective reports (for the EU, see European Commission 2012). However, there is no empirical evidence that resource use and economic growth can be decoupled in absolute terms (Haberl et al. 2020, Hickel and Kallis 2019, Ward et al. 2016). Moreover, studies have emphasised the potential negative effects of the bioeconomy, ranging from impacts on biodiversity to deforestation (Kröger and Raitio 2017, O'Brien 2015). In Europe, such strategies have led to a steep increase of harvested forest areas since 2015 (Ceccherini et al. 2020), leading Angelstam et al. (2021, 639) to conclude that ‘the current intensification of industrial forestry ... frequently under the umbrella concept of wood-based bio-economy ... challenges the idea of sustainable forest management.’

3.3 The Forest Sector in the Degrowth Literature

While the forest sector has so far not systematically been linked to degrowth, few publications do incorporate degrowth principles. DeVore (2017) focuses on how a Brazilian community is affected by its forest being converted to an agroforest, and Alarcón Ferrari and Chartier (2018) analyse how forest resources could contribute to a degrowth-based energy democracy in

Sweden. In a broad sense, forests also play a role in Nelson and Schneider's (2019) publication on housing for degrowth via their resource timber.

4 THE FOREST SECTOR IN SWITZERLAND

Forests cover 31 per cent of Switzerland's territory, which amounts to some 1,271,000 hectares, of which about 70 per cent is publicly owned, including common ownership (BAFU 2020, 7). Within this group, common owners possess about 35 per cent of the forest areas, political municipalities 30 per cent, and the cantons and the federal level about 5 per cent (WaldSchweiz 2021).

Common owners are highly diverse: they exhibit a high degree of organisational complexity since they are highly distinct regarding size, capital and estate assets as well as forest ownership area (Stuber and Wunderli 2021). The designations vary as well, ranging from *Korporationen* (corporations) to *Bürgergemeinden* (civil communities).³ Corporations and civil communities (still) exist in 14 of 26 cantons, yet they only persist comprehensively in 5 cantons. In 5 other cantons, a different but similar form of corporations exist, which are often, yet not consistently, *Nutzungsgenossenschaften* (use cooperatives) (Stadler 2008). In some cantons, no common ownership forms exist (e.g. Geneva) or, like in Zurich, only via marginalised forms in a few municipalities (via *Bürgergüter*) (Sieber 2005, Kiss 1999, Auer 2016). However, what connects all of the different common ownership forms is that they manage their forests collectively.

Private forest ownership, in contrast, accounts for 30 per cent, yet there are great cantonal differences as to the ownership structures (BAFU 2020). While public forest owners usually base their management on plans and thus conduct active forest management, many private forest owners increasingly refrain from managing their plots (Creutzburg et al. 2020). This is

³ For an overview of the Swiss commons, see the book 'Balancing the Commons in Switzerland' by Haller et al. (2021).

often due to financial burdens, as timber sales do not cover the expenses of harvesting operations.

In legal terms, the Swiss Federal Act on Forest (ForA) regulates the use of the forest and its resources, following the idea of multifunctional forestry that should fulfil social, economic, ecological and protective functions. The ForA is considered one of the strictest and most efficient forest laws globally, particularly regarding the protection of forest cover (WFC 2011). Concerning management practices, sustainable forest management is predefined (Art. 20, ForA) and rules out certain harvesting practices, such as clear-cutting (Art. 22, ForA). Moreover, there is a general ban of forest clearances (Art. 5, ForA), linked to the obligation that any authorised clearances must be replaced by the same quality and quantity of forest in the same region (Art. 7, 1, ForA). At the same time, while development rights belong to the owner of the forest plot, public law restricts them, implying that forested land can only become building land if the responsible governmental entity rezones the area (Gerber and Gerber 2017). For recreation, and Swiss culture in general, forests are meaningful, since large parts of the population visit forests in their leisure time (BAFU and WSL 2013). This is supported by the everyman's right (Art. 699, Swiss Civil Code), which allows everyone to access and use the forests, even privately owned plots.

Economically, the forest sector only plays a marginal role for Switzerland. The gross value added of the forest and timber industry amounts to some 4.5 billion Swiss francs, which, compared to the national gross value added of about 699 billion (in 2018), makes up only 0.6 per cent of the whole economy (WaldSchweiz 2021, BFS 2021).

5 A DEGROWTH VIEW ON THE SWISS FOREST SECTOR

Although the six principles of degrowth are discussed separately in this section, there are always overlaps and interlinkages between them because of degrowth's holistic approach (for an overview, see Table 1).

