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## **The bioeconomy, carbon sinks, and depoliticization in Finnish forest politics**

### **Abstract**

The forest bioeconomy in Finland has emerged as a project that seeks to resolve emergent contradictions in the capitalist ecological regime and to reconfigure spatial, temporal, and economic relations. The bioeconomy rose to public consciousness during the 2010s, especially after its adoption as one of the spearhead projects of the 2015–2019 center-right coalition government. The forest industry's bioeconomic plans are also an attempt to hegemonize and depoliticize a particular political view of forests in the era of climate change. In this paper, the politics of the bioeconomy and carbon sinks are scrutinized in the context of the 2019 parliamentary election season, during which forest use was a central political issue due to investments in new biorefineries. A data set of 80 newspaper articles is analyzed through critical discourse analysis. The analysis identifies three key discursive frames that legitimize the political imaginary of the bioeconomy: 1) rural reinvigoration and the defense of the nation's peripheries through spatial populism; 2) a view of forests as high-throughput carbon conveyors that conform to the temporalities of capital; 3) the establishment of the bioeconomy as a high-value accumulation regime that can resolve the profitability crisis of the paper and pulp production model.

**Keywords:** bioeconomy; carbon sinks; forest industry; depoliticization

## Highlights

- The bioeconomy has emerged as the Finnish forest industry's attempt to reconfigure forestry in the context of climate change.
- The political imaginary of the bioeconomy is predicated on its ability to present credible fixes.
- The forest industry's strategy is premised on depoliticization and a policing of the boundaries of legitimate forest politics.
- The bioeconomy relies on the image of rural reinvigoration in a time of urbanization and the reconfiguration of spatial relations.

## Introduction

The ability of forests to sequester and store carbon from the atmosphere has been recognized as one crucial element in combating climate change. The Intergovernmental Panel on Climate Change (Calvo Buendia et al., 2019) has identified deforestation, land use changes, and intensive industrial forestry as detrimental to efforts to effectively alleviate manifold ecological crises. Forests have always been a highly politicized issue in Finland because of their central social and economic role in the development of Finnish society. Throughout the 2010s, the central friction points in forest politics were the inauguration of the forest bioeconomy as a state project under the 2015–2019 center-right coalition government, the intensification of felling, and growing public recognition of the adverse effects of intensive forest use on carbon sinks and climate change mitigation. The forest industry's bioeconomic plans have formed part of the attempt to transition toward renewable energy sources and update the industry's image in the era of climate change while retaining the material and ecological practices of forest use. As such, the bioeconomic project attempts to resolve the contradictions of the capitalist ecological regime by reconfiguring spatial, temporal, and economic relations and temporarily offsetting crises through new forms of accumulation, fixed capital, and landscape transformation.

The goal of the forest bioeconomy has been to move the forest industry's pulp- and paper-driven production model and product catalogue toward potential high-value forest products. New wood-based products such as nanocellulose, biocomposites, biofuels, and textiles are expected to replace paper and cellulose exports (Ministry of Agriculture and Forestry in Finland, 2020). However, innovative new wood-based products and high-value

bioeconomic forestry are still in their infancy, and the promise of the bioeconomy has provided ideological and political cover for the industry's current forest use practices. The promotion of the bioeconomy as a state project has entailed a larger shift in Finland that frames the industrial utilization of forest biomass as the future solution to climate change and the successor to the fossil economy (see Finnish Bioeconomy Strategy, 2014: 5).

At the same time, the bioeconomy has been advanced as an accumulation strategy. The Finnish Bioeconomy Strategy (2014: 3) states:

The objective of the Bioeconomy Strategy is to push our bioeconomy output up to EUR 100 billion by 2025 and to create 100,000 new jobs.

Thus, along with the forest industry's new investments and fixes, the changes in the state space, and the ideological tendencies analyzed here, the bioeconomy has also become a key sphere for fostering the competitiveness of the state. This is concretely done through state investment in bioeconomic research and innovation, public-sector-backed risk financing for bioeconomic companies, the incentivization of the bioeconomy in public procurement, and the development of training for bioeconomic experts (Finnish Bioeconomy Strategy, 2014).

The bioeconomy can be identified as a particular socioecological fix (Ekers and Prudham, 2015) that seeks to establish a metabolism of forestry that conforms to capitalist production, assembles new formations of fixed capital in biorefineries, and at the same time seeks to hegemonize a specific ideology of forest politics and a view of forests as natural resources. This process of hegemony-building should also be recognized as closely linked to a strategy of depoliticization through which the forest industry and its close political allies seek to forcefully police the legitimate boundaries of forest politics. As Ekers and Prudham (2018: 27) note:

Recognizing ideological and representational dynamics as internal to a fix is pivotal for understanding how hegemony, as the maintenance and legitimation of power and particular social relations, is tied to the fixing of socioecological processes.

Depoliticization emerges as an essential strategy in the ideological sedimentation and construction of the bioeconomy's political legitimacy (see Takala et al., 2020). The concept of the socioecological fix points toward an analysis of both the material and discursive dimensions of socioecological changes (Ekers and Prudham, 2018: 29). This article focuses on the latter while also contextualizing the political developments of the bioeconomy through manifold material changes in forest use.