Degrowth's **ecology principle** is based upon the preservation of Nature, which – transferred to the forest – implies that the forest cover should not decrease, as its decline is the most visible example of unsustainability. Neither the Swiss constitution nor federal laws grant the forest any rights of its own, yet the *res communis* approach is present via common ownership and public ownership (together they amount to about 70 per cent) (BAFU 2020). Furthermore, the national forest law offers strong quantitative protection: the ForA generally forbids forest clearances and for permitted exceptions, in-kind compensation in the same region has to be realised (Art. 7, 1, ForA). While this sound legal protection can be viewed as in line with degrowth principles, since a few years out-of-kind compensation can be authorised to conserve cultivated land, it remains to be seen if this development will lead to a decrease of the forest cover (Steinmann et al. 2017).

Maintaining high levels of biodiversity and other ecosystem services is also vital for degrowth. For forests, the level of biodiversity is strongly linked to the management type, and generally, forests that are managed with less (human) intervention exhibit higher rates of biodiversity (Bollmann 2011). In Switzerland, 'nature-based forestry' is predefined (Art. 20, 2, ForA). Its main principles are the prohibition of clear cuts, that priority is given to natural regeneration, diverse age structure, native tree species and trees which are appropriate for the location, and that no fertiliser and only few chemicals are used (Glauser 2013). However, many cantons grant the use of pesticides – via exemption permits – for wood stacks in the forest (Forster 2019), but two cantons have decided to issue no permits anymore (Aschwanden 2021).

Nature-based forestry generally enhances biodiversity, while it does not prevent certain negative effects that result from intensive management (e.g. short-term rotation). Moreover, in areas of monocultures, which were planted until the 1980s, negative effects are present (e.g. bark beetle infestations), although more recent figures indicate a rather positive trend, which relates to new management principles defined in 1991 (Brändli et al. 2020). Furthermore, the positive development also relates to the decline in harvesting pressure, as the demand for *Swiss* wood has constantly decreased in the last decades, because of its high cost. In this paradox situation, it is financially beneficial to import wood, leading to private forest owners refraining from forest management – which results in high biodiversity rates in these plots (Sedivy 2020).

Generally, degrowth would favour management types that rely on less human influence and thus benefit biodiversity. Effectively, various forestry approaches that are based upon the notion of minimising human influence exist, amongst others ‘ecological forestry’ (Graf Hatzfeldt 1995). At the same time, from a degrowth perspective, non-managed old-growth forests *cannot* be the exclusive goal, as this perspective ignores social dimensions (Büscher et al. 2017). Taking care of Nature, its resources for human livelihood and cultural heritage is vital for degrowth (Martínez-Alier et al. 2010). Consequently, forest management must *not* be abandoned, but simply adjusted by minimising human influence. This is especially crucial as Switzerland has a low Forest Landscape Integrity Index (FLII) of 3.35, which measures the degree of anthropogenic modification (Grantham et al. 2020). This issue becomes even more relevant when considering the issue of an apparent ‘under-utilisation’ of Swiss forests, which proponents of increased harvesting highlight. They argue that more wood could be used

sustainably, as the yearly increment of Swiss forests is increasing (for example, see the Swiss forest owner association's publication WaldSchweiz 2020).⁴

Regarding forest reserves, Switzerland aims to achieve 10 per cent of all forests by 2030, reaching 6.3 per cent in 2018 (BAFU 2020, 32). Without defining which exact figure of forest reserves is desirable from a degrowth perspective, existing reserves are positive, as they hinder forests from being pressured by human influence even more. These forest areas are also decommodified because they cannot be 'developed' for economic purposes, which is generally welcomed by degrowth (Gerber and Gerber 2017).

Linking the degrowth principle of **critique of neoclassical economics** to the forest sector, the commodification of Nature and biodiversity is rejected by degrowth. Consequently, the general commodification of forest's ecosystem services is contradictory to degrowth, yet degrowth does not reject the commodification of 'conventional commodities such as timber, fibre and raw materials' (Gómez-Baggethun and Ruiz-Pérez 2011, 615). In Switzerland, the possibility to commodify forests, and especially non-timber products, is highly restricted (Gerber and Gerber 2017).⁵ Only projects of forest owners selling carbon certificates to private individuals, which have evolved in the past years, show some form of commodification (for example, see OAK 2017).⁶ However, there are only very few such projects and they always rely on voluntary purchases. The issue of decommodification also applies to protective forests, which are not managed for economic reasons but solely to protect villages and infrastructure from natural

⁴ Another ecological issue is the unwanted overfertilisation of the forest due to extensive agriculture, especially livestock farming: 95 per cent of Swiss forests are overfertilised with nitrogen, which is carried into forests by wind (Eichenberger 2020, Fitze 2014).

⁵ The sale of timber is obviously also a form of commodification, which is why the focus is put on non-timber products. However, the commodification of timber is restricted in Switzerland too, namely via harvesting limitations. Harvesting always needs to be authorised by a forester. Thus, the state ensures that no forest clearances take place and that the overall forest cover is maintained (Gerber and Gerber 2017).