In the empirical section of the paper, I will analyze contemporary media discussions related to the bioeconomy, carbon sinks, and the forest industry before, during, and after the Finnish parliamentary elections of April 2019 through a data set of 80 newspaper articles. In addition to being a pulpwood-driven ecological fix, the bioeconomy can also be characterized as an accumulation regime and a political imaginary. The particular focus of this article is on the bioeconomy's political imaginary (see Luukkonen and Sirviö, 2019) and how it has been politically constructed and legitimized in the public sphere as a new form of state project and developmental pathway (Ahlqvist and Sirviö, 2019). I examine the construction of this imaginary as an attempt to depoliticize three key discursive frames and to hegemonize a particular view of forest politics in the era of climate change. I apply a form of critical discourse analysis and scrutinize how the forest industry, its close political interests, and environmental groups and scientists have sought to depoliticize these discursive frames.

On the basis of the empirical analysis of the data, I identify three discursive frames that hold the bioeconomy's political imaginary together and seek to legitimize it in public forest politics: 1) rural reinvigoration and the populist defense of the nation's peripheries through the bioeconomy; 2) a view of forests as "high-throughput carbon conveyors" (see Palmer, 2021) that conform to the temporalities of capital and allegedly retain carbon neutrality even with intensive harvesting; 3) the establishment of the bioeconomy as a high-value accumulation regime that can resolve the profitability crisis of the current paper and pulp production model. Thus, the bioeconomy is presented as a project that can resolve different emerging spatial (urbanization and core/periphery), temporal (intensive harvesting and replenishment of forest carbon sinks), and economic (profitability decline) contradictions. In particular, the carbon sink issue of intensive felling was challenged by environmental groups and scientists during the 2019 election season, and the change in the coalition government after the election denoted at least a temporary pause in the promotion of the bioeconomy as a spearhead state project.

This article contributes to an empirical understanding of how the political legitimacy of projects such as the forest bioeconomy is constructed in the public sphere, and how its imaginary is predicated on the ability to present politically credible fixes—spatial, temporal, and economic. In addition, the particular historical-geographical context needs to be outlined if we are to understand how the forest industry and its close political interests have been effective in advancing the bioeconomy. In the Finnish case, forest-based modernization developed a hegemonic bloc comprising the forest industry, the state, and private forest

owners that came to represent the economic interests of the nation. Thus, the project of industrial forestry in Finland is best viewed not through the lens of abstract nature versus humanity, but as a more specific class project that has been sufficiently successful in unifying the interests of landowners and the industry through forest-based accumulation. The potential and promise of the forest bioeconomy are entangled in the same imaginary of a recentring of forest-based development in the transition away from the fossil economy.

### **Contradictions and fixes in forestry and the bioeconomy**

I will analyze the empirical data through three interlinked contradictions of capitalist ecology and economy: spatial contradictions, temporal contradictions, and value contradictions. The aim of the article is to show how these contradictions are dealt with politically in the promotion and legitimization of the forest bioeconomic project. Thus, I will outline these contradictions with reference to prior research here, and in later sections I will focus on how they emerged in the public sphere during Finland's 2019 parliamentary elections. The process of capital accumulation and valorization has temporal and spatial aspects (Hornborg et al., 2019; Huber, 2009; Malm, 2016; Moore, 2015) that seek to constantly overcome the barriers of history, geography, and consequently nature.

The spatial aspects can be characterized by the twofold dynamics of the historical expansion of the capitalist mode of production through imperialism and primitive accumulation (Moore, 2015) and the internal capitalist dynamics of core/periphery relations (Smith, 2010). From the perspective of capitalist ecology, core/periphery relations—global and national—are connected to the appropriation and utilization of natural resources in production and international trade, through which patterns of ecologically unequal exchange emerge (Warlenius, 2016). In addition to these large-scale global dynamics, the rural/urban divide between a nation's peripheries and its core urban areas is predicated on an uneven development that produces spatial contradictions. In Finland, the forest bioeconomy has been positioned as a model that might overcome the spatial contradictions of intensive urbanization, rural decline, and other tensions in the state space (Ahlqvist and Sirviö, 2019).

The temporal aspects are connected to the turnover time of capital and, most importantly, to the acceleration of production and circulation (Harvey, 2001: 319; Marx, 1993: 233–236):

For the capitalist, the turnover time of his capital is the time for which he has to advance his capital in order for this to be valorized and for him to receive it back in its original shape.

(Marx, 1993: 236)

The turnover time of capital is subject to acceleration; through technological, organizational, and labor productivity development, the socially necessary turnover time can be compressed (Harvey, 2001: 319). However, the temporal fluidity of capital is also dependent on the natural properties of the materials utilized in the production process (Saito, 2017: 92), and the temporal acceleration can start to produce ecological problems. In the case of the forest industry, forests are increasingly subject to these economic temporalities. In Finland, this is exemplified by the compression of rotation periods and the younger age distribution of forests (see Korhonen et al., 2020: 6–7).

Integrally connected to the spatial and temporal contradictions of capitalism are the aspects of value (Andueza, 2021; Arboleda, 2020). Under capitalism, labor, commodity production, and commodity exchange are mediated through value and its expansion (Huber, 2017: 41). The potential to derive surplus value becomes the initiator of the production process, and the creation of surplus value its goal (Saito, 2017: 109, 120). In the context of the Finnish forest industry, the bioeconomic model has been inaugurated as a new accumulation regime that can transform the pulp- and paper-focused industry through the establishment of high-value bioproducts. Because of the structural decline of paper demand, the strategy of exporting paper and pulpwood, the fixed capital tied to this production model, and excess paper production capacity are slowly becoming hindrances to the industry. This is reflected in the series of paper mill closures during the last 15 years, the latest being Stora Enso's Veitsiluoto paper mill, closed in April 2021. Thus, the bioeconomy has emerged as model that might reinstate the industry's profitability and reconfigure value production.

These larger changes in forestry point toward the concept of the socioecological fix. This concept denotes the process of temporarily displacing or overcoming the crises of capital accumulation by reshaping the circulation of capital in relation to ecological processes and landscapes (Ekers and Prudham, 2015: 2439). This reshaping is also intensely material in the sense that capital circulation is dependent upon specific infrastructures, materials, natural processes, and ecosystems in the production of value. The "fixing" of capital into specific places, temporal frames, and nodes is a metabolic process that transforms—but is also conditioned by—nature (Ekers and Prudham, 2017, 2018). However, the socioecological fix not only concerns the transformation of natural landscapes according to the imperatives of

capital, but also entails the transformation of political landscapes through the production of hegemonies (Ekers and Prudham, 2018).

Ekers (2015) has studied the socioecological fix in the context of forestry in 1930s Canada, where the state directed vast amounts of investment into forest landscapes in order to secure capital accumulation and the competitiveness of the sector, tackle the unemployment crisis, and address the forest industry's eroded political legitimacy. The Canadian state responded to the economic and unemployment crisis of the 1930s with a mobilization of relief labor that was directed toward highway and airport infrastructures as well as forestry and reforestation projects (Ekers, 2015: 2537). The investment in a new socioecological fix was compelled, for example, by the overproduction glut in forest product markets (Ekers, 2015: 2541). In a similar vein, the current Finnish bioeconomic model is compelled not necessarily by a general economic crisis, but rather by the slow sectoral crisis and overproduction in the paper industry in the wake of digitalization. This is especially crucial in Finland, where paper has long been one of the country's main exports. The bioeconomy's promise is integrally related to the transformation of this declining industry through new investments in biorefineries and bioinnovations.

The ongoing bioeconomic transformation can be interpreted as the latest phase of the Finnish forest industry's socioecological fix (Castree and Christophers, 2015; Ekers and Prudham, 2015, 2017, 2018)—an attempt to resolve the contradictions of the current paper and pulpwood model in the larger transition toward carbon neutrality. From the viewpoint of the ecology and forest metabolism, the forest bioeconomy is a continuation of the ongoing “intensive and extensive transformation of landscapes” (Ekers and Prudham, 2015: 2438) in Finnish forests. As such, the ecological practices of the bioeconomy rely on the previously established clearcutting, intensive felling, and pulpwood-harvesting practices of the current model.

The bioeconomization of the forest industry has not been an exclusively economic issue but also a political one, since throughout Finnish history the industry has played an important role as a central fraction of capital. This article focuses on how the forest industry's bioeconomy has been legitimized in the political sphere as a model that can resolve these contradictions and establish a new forest-based accumulation regime—especially under the 2015–2019 center-right coalition, which adopted the bioeconomy as one of its spearhead governmental projects. However, scientists and environmental activists have challenged this

political project; a key issue has been forest carbon sinks and the implications of continued felling for climate change mitigation.

### **Carbon sinks and carbon sink politics**

The replacement of fossil fuels with different forest biomasses has been one of the central legitimizing factors of the bioeconomic model. The promises of bioenergy and new bioproducts are connected to their renewability. However, the increased utilization of different forest biomasses and greater harvests under the guise of the bioeconomy has also raised questions about changes in forest carbon stocks and carbon sinks (on different scenario calculations, see Pingoud et al., 2016). Forest industry advocates have pushed the bioeconomy's carbon neutral image, while environmental scientists and groups have sounded the alarm about the implications and trade-offs of continued felling. Carbon sinks have politicized questions of forest use, and the concept has taken center stage in Finnish climate change politics. Thus, the concept has become a political metaphor that condenses different conflicts and aspirations; the scientific background of carbon sinks has also become politicized.

Forests function as carbon sinks when they absorb more carbon from the atmosphere than they release. The process is cyclical, as forests capture carbon dioxide from the atmosphere through photosynthesis, store it as carbon, and eventually release the stored carbon through decomposition or human utilization (Gower, 2003). Forest industry advocates have often deliberately obfuscated the science behind carbon sinks by claiming that the maximization of forest growth would also maximize carbon sinks, and that an increase in felling would not be detrimental to climate change mitigation goals. However, these claims contradict the scientific consensus: the maximization of forest growth does not lead to a maximization of carbon sinks, and increased felling is detrimental to mitigation goals (BIOS, 2017; Seppälä et al., 2017).

The justification of the bioeconomy's carbon neutrality is often framed with reference to the carbon cycle: emissions from biomass use are absorbed by forest growth as long as the forests are kept in a state of efficient growth. Young forests are found to sequester more carbon, and forest growth can balance the cycle. Forests should be kept in what Palmer (2021) calls a state of (maximal) vegetal labor, in which the "forests are put to work":



The legitimacy of this apparent fix depends, however, on normalizing a view of forests not as gradually accumulating carbon sinks but as high-throughput carbon conveyors. (Palmer, 2021: 141)

Thus, the bioeconomy's legitimacy rests partly on the conceptualization of forests as high-throughput carbon conveyors that are able to efficiently sequester carbon. However, as Pingoud et al. (2016) note, the use of forest bioenergy as a climate change mitigation strategy involves trade-offs, as harvesting has an immediate impact on forests' carbon stock (see also Soimakallio et al., 2016):

The release of forest C stock into the atmosphere is analogous to a fossil C emission from an atmospheric point of view. (Pingoud et al., 2016: 171)

Besides forest growth, the net emissions of the bioeconomy and biomass utilization are dependent on the “timing and evolution of harvests” as well as “the temporal profile of bioenergy use” (Pingoud et al., 2016: 171). The legitimacy of the bioeconomy as a carbon neutral model rests on a particular conception of forests as “carbon conveyors.”