⁶ Thereby, forest owners aim to commodify the carbon stored in standing forests, in contrast to selling logged timber (as the "traditional" form of commodification). This also relates to the issue of climate change mitigation, namely whether to store carbon primarily in the forest or in harvested wood. For a case study focusing on forest stakeholder preferences regarding where to store carbon, see Creutzburg and Lieberherr (2021), who focus on the Swiss canton of Lucerne.

hazards, e.g. rockslides, and their maintenance is mostly financed by the federal level. Protection forests amount to some 40 per cent of all Swiss forests, reaching levels of 90 per cent in Alpine cantons (BAFU 2020, 31).

Consequently, this overall decommodified situation can be deemed as mostly fitting degrowth principles. However, the fact that Switzerland promotes REDD+ (BAFU 2019), an international convention aiming to limit deforestation in the Global South, which is ultimately based on the commodification of forests and the ‘value’ of their carbon (Benjaminsen and Kaarhus 2018), conflicts with this assessment. REDD+ policies supported by the Swiss government thus extend the commodification of Nature into novel realms (carbon). The idea of commodification is thus represented abroad by Switzerland via this convention, which often contradicts norms of local cultures and thereby interferes with the values of local communities (Benjaminsen and Kaarhus 2018). Therefore, while forests in Switzerland are highly decommodified, the Swiss federal level promotes the commodification of forests in the Global South, leading to an overall ambiguous situation.

For decades, forests in (central) Europe were almost exclusively managed for the supply of timber, which had its roots in the utilitarian theory of net soil yield of the 19th century (Ruppert 2004). The school of thought focused on the provision of wood from a mere economic perspective, leaving aside that forests are complex ecosystems. This led to non-local trees being planted extensively as single-species stands, especially spruce stands as a relatively fast (and straight) growing species in lower altitudes. Here, the economic efficiency logic becomes apparent, while its realisation had various negative ecological consequences (Bürigi and Schuler 2003). Against this backdrop, Switzerland has started to restructure its forests: from 1995 to 2013, the area of non-native forests has decreased from 12 to 9 per cent in the whole country, while pure spruce stands in the midlands nearly halved (from 11 to 6 per cent) (Hirschberger and Winter 2018, 122). The situation regarding the tree’s age is similar. So far, only 4.2 per

cent of the Swiss forests are older than 180 years, as from a profit logic, it is generally desirable to have shorter rotation periods. Yet, the amount of old trees is increasing, pointing to an ecologically positive direction (Brändli et al. 2020, 111). Both developments, i.e. more local tree species and increasingly older forests, fit degrowth principles better, as they put more weight on ecological conditions than on mere profit maximisation and economic efficiency.

The **responsible consumption** principle has many implications for forests and wood, as it principally implies using less wood by reducing consumption of short-term wood products. In line with degrowth's vision of low resource use, it is best to use wood for long-term purposes (e.g. a building material), so that the material is used until the end of its lifespan. Thus, carbon can also be stored for decades or even centuries (the oldest known wooden residential house in Switzerland dates back to 1287)⁷. In consequence, avoiding short-term wood usage is key. In Switzerland, per capita annual paper consumption⁸ (144 kg in 2015) is one of the highest worldwide, although it has decreased in the past years (Hirschberger and Winter 2018). The fact that paper consumption is still high, despite media consumption patterns and advertising has largely changed from print to online channels, is because of the growth of online shopping – which is dependent on paper-based packaging (Bonanomi 2017). While the growth of already high levels of consumption (shopping) contradicts degrowth's principles, the fact that most packaging is imported stresses this highly unsustainable practice once more. Switzerland imports 100 per cent of the cellulose needed for paper, as there is no pulp mill in the country anymore since 2008 (Hirschberger and Winter 2018). Moreover, because of complex trade flows, it cannot be ruled out that the harvested wood stems from illegal sources (Hirschberger

⁷ It is located in the central Swiss canton of Schwyz and considered as the oldest residential house built from wood in Europe (O'Dea 2009).

⁸ Paper consumption includes the consumption of card-/paperboard. However, for reasons of clarity, I only use the term paper.

and Winter 2018). Consequently, the current amount of paper consumption is clearly not in line with degrowth.

Another problematic short-term use of wood is *primary* wood utilisation for energy production, especially if it should replace more carbon-intensive energy sources, as this hampers biodiversity (Bouget et al. 2012). Moreover, while wood energy is *no* carbon neutral energy source (in the short- and medium-term), it is often featured as such (Schlesinger 2018), also by the federal level in Switzerland (BAFU 2015). In 2019, two fifths of the harvested wood in Switzerland (40 per cent) was used for energetic purposes and regarding the overall energy production, the use of wood energy is increasing (BAFU 2020, 71, EnergieSchweiz 2019). From a degrowth perspective, however, it was best to first *drastically* decrease the energy demand, before second, using renewable resources (Ernsting 2015). In Switzerland, energy consumption per capita is in the upper third globally and is still increasing (EnergieSchweiz 2019). Regarding the utilisation of wood energy, especially cascade usage should be pursued, i.e. using wood as an energy source at the end of its lifecycle (waste wood), instead of generally harvesting wood primarily for energetic purposes (Hirschberger and Winter 2018). Therefore, while the cascade idea fits degrowth principles, the promotion of increasing wood energy per se does not.

Regarding long-term wood use, it is ecologically best to use domestic or local timber (Berlik et al. 2002), which also has a strong ecological and justice dimension. In Switzerland, the canton of Fribourg was the first to commit itself to use wood from the canton's forests for public buildings 'whenever possible' (FDFA 2019b). Although the latter term is rather inexplicit, the goals of the sub-national approach – which the federal level is also pushing – are in line with degrowth principles, since wood and/or timber for building and housing purposes generally plays a vital role in a degrowth context (for an overview, see Nelson and Schneider (2019)).

Apart from forest resources, many people in Switzerland use the forest for recreational activities, such as hiking. More than 80 per cent of all inhabitants visit the forest at least once a month, showing the strong connection of people in Switzerland to their forests (BAFU and WSL 2013, 68). These activities fit degrowth's vision of pursuing (collaborative) 'slow' activities as they 'put a natural limit on the time available for other more polluting ... [activities], contributing to a "time rebound"' (Schneider 2010, 10).⁹

Concerning **bioeconomics and technology**, the primary connection to the forest sector is the use of big forest machinery, like harvesters (for the felling process) or forwarders (for the transport). Like in many industrialised countries, big forest machinery is a part of Swiss forestry, mainly due to their economic efficiency (Agroscope 2018). The majority of national forest actors and federal policies favour the use of big machinery over techniques that require (more) human labour (Pudack 2006). However, big forest machines often damage soil severely because of their weight, causing extreme soil compaction, which leads to less timber growth and more vulnerability to diseases and windthrow (Picchio et al. 2020). In Switzerland, 30 per cent of all Swiss logging trails have already been lost as potential growth sites (Herold et al. 2009). Moreover, harvesters are mainly fuel-based, and exhaust fumes and bulky machines can harm trees. These negative effects back degrowth's critical view of using technology merely because of efficiency. In contrast, degrowth argues for a 'transition from an industrial, fossil-based machines to low-tech convivial tools', or more bluntly, 'from tractors to animal power' (Parrique 2019, 577-578). For the forest sector, this could imply felling trees (motor-)manually and subsequently using logging horses to move the trunks to forest roads, which have several positive ecological advantages over big machinery (Picchio et al. 2020). Apart from the ecological benefits, degrowth also favours low-tech techniques and machines because they *can*

⁹ Recreational activities can also lead to negative effects on flora and fauna, which need to be governed to ensure biodiversity's integrity.

contribute to counter alienated work structures by giving people back the control over machines as in Ivan Illich's (1973) idea of 'convivial technologies'. Moreover, in Marx' concept of alienation, 'humans see themselves reflected in nature and create their surroundings with their labor' (Zoellick and Bisht 2018, 1791). Working in a forest setting and applying low-tech logging with simple devices and animals might fulfil these principles.¹⁰ Furthermore, horse logging also has a cultural dimension. In Hungary, for instance, more than a fourth of all forest districts still rely on this century-old technique (Malatinszky and Ficsor 2016), which is one reason for Hungary's high labour intensity in forestry (Eurostat 2018) – a fact degrowth endorses. In Switzerland, logging with horses is still existent as well – yet only applied in rare cases, e.g. in the mountainous canton of Grisons (Agroscope 2018).¹¹ Most of the time, harvesting is carried out with big machines and their use is increasing since the turn of the millennium (Denzler 2013). Consequently, current harvesting practices, nearly exclusively relying on big machinery, are not in line with degrowth practices, as they are generally not applied due to sustainability issues but in order to increase economic efficiency.

The **democracy** principle calls for more (public) inclusion by democratic means. For the forest sector, this implies the participation of individuals regarding the management of forests. In Switzerland, a special form of public ownership that has evolved over centuries is common ownership (Ostrom 2015 [1990]), and common owners are the largest ownership group, owning some 40 per cent of Swiss forests (Brändli et al. 2020, 267). Common owned forests are collectively managed by civil communities, who define the management form, harvesting

¹⁰ There are many different conceptions of alienated work structures and although forest work might be less alienated than factory work, there are still issues. As Gerber (2020, 241) notes with reference to Marx and Illich, 'convivial technologies' are one element of dealienated work structures, while at the same time people should also 'control the process and fruit of their labour'. Consequently, transferring this to the forest might imply that only forest work in a commonly owned forest, compared to work in a privately owned plot, can be considered as 'totally' dealienated. Furthermore, the question of *when* forest work becomes alienated is also relevant: if logging with horses is *dealienated*, is harvesting trees with big harvesters automatically *alienated*? Questions like these need to be considered in future research.