While the focus of this paper is limited to Finnish forest politics, it is important to keep in mind the global consequences of greenhouse gas emissions and the global nature of carbon sinks. As Warlenius (2016) and other theorists of ecologically unequal exchange have noted (Foster and Holleman, 2014; Hornborg, 2011; Martinez-Alier, 2002), capitalism's ecological regime is predicated on uneven flows of natural resources and waste between the global North and the global South, and on the core/periphery dynamics of the capitalist world system. The same applies to carbon sinks in the form of “unequal sink appropriation,” which pertains to the:

peculiar effluents of capitalist social metabolism—such as greenhouse gases and substances that harm the ozone layer—whose impacts are not related to the distance to the tailpipe, but which are retained in sinks on land or in the sea or spread out in the atmosphere, affecting the Earth system as a whole. (Warlenius, 2016: 373)

Carbon sinks have also become objects of (global) political governance through programs such as the United Nations' REDD+ in the global South (Asiyanbi, 2016; Ehrenstein, 2018). Ehrenstein (2018: 162) traces the emergence of carbon sink geopolitics and how the preservation of the carbon stocks and sinks of tropical rainforests in developing countries becomes a matter of “global exigency” through programs such as REDD+. Asiyanbi's (2016) study of REDD+ in Nigeria reveals a regime of “carbonized” and

“militarized” exclusion that emerges from a dialectic of capital accumulation and exclusion in the carbon forestry economy. Thus, carbon sink politics points to the multifaceted phenomenon whereby the concept of the carbon sink becomes a central point of reference for forestry-related political actors to frame and legitimize their interests, seek to depoliticize certain forest discourses, and direct material transformations of forest use.

### **Depoliticization and forestry hegemony**

The historical position of Finnish forest capital and its connections to the global economy through export and trade have afforded it an advantageous position in the development of political and economic hegemonies. The industry’s economic competitiveness was a matter of national importance for the state, and the industry’s role has always been profoundly political. This is still exemplified today, for example, in the case of the Kaipola paper mill closure in August 2020, when the forest conglomerate UPM attempted to exert public pressure on the coalition government to adopt business-friendly economic policies by placing the blame for the closure on the coalition’s policies (Kellokumpu and Sirviö, 2021). Relations between the forest industry and the state have always been close, and because of its central position as an economic interest that implicates different social strata, the forest industry’s conduct has always been under public scrutiny. In the same vein, forest conglomerates, and central organizations such as the Finnish Forest Industries Federation and the Central Union of Agricultural Producers and Forest Owners, have always had strong public relations functions. Thus, the industry and its lobby groups have been well attuned to policing the boundaries of legitimate forest politics in the public sphere.

This process of policing forest politics in the public sphere is by no means diminished in the current context of climate change and the bioeconomy. Takala et al. (2020: 8) have studied the ways in which this type of discursal power in the media and public sphere is advancing depoliticization in forest politics:

From the perspective of sustainable development, it is noteworthy that the narration typical of multi-objective forestry paradigm is production-oriented, whereas the conflict this narration aimed to mask is characteristically between nature and wood production. De-politicisation under the name of multi-objective forestry thus supports wood production and suppresses both the environmentally oriented citizens and the nature itself.

Depoliticization in forest politics papers over key conflicts that emerge in forest use, and presents forestry's various objectives as if they coexisted harmoniously through discursive power. However, there are also material catalysts for the depoliticization of forest use issues. These material catalysts relate to the forest industry's attempts to secure a favorable operational environment in terms of taxation, labor policy, and supplies of raw material in the context of climate change as forests' role as carbon sinks has grown. These strategies are exemplified in the Kaipola closure case, during which UPM's CEO suggested limiting the coalition government's room for maneuver through the creation of economic policies that would extend beyond coalition periods (Kellokumpu and Sirviö, 2021). This is a prime example of depoliticization in the sense that it posits an illusory separation between the economic and political spheres (see Meiksins-Wood, 2016: 20), through which forest capital seeks to protect its interests.

One of the central questions of forest politics has been the effects of intensive felling on forest carbon sinks and carbon stocks, and the implications of intensive felling for climate change mitigation goals. As Rytteri and Lukkarinen (2016: 80–81) note, the determination of processes and practices that affect carbon sinks is a scientific question, but the management of carbon sinks is a political one. During the 2010s in Finland, carbon sink politics were integrally related to the ongoing emergence of the forest industry's bioeconomic plans and increasing felling yields, which peaked in 2018. Thus, the bioeconomy and carbon sinks have come into contact with one another, as environmental groups and scientists have raised the alarm about the effects of current forest use practices on carbon sinks, while the forest industry has attempted to square the circle by presenting the bioeconomy as carbon neutral.