¹¹ A similar development accounts for timber rafting, a transport method that was applied throughout Switzerland for centuries but only survived in *Ägerisee* in the canton of Zug, as the only place in central Europe (Vogt 2020).

practices and timber use, but also possible services to the public, e.g. the erection of benches. Degrowth favours common ownership structures for certain properties, like land, for two reasons. First, the (direct) democratic nature of commons, including all the individuals who are part of the community, is in line with basic ideas of degrowth (Perkins 2019). Second, as Euler (2019, 158) argues, ‘commons do not have an inbuilt growth compulsion’, and thus have the *potential* to promote sustainable practices beyond growth. However, while common ownership of forests in Switzerland seems to meet degrowth principles, the exact design of the common ownership can be problematic, with membership being linked to ancestry and thus excluding new inhabitants. Furthermore, some common owners also still exclude women and common ownership structures do not exist in all cantons. However, when membership is given, participation is ensured, as all members hold equal rights. Moreover, when compared to other forms of public participation in Switzerland, which are also present, e.g. a round table of stakeholders regarding forest policy-related issues, codetermination in civil communities is more pronounced. In principle, however, democratic participation in Switzerland is high, because of the direct democratic political structure, which also concerns forestry issues (Schmithüsen and Zimmermann 2002). Concretely, this means that apart from parliamentary elections, a Swiss electorate votes on about 15 federal proposals a year, on average, consisting of popular initiatives, optional referendums and mandatory referendums. Moreover, every citizen can actively (try to) launch an initiative or referendum (FDFA 2019a). While direct democratic elements are favourable from a degrowth perspective, common ownership is an even more inclusive ownership type.

Regarding the **justice** principle, people enjoy free access to all forests, whether they are privately or publicly owned (Art. 699, Swiss Civil Code). Thus, decommodification not only restricts owners from ‘developing’ forested land, but owners also have to accept the public accessing and using their forest area, e.g. for recreational activities, but also to collect

mushrooms and berries for personal use (Gerber and Gerber 2017, Ohmura and Creutzburg 2021). In sum, the principal decommodification of forests can thus be viewed as in line with degrowth claims.

On a global scale, degrowth's justice principle can be linked to the Swiss forest sector when focusing on the exploitation of resources from other states. Globally, industrial high-income states are the only net importers of forest and timber (products) but have a rather strict forest regulation domestically. Mills Busa (2013, 192) summarises that 'rich countries practice preservation within borders but appropriate resources from poorer countries to sustain consumption'. This finding can be transferred to Switzerland, where nationally, the Swiss forest benefits from strong regulation. Globally, however, Switzerland is deeply embedded within the 'imperial mode of living' (Brand and Wissen 2021), which becomes visible when looking at Switzerland's high ecological footprint.¹² When aggregating all forest products used, an average person in Switzerland is dependent on 0.35 hectares of forested land, which means that the necessary forested area is double the size of the existing forest area in Switzerland (Hirschberger and Winter 2018, Jennings et al. 2020). This figure indicates that the general wood-based consumption exceeds the domestic possible supply, which is especially noteworthy when acknowledging the strong regulatory protection of Swiss forests.¹³ What is more, the need for forest-based and non-forest-based products and their respective imports *directly* harms forests in other countries (Mills Busa 2013, Jennings et al. 2020). For example, high levels of meat consumption are linked to deforestation in the Global South, due to the clearing of forested

¹² When taking several resources into account, i.e. going beyond forest-based products, Switzerland's Earth Overshoot Day in 2021 was 11 May. As the Geneva Environment Network notes, '[f]rom this date onwards, Switzerland will be living on credit at the expense of future generations. If the world's population had the same lifestyle as Swiss citizens, the resources of three planets would be necessary to ensure its existence' (Geneva Environment Network 2021).

¹³ In 2019, about 5.5 million m³ wood was harvested in Switzerland, while total Swiss wood consumption was about 10.3 million m³ (BAFU 2020, 69). Most of the wood is imported from other European countries, yet the origin depends on the exact type of wood (logs, raw wood etc.) (for the exact figures, see BAFU 2020).

land for soybean cultivation (Pendrill et al. 2019). Moreover, the general per capita overuse of 0.35 hectares of forest resources cannot be considered in line with degrowth principles.

[INSERT TABLE 1 HERE]

6 A RESEARCH AGENDA: FUTURE DEGROWTH-BASED FOREST RESEARCH

Many links discussed in the previous chapter need further exploration. The six degrowth principles discussed in this paper offer guidance for future research and can prepare the ground for more investigations on degrowth and the forest sector. When examining these issues and questions in future studies, it will also be vital to engage critically with existing degrowth literature. Only then can one show what issues degrowthers might have overlooked or ignored so far. Against this backdrop, existing ideas and concepts can be amended and revised, which is necessary to develop a forest-based degrowth approach in a broad sense – and specific views on specific forest-related topics.

Against this backdrop, possible questions are presented in Table 2; they highlight research gaps regarding a degrowth view on the forest sector. Obviously, the questions and issues listed are anything but exhaustive, and should serve as a starting point for fruitful future explorations.

To address the ecology principle, it will be vital to formulate a forest management approach that is in line with degrowth. In doing so, best practice examples can facilitate theoretical contributions. At the same time, degrowth research will need to take developments in other sectors into account. For example, issues from the agricultural sector also affect the forest, e.g. meat production that leads to deforestation (Jennings et al. 2020). Moreover, it will be important to discuss the relationship between industrial forest management and degrowth, while alternative approaches to contemporary forestry, like rewilding, can inform this debate (Dandy and Wynne-Jones 2019). This also relates to the question of harvesting levels and forest reserves. Lastly, it will be important to design degrowth-based forest policies. In that context,

analysing and comparing approaches from different countries might be fruitful for prospective degrowth policies, for example by focusing on Bhutan's strict policies. In the Asian country, a forest cover of 60 per cent is constitutionally prescribed and more than 50 per cent of the land is protected (von Weizsäcker and Wijkman 2018).

Regarding the critique of neoclassical economics, it will be essential to formulate a degrowth view on global deforestation measures, which are currently mainly based on the commodification of forest's ecosystem services, especially carbon (REDD+). In that context, applying other valuation methods to forests might be valuable. The Oaxaca approach can be one helpful tool with its aim of a 'more plural valuation of Nature' (Jacobs et al. 2020, 1).

The link between responsible consumption and the forest sector discloses several further research gaps. While timber plays an important role in housing for degrowth (Nelson and Schneider 2019), the more general question concerning the role of wood in a degrowth lifestyle needs further investigation. This is then also linked to the question of what living degrowth actually *is* and if there are more 'styles' of a degrowth way of living, and how this relates to potential different uses of wood and timber (Brossmann and Islar 2020). In that sense, it will also be key to analyse where fossil fuels can be replaced without overusing forest resources. Furthermore, degrowth and the slow movement (e.g. slow cities) have been brought together (Prádanos 2018), but a discussion on the links between the slow movement and the forest is still missing. On a macro level, the general idea of sufficiency policies has received attention (Schneidewind and Zahrnt 2014), yet it remains unexplored what these policies would look like when applying them to the forest and related sectors.

Concerning bioeconomics and technology, it is relevant to discuss the general role of technology in a degrowth-based forest management approach. Linked to this is the question of how the degrowth idea of low-tech, convivial technologies can be transferred to forestry and

what this then implies for management, but also regarding the sustainable timber transport method of floating. Related to harvesting is then the issue of how possible goal conflicts between low-tech and safety concerns (especially regarding accidents) would be dealt with. In that sense, certain high-tech digitalisation tools that benefit sustainability, work safety and/or worker's or peoples well-being on a broader scale might be appropriate and welcomed from a degrowth point of view, and studies should investigate this (Lange and Santarius 2018, Howson et al. 2021). Moreover, while there is knowledge on traditional forms of forest use, also in Switzerland (Stuber and Bürgi 2012), including low-tech practices, it should be discussed how this knowledge can be disseminated so that it becomes mainstream at best. Moreover, interesting insights might be generated when discussing whether low-tech solutions from local communities in the Global South could be applied as viable techniques in Global North countries (for a compilation of low-tech design, see Watson 2019). Furthermore, research on how policies can support low-tech solutions is essential.

Studies on the connection between democratic participation and degrowth-based forestry could focus on a possible transformation of current common ownership structures so that prospectively, membership is not limited to conditions like ancestry. Learning from the Swiss commons, one could discuss how these can be implemented elsewhere, e.g. across Europe, to improve participation. Other interesting insights could be gained by analysing whether participatory forest management approaches from the Global South might be applicable in the Global North (Schreckenberget al. 2006), also by comparing organisational and ownership structures. At a macro level, it remains rather unclear how direct democratic structures could promote codetermination in the forest sector, which allows for further investigation.