On the basis of the empirical analysis in this paper, I recognize three key frames that sustain the legitimacy of the bioeconomy's political imaginary. The bioeconomy appears not only as a plan for the internal restructuring of the Finnish forest industry, but also as a state project that concerns, for example, the reinvigoration of rural areas and the recentering of the forest industry as a dominant fraction of capital (Ahlqvist and Sirviö, 2019). These three frames are: 1) rural reinvigoration and the defense of the nation's peripheries through spatial populism; 2) a view of forests (and forest carbon sinks) as high-throughput carbon conveyors that are able to accommodate the temporalities of capital; 3) the establishment of the bioeconomy as a high-value accumulation regime. With the explicitly political and public role that forestry has occupied in Finland (see next section), these frames have been crucial in enabling the forest industry to establish a depoliticized common sense of forest use and the

bioeconomy. As I hinted earlier, these frames have also been repoliticized by environmental groups and scientists and the issue of carbon sinks.

In the context of this study, I conceptualize depoliticization as an explicit strategy by the forest industry to create a hegemonic forest politics that legitimizes the bioeconomy as a state project, recenters the industry as the central fraction of capital, and sustains a green veneer over the industry's ecological effects and practices. This conceptualization sees depoliticization not as the "closure of the political," as in the post-politics thesis, but as a specific mode of the pursuit of politics (on categorization, see Buller et al., 2019; Wood, 2016; on modes of politics, see Luukkonen and Sirviö, 2019). Thus, depoliticization can be interpreted as one strategy for legitimizing and stabilizing a hegemonic political imaginary that seeks to guard the political and economic interests of the forest industry. The creation of depoliticized forest politics is the public relations part of a larger project to unify the economic interests of forests owners, the industry, and the state and to build a hegemonic bloc across different social strata. The strategy of depoliticization is not new by any means; it was already exemplified in the forest industry's successful attempt in the 1960s and 1970s to end selective harvesting and move to even-aged rotation harvesting in order to secure a cheap supply of raw materials for the industry (Kotilainen and Rytteri, 2011: 435–436). This was also a major shift in the common sense of forestry, as clearcutting and even-aged rotation were established as default forest use practices.

In the Finnish case, these political dynamics are highlighted by a peculiar historical development whereby the forest industry came to systematically represent export-led capitalist growth and the wider economic interests of the nation. Forestry connected Finland to the emerging and expanding ecological regime of capitalism. The roots of these developments can be traced back to the strengthening of the small landowning peasant class and the legislative reform of forestry in the 1920s.

Land acquisitions before the 1920s had attracted political attention through fears of monopolization, the rising social problems of landless peasants, and the decline of agricultural production (Karjalainen, 2000: 174). The brutal civil war of 1918 had also raised the question of agrarian land reform, as socialist support among the landless peasantry was high. In 1922, parliament introduced a land settlement act (*Lex Kallio*) that made it possible for the landless poor and leaseholders to acquire land for cultivation purposes. The landowning peasant class was boosted as over 65,000 new farms with full property rights

were established (Kotilainen and Rytteri, 2011: 432). In 1925, Lex Kallio was complemented by Lex Pulkkinen, which effectively prohibited forestry capital from any further land-grabbing and restored the lands that the industry had purchased illegally (Kuisma, 1999: 74–75).

The legislation produced a political-economic symbiosis whereby the forest industry was forced to purchase its raw materials from either the landowning small peasantry or the state, thus providing an avenue for the agrarian masses to capitalize on their forest assets. Hannes Gebhard, a Finnish economist and a member of parliament at the time, described the income derived from forests as a “fertilizing rain that fell over society as a whole” (Alanen, 1964). The forest industry’s production chains implicated a range of social strata, from the forestry-reliant small peasantry to high finance. Thus, a hegemonic bloc formed between the state, the forest industry, labor unions, and private forest owners that made forest-based economic development a “national interest” (Eloranta et al., 2010: 13).

### **The bioeconomy and carbon sinks in the 2019 parliamentary elections**

In parliamentary politics, the bioeconomy was first mentioned in the 2011 program of the six-party coalition led by the National Coalition Party. However, it was the next coalition, formed in 2015 and led by the Center Party, that made the bioeconomy one of its spearhead projects. Politically, the bioeconomy paradigm became tied to the agenda of the Center Party and especially the former prime minister and party leader, Juha Sipilä. As its starting point, the spearhead bioeconomic project of 2015 adopted an expansion frame, in which increased felling and extractivist forestry were dressed up with green rhetoric and innovation buzz, instead of a transformation frame that would alter the material conditions of forest use (Toivanen, 2021). Thus, the bioeconomic paradigm sought to reconcile emerging dilemmas. First, the forest industry needed to be brought back into the center of export-led economic growth, while its carbon neutral image needed to be updated. Second, the bioeconomic paradigm could partially resolve the spatial tensions created by deindustrialization and the relocations of the early 2000s by creating a new spatial-economic configuration between core and periphery (Ahlqvist and Sirviö, 2019).

The bioeconomy has emerged as one possible pathway to reconfigure new socioecological relations and accumulation regimes, and it has garnered much global attention at different policy scales, indicated by the proliferation of manifold “bio-” concepts

(Birch and Tyfield, 2013). Different biotechnological innovations and economic development possibilities have ignited the “age of the bioeconomy.” But as Goven and Pavone (2015: 1) suggest, the bioeconomy should be understood not merely as an economic or technoscientific project, but as a political project that is meant to facilitate a “particular set of political-institutional changes that will shape the parameters of possible future action.” The political imaginary of the bioeconomy in Finland has almost exclusively been the bioeconomy of forestry and the utilization of forest resources (Toivanen, 2021). The growth principle has remained intact, and bioeconomic productivism has tried to accomplish “more of everything” (Kröger and Raitio, 2017): more growth and more sustainability. The strategic-political documents that define the future of forest management assume that there are no inherent trade-offs between productivism and ecological sustainability, and that these goals can be reconciled within the bioeconomic growth paradigm through technological innovation and the diversification of forest use (Finnish Bioeconomy Strategy, 2014; Kröger and Raitio, 2017: 10, 12). The imaginary of the forest bioeconomy has become a powerful tool to shape the institutional and material landscapes of the political economy.

Forests’ role as carbon sinks has been debated in Finland in the expert sphere of researchers, industry advocates, and activists, but these questions have never fully captured public attention. In the public sphere, the climate change mitigation aspect of forests has traditionally given way to the industry’s more conventional, export-led economic concerns. The parliamentary election season of 2019 was different, however. One of the dominant election issues in the media landscape was climate change, carbon sinks, and forest use. Increasing public awareness of climate change, news of new investments in the forest industry, and debates around the European Union’s (EU) Land Use, Land Use Change, and Forestry (LULUCF) regulation prompted the emergence of the carbon sink issue as one of the main topics of the parliamentary elections. The LULUCF regulation defines the accounting rules regarding how the sinks and emissions of land use and forestry should be calculated among EU member states and how they affect member states’ climate change mitigation goals. Media attention to the regulation had started in 2018 with a controversy over how forest sinks would be calculated and whether this would influence annual felling yields. Moreover, news emerged of bioproduct mill investments, in the town of Kemi by the Metsä Group (1.5 billion euros) and in the town of Kuopio by Finnpulp (1.6 billion euros).<sup>1</sup> These developments prompted political questions regarding whether the prospective coalition government parties would commit to the public infrastructural investments the mills needed,

or to increases in annual felling yields. For example, the Kemi mill alone would consume 7.6 million cubic meters of pulpwood annually, at the same time as total felling in 2018 was estimated at a record 78 million cubic meters (Natural Resource Institute, 2019). The investments would put further pressure on the already unsustainable felling.

The 2019 election saw a change in the coalition government, from a center-right coalition led by the Center Party to a center-left coalition led by the Social Democratic Party. The newly formed coalition consists of the Social Democrats, Center Party, Green League, Left Alliance, and Swedish People's Party. Forest use and environmental issues are one of the friction points within the coalition, as the Center Party has historically represented the forest industry's interests in parliament, while the Green League have been strong critics of contemporary forest use and advocated for more environmental protections. Even with a strong left-wing bloc within the coalition and ambitious climate policies, the government will likely face internal struggles, especially with regard to forest policy, as the Center Party's voting base is in rural areas that rely heavily on forestry and agriculture. During the election campaign, the Social Democratic Party hesitated over whether to support potential new investments and increased felling, but it eventually committed itself to support the investments after the election, in order to hold together the new coalition with the Center Party. Thus, the coalition is in a somewhat precarious situation regarding the implementation of its environmental policies.

The election marked a political change in relations between the coalition government and the forest industry. The establishment of the forest bioeconomy as a spearhead project under the previous coalition, with its strong connections to the Center Party agenda, means that the new coalition has not exhibited the same enthusiasm for advancing the bioeconomy as a state project. This change was exemplified in the forest industry's attempts to politicize the closure of UPM's Kaipola paper mill in August 2020 (Kellokumpu and Sirviö, 2021).

### **Data and frame of analysis**

In the empirical section, I will analyze data consisting of Finnish newspaper articles and news items (n=80) related to carbon sinks, the bioeconomy, and the forest industry. The articles and news items were published between July 30, 2018, and January 8, 2020, encompassing the media landscape in the lead-up to the elections, the election season proper, and the aftermath of the coalition negotiations. The articles included in the data deal with carbon

sinks and the forest industry. Some media conglomerates own multiple national and regional newspapers, and they recycle the same articles and news items between different regional newspapers. These duplicates of original articles were removed from the data set, and the originals were retained. Overall, the most active newspaper regarding carbon sink and forestry issues was *Maaseudun Tulevaisuus*, with 28 items out of the total of 80 in the data set. The second was *Helsingin Sanomat* with eight items, followed by an array of regional newspapers such as *Etelä-Suomen Sanomat* (six), *Kaleva* (five), *Kainuun Sanomat* (three), *Keskisuomalainen* (three), *Savon Sanomat* (three), *Karjalainen* (two), and *Lapin Kansa* (two). In total, there were items from 24 different newspapers in the data set. Regional newspapers in northern and eastern Finland were relatively more active in covering the topic, which is explained by the stronger regional economic focus on forestry in the more rural parts of the country: the issues of new investments and annual felling yields garner attention because of their impact on forest-based rural economies.

The dominant role of *Maaseudun Tulevaisuus*, both in the carbon sink conundrum in general and in this data set, needs to be briefly explained. *Maaseudun Tulevaisuus* is the second-largest national newspaper. It is strongly focused on agrarian and rural issues, and its brand image is built around its being the “leading voice of rural Finland.” While not aligned with any political party, *Maaseudun Tulevaisuus* is aligned with the Central Union of Agricultural Producers and Forest Owners. Thus, the newspaper’s editorial focus tends to favor forest industry advocates, thanks to its close ties with the Central Union and the forest industry. This political configuration also situates *Maaseudun Tulevaisuus* close to the Center Party, and it tends to be favorable to the Center Party’s brand of rural politics. The other strong agenda setter is *Helsingin Sanomat*, Finland’s largest newspaper, which has a stronger urban focus, especially on the Helsinki capital region. These two newspapers represent opposing poles in the long-lasting spatial-political tensions of Finland’s core/periphery divide. This is reflected in the carbon sink and forest management discussion, in which such tensions were reignited not only by *Maaseudun Tulevaisuus* but also to a certain extent by different regional media.