Regarding the justice principle, one could analyse what policies are helpful to guarantee public access to forests in countries where public access is not guaranteed and if best-practice examples on free access can be defined when comparing laws across countries. Concerning the

global sphere, degrowth should define its stance on (international) timber trade. While degrowth generally favours less trade, there might be a goal conflict between using timber instead of other materials, which could require a certain amount of trade. Again, Bhutan might serve as an interesting comparative case, as the country has banned timber exports (von Weizsäcker and Wijkman 2018).¹⁴ By conducting more research on the effects of overconsumption and unsustainable resource use in the Global North on the forest sector in the Global South, degrowth can subsequently set out concrete concepts of how the ‘Western’ lifestyle must change to sustain forests globally.

[INSERT TABLE 2 HERE]

7 CONCLUSION

Starting from the premise that the forest sector is part of the global growth regime and being used within the bioeconomy concept as a means to generate more economic growth, the article argues that for the forest sector to become sustainable, degrowth principles are necessary. Moreover, for degrowth as an all-embracing philosophical concept, clarifying its relationship to the forest sector is vital. Focusing on this research gap, the paper systematically discusses the link between the forest sector and degrowth. Taking Switzerland as the exemplary case, the paper shows that the Swiss sector exhibits certain features that are in line with degrowth principles. These range from a strict regulation regarding forest cover and management principles to the decommodification of privately owned forest plots. At the same time, however, other specificities are contrary to the idea of degrowth: the Swiss forest sector is characterised by industrial forest management with large machines and the aggregated per capita wood consumption of the Swiss population exceeds the per capita forest cover by half, highlighting

¹⁴ Along these lines, it is no surprise that the World Bank critically highlights that Bhutan’s forest sector only accounts for ‘about 2 percent to GDP per year’ (World Bank 2019). Known for its growth-based agenda, the World Bank suggests increasing the commodification of Bhutan’s forests, as this could facilitate ‘productivity’.

unsustainable consumption levels. Other points remain ambivalent, for example, when policy aims are in line with degrowth, but it remains unclear whether they will be met in future.

While the article could only touch upon certain issues regarding the discussion of degrowth and the forest sector, it presents a research agenda future studies can build upon. For instance, the role of technology in a degrowth-based forestry approach needs further exploration. Linked to this is the issue of work safety of forest workers. At the same time, degrowth-based research can build on existing (niche) concepts that offer promising approaches (e.g. ‘ecological forestry’) compared to dominant industrial forest management. In that sense, this exploration is a starting point, presenting ideas for further research that should certainly not be limited to case studies from the Global North, but at best link knowledge and insights from around the globe. The article also shows that certain principles are already known which can prepare the ground for a degrowth-based forest sector. It highlights the need for more empirical explorations and conceptual refinements but also shows that some concrete measures can already be implemented. Amongst others, the cascade usage of wood can help to lower the harvesting pressure and projects of this kind are already existent, though only small on an industrial scale. Here, it is necessary that the political sphere implements reforms (e.g. via regulatory and/or economic policy instruments) to ensure a ‘closed loop’ of wood use.

What must be clear is that a degrowth approach to the forest sector, even at the local level, must always be aware of its global and inter-sectoral dimensions. The addressed issue of domestic preservation, yet global exploitation of forest resources (degrowth’s justice principles) is key when it comes to forest use and policy. The fact that Switzerland can protect and decommmodify its forests – without having to restrict its wood and paper consumption – is inherently linked to the fact that they can compensate for wood shortages by simply importing them from other countries. In other countries, however, forests are often exploited and degraded for exports, especially in the Global South, and the Swiss currently benefit from such structures.

Therefore, when acknowledging the global interdependencies of degrowth, it will not be adequate, possibly even counter-productive, if the Swiss forest sector increasingly follows degrowth principles but the overall Swiss consumption does not decrease. This would then just lead to displacing impacts to other parts of the world, especially Global South countries, thus continuing with the imperial mode of living. Consequently, for the forest sector to become 'degrowth aligned', it is not enough to only focus on domestic issues but to always be aware of the inherent global dimension of sustainability and the importance and need of local sufficiency.

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TABLES

[TABLE 1: Summary of the links between degrowth principles and the Swiss forest sector.

Source: Own illustration.]