For methodological purposes, I conceptualize the bioeconomy as a political imaginary (see Davoudi et al., 2018; Luukkonen and Sirviö, 2019; Sum and Jessop, 2013) that sustains and legitimizes the forest industry’s economic and ecological practices in the public sphere. By this, however, I do not mean that the bioeconomy is merely one thing. It is also: 1) a particular socioecological fix with related *ecological* practices that rely on intensive



harvesting and the “pulping of landscapes” (Kröger, 2013); 2) a new accumulation regime for the *economic* restructuring of the forest industry; 3) an imaginary for the *political* legitimization of the bioeconomy as a state project. Thus, the conceptualization of the bioeconomy as a political imaginary denotes only one facet, and (for example) a detailed examination of the ecological practices and effects of the bioeconomy is not within the scope of this article. Despite the focus in this article, these different aspects are interrelated, and the empirical analysis shows how the ecological, economic, and political aspects are integrally connected. I identify three central frames based on the empirical analysis, and I interrogate how each frame sets out to resolve a central spatial, temporal, or value contradiction.

I will examine the political imaginary of the bioeconomy through the lens of the newspaper data and identify three key ideological frames or discourses that the forest industry and its close political interests have sought to depoliticize. However, the political power of these discourses is not merely the result of the forest industry’s media hegemony; rather, I would argue, it also stems from the material contradictions the bioeconomy purportedly attempts to resolve (rural decline, the carbon neutrality of intensive harvesting, the restructuring of forestry in the wake of the paper industry’s decline). Drawing theoretical connections between the concept of the political imaginary (Jessop, 2013), critical semiotic analysis (Jessop, 2004; Sum and Jessop, 2013), and forms of critical realist discourse analysis (see Flatschart, 2016), I apply an approach to discourse analysis that seeks to uncover how political actors (the forest industry, industry-aligned political parties, regional media) have sought to depoliticize (or sediment) the bioeconomy as an imaginary, and how others (environmental groups and scientists) have sought to repoliticize this process. As Jessop (2013: 234) puts it:

These processes [sedimentation and repoliticization] are contingent aspects of all social relations, with sedimentation giving rise to the appearance of their structural fixity and repoliticization in turn suggesting their socially arbitrary nature.

In the context of this study, this dialectic of de- and repoliticization emerges from the attempt to establish the three discursive frames (see analysis section) and the carbon sink politics that the environmental groups have used as a strategy of repoliticization.

## Empirical analysis and results

### *Rural reinvigoration and spatial populism*

One of the key discursive frames that has legitimized the bioeconomy as a state project has been its purported ability to halt rural decline and resolve the contradictions of intensive urbanization. The bioeconomy has been pushed as an initiative for rural reinvigoration. In the lead-up to the parliamentary election, the defense of the nation's peripheries took the form of spatial populism where questions of forest use and carbon sinks were framed through a core/periphery lens. The attacks against the forest industry were framed as attacks against rural economies and a rural way of life based on forestry. This can be recognized as a politically expedient strategy of building friend/enemy distinctions between rural and urban publics and conflating the forest industry's interests with the interests of the nation's peripheries. Questions of forest use were sensationalized, and a certain caricature was attached to perceived opponents. The main actors that employed this form of forest populism were the political figures of the Center Party and the Finns Party, the newspaper *Maaseudun Tulevaisuus*, and to a lesser extent a few regional newspapers. In light of rapid urbanization and the forest industry closures of the 2000s, this appeal had real material traction, as the forest industry and its investments have historically been vital to some rural economies.

Forest populism developed on two spatial scales, the national and the international, both of which had a caricatured enemy. On the national level, the opponent in the populist framing was the "rich green urbanite" from the capital city, who condemned rural dairy farming for its emissions while traveling to vacation in Thailand twice a year:

Is it right if people relying on forestry and agriculture for a decent income will have to pay for the effects on climate change of rich urbanites wanting to travel to Thailand? (*Maaseudun Tulevaisuus*, October 22, 2018)

Voters should decide in the next election whether they want to close factories or not. [...] The red-green side would ban forest use altogether and decimate Finnish jobs. (Juha Sipilä, prime minister 2015–2019, *Etelä-Suomen Sanomat*, March 4, 2019)

On the international level, the opponent was the bureaucratic EU, which sought to stifle the Finnish forest industry with yet another set of regulations like the LULUCF:

The EU's Green Deal leaders are the Dutch commissar Frans Timmermans and his cabinet chief, former Greenpeace campaign manager Didrik Samsom. [...] It has to be remembered

that over 80 percent of the EU's strictly preserved forests are in Finland. (Editorial, *Maaseudun Tulevaisuus*, December 16, 2019)

One would wish that the EU's new forest strategy would aim to maximize forest growth instead of decreasing felling. (Editorial, *Savon Sanomat*, December 17, 2019)

The political construction of caricatured opponents can be recognized both as a strategy that appeals to the rural public through a sense of populist spatial injustice and as presenting the forest industry's economic interests as analogous with the interests of rural regions.