Degrowth principle	Switzerland's forest sector		
	<i>In line with degrowth principles</i>	<i>Contradictory to degrowth principles</i>	<i>Ambivalent situation</i>
Ecology	<p>Res communis present via common (and public) ownership structures.</p> <p>Strong legislative protection of forest cover.</p> <p>Nature-based forestry is prescribed.</p>	<p>The forest has no rights of its own.</p> <p>Out-of-kind compensation is increasing (due to space issues and instead of afforestation measures).</p>	<p>Few forest reserves, yet aim to increase them.</p> <p>Still many monocultures, but forest restructuring is proceeding towards the planting of local tree species.</p> <p>Many cantons grant exemption permits for pesticide use for wood stacks in forests.</p>
Critique of neoclassical economics	<p>Commodification of non-timber products is highly restricted by the forest act.</p> <p>Decommodification is given regarding protective forests, which are only managed for protective functions (e.g. to safeguard villages).</p>	<p>Federal level fosters commodification of forests abroad by promoting REDD+.</p>	<p>Some form of commodification is given (selling of voluntary carbon certificates by private forest owners).</p> <p>Few old-growth, non-managed forests; positive development since 1991 (revision of the Forest Act), shift of utilitarian focus.</p>
Responsible consumption	<p>Cantonal approach to use local timber for public buildings.</p> <p>Forests are used for recreational activities ("time rebound").</p>	<p>Very high levels of annual paper consumption.</p> <p>All cellulose material is imported.</p> <p>Federal level promotes large-scale wood energy.</p> <p>Switzerland's annual wood consumption (10.3 million m³) exceeds national supply (5.5 million m³).</p>	<p>Federal level aims to increase the use of local timber for construction and promotes cascade usage of wood, yet the future success is not foreseeable to date.</p>
Bioeconomics and technology	//	<p>Use of big forest machinery has been increasing since the year 2000.</p> <p>Mostly there is the sole focus on economic efficiency regarding felling.</p>	<p>Only occasional application of low-tech harvesting techniques (e.g. horse logging in canton of Grisons).</p>
Democracy	<p>Common ownership as a highly democratic structure.</p>	//	<p>Common ownership structures can exhibit exclusive elements (e.g. membership linked to</p>

	Strong direct democratic elements.		ancestry, exclusion of women). Common ownership structures are not existent in all cantons.
Justice	'Freedom to roam' in all forests, whether privately or publicly owned (decommodification).	Switzerland is highly dependent of imported forest resources, exceeding its per capita consumption and thus harming forests abroad ('imperial mode of living').	//

[TABLE 2: Future research possibilities for linking degrowth with the forest sector. Source: Own illustration.]

Degrowth principle	Future questions to guide degrowth-based forest research
Ecology	<p>How could a degrowth-based forest management approach look like? Are there best-practice examples such an approach can build upon? Which other concepts and ideas can inform the debate (e.g. rewilding)?</p> <p>What developments in other sectors negatively affect the forest and how does degrowth-based forest research approach such issues (e.g. pressure on forests due to meat production)?</p> <p>How can utilising the forest be designed, while refraining from industrial management, so that biodiversity and societal needs are met? What are appropriate timber harvesting levels from a degrowth perspective?</p> <p>What is degrowth's stance on forest reserves? What is the relationship of forest reserves to degrowth-based forest management?</p> <p>What are degrowth-based forest preservation policies? Are there best practice examples one can build upon (e.g. Bhutan)?</p>
Critique of neoclassical economics	<p>How could global anti-deforestation measures (and/or policies) be designed without commodifying forests and/or forest ecosystems?</p> <p>How would a plural valuation of forests be applied concretely (e.g. by basing it on the Oaxaca approach)?</p>
Responsible consumption	<p>What role could wood/timber play in a degrowth-based lifestyle/a lifestyle based on voluntary simplicity?</p> <p>How much forest resources could be used to replace fossil fuels without harming the forests' sustainability? Are there overlaps between the bioeconomy concept and degrowth?</p> <p>What are enriching links between the slow movement and a degrowth-based forest approach?</p> <p>How can sufficiency-based policies look like in the forest and related sectors (e.g. agriculture)?</p>
Bioeconomics and technology	<p>What could the role of technology be in a degrowth-based forest management? What does the concept of low-tech, convivial technologies concretely imply for forest management?</p> <p>How can the concept of (de)alienation be applied to forest work and forestry operations?</p> <p>How would one deal with possible goal conflicts between low-tech and forest workers safety issues?</p> <p>How could the Global North benefit from (indigenous) low-tech approaches? How can policies promote low-tech forest management?</p>

	<p>Where can high-tech solutions benefit sustainability (and other factors, e.g. work safety) in the forest sector?</p> <p>How can knowledge about traditional forms of forest use be disseminated to a broader public?</p> <p>Could timber floating, as a low-tech sustainable transport method, be applied in more places?</p>
Democracy	<p>How can common ownership structures (e.g. civil communities) be reformed so they are more participatory? How could common ownership structures be implemented in places where they are not yet existent?</p> <p>What can countries in the Global North learn from participatory forest management approaches from the Global South?</p> <p>How can direct democratic structures regarding the forest sector be implemented?</p>
Justice	<p>What policies can be used as best-practice examples to guarantee public access to forests (e.g. the Swiss <i>Jedermannsrecht</i> compared to the Swedish <i>Allemansrätt</i>)?</p> <p>What would be the role of timber trade be in a degrowth society? To what extent – and under which circumstances – is timber trade justifiable?</p> <p>What are degrowth trade policies for the forest sector?</p> <p>What concrete lifestyle changes in the Global North are necessary to decrease deforestation globally?</p>