The strategy of forest populism relies on depoliticization by consolidating interests between the forest industry, its political bloc, and the rural regions. The bioeconomy is presented as the exclusive and "realistic" pathway for rural development. This also positions the industry and the political bloc behind it as the defenders of rural interests against urban and international elites. The depoliticization strategy of advancing the bioeconomy in the guise of rural development also entails a politicization of the forest industry's opponents. The construction of caricatured enemies fits into this strategy of agitating the rural voting base, especially ahead of the election. Hegemony is depoliticization armored with strategic politicization. To advance the bioeconomy as merely a technocratic project of economic efficiency or industry restructuring would be insufficient to garner public support. Thus, populism related to forestry and the rural/urban divide borrows heavily from other forms of petro-populism (Tornel, 2020) and resource nationalism (Koch and Perreault, 2019; Rhiofrancos, 2020) by constructing national and international opponents. The discursive frame of rural development and the building of friend/enemy distinctions between opponents and proponents is one of the key ways to build the legitimacy of and support for the bioeconomy in the public sphere.

### ***Forests as high-throughput carbon conveyors***

The second key discursive frame, viewing forests as high-throughput carbon conveyors (Palmer, 2021), was intended to bolster the carbon neutral image of intensive felling and the bioeconomy. This frame seeks to reconcile the temporal contradiction between fitting forest utilization into the timeframes of capital and simultaneously retaining forest carbon sinks. Forests are kept in a state of efficient (or maximal) growth, and the carbon emissions of the bioeconomy are balanced out by forest growth. Thus, in the bioeconomic ideology, forests are not seen as accumulating carbon sinks, but rather as carbon conveyors where felling and

growth follow in quick succession. Since the total volume of forest growth is still higher than the increase in felling, by extension forest carbon sinks are also growing. This argument is based on the selective assumption that since young and sapling forests sequester and accumulate carbon more rapidly because of their growth, felling would increase carbon sinks. Both increased felling and carbon neutrality are possible at the same time with proper management, such as thinning measures to ensure forest growth:

Tiilikainen [former minister of environment] has sketched an idea of “climate harvesting” that would increase both carbon sinks and the supply of wood. (*Maaseudun Tulevaisuus*, March 6, 2019)

Carbon sinks can be increased through proper forest management and, for example, the forestation of low-productivity farmlands. (*Lapin Kansa*, March 22, 2019)

However, this conception was challenged by multiple environmental groups and scientists. During the 2015–2019 center-right administration, environmental groups and scientists were activated in the media by the plans to increase annual felling yields. For example, 68 researchers signed a joint statement (BIOS, 2017) on the problems the increased forest utilization plans would present for climate change mitigation. The researchers’ demands in the joint statement included a reorientation of the forest industry toward long-lasting wood products that would better retain their carbon stock (wood as a construction material instead of short-lived bioenergy) and a significant reconfiguration of forestry toward less intensive harvesting. Another transformational demand advanced by environmental groups was the citizen initiative of banning clearcutting and even-aged rotation harvesting in state-owned forests, and a move toward continuous cover forestry and selective harvesting. While the initiative concerned only state-owned forests, the continuous cover method is also gaining attention as an alternative approach in privately owned forests. The researchers’ strong presence continued into the 2019 parliamentary election season, during which they presented the scientific facts and background behind the consensus that intensive forest utilization was detrimental to carbon sinks:

No model simulation or research supports the claim that increased felling would lead to growing carbon sinks. (Sampo Soimakallio, Finnish Environment Institute, *Etelä-Suomen Sanomat*, November 7, 2018)

If we increase felling in the short term, it will produce an emissions peak, even though emissions should be cut now. (Jyri Seppälä, Finnish Environment Institute, *Helsingin Sanomat*, August 7, 2019)

The key issues are the discrepancies between different timeframes. It takes more than 100 years for boreal forests in the northern latitudes to reach full maturity, after which carbon stocks are replenished. The conventional timeframe for harvesting has been a rotation period of 70–100 years, after which the forest is clearcut and regenerated; the crucial timeframe for climate change mitigation is the short to medium 10–30 years, during which rapid decarbonization and an ecological transition has to be managed. For example, Finland’s carbon neutrality target is set for 2035, with carbon negativity soon afterward (Government Programme, 2019).<sup>2</sup> Annual yields of 80–90 million cubic meters would effectively nullify emissions reductions in other sectors and potentially make forests a source of carbon emissions rather than a sink. During the record felling year of 2018, net sinks already declined by 43 percent (Statistics Finland, 2019). The utilization of forest resources for short-lived purposes such as pulp or bioenergy will quickly release the carbon stored in felled trees, and the clearcut site will act as a *source* of carbon emissions for between eight and 20 years before it turns back into a net carbon sink (Korkiakoski et al., 2019).

The forest industry’s framing of forests as carbon conveyors is an attempt to reconcile these different timeframes and to shape forests according to the temporalities of capital and the bioeconomy. Within this frame, forests’ ability to reach full maturity is secondary; since the bioeconomy’s main resource supply—pulpwood—is primarily derived from young forests, the harvesting cycles can remain compressed for faster value extraction, and the “carbon neutrality” of intensive harvesting can be maintained by maximizing forest growth. In terms of depoliticization, this framing is an attempt to defuse the contradictions between wood production and carbon sink objectives by presenting current forest management practices as already ecologically and climatically sound. The material impetus for this framing is to secure the cheap supply of raw materials for the industry, even in the context of climate change, by papering over the tensions with the bioeconomy and carbon sink preservation. Moreover, the context of dispersed and small-scale forest ownership should be remembered, as the media hegemony regarding legitimate and ecologically sound forest use and forest management also affects individual forest owners’ decision-making. The carbon conveyor framing is ideal for depoliticizing forest management practices that serve the industry’s interests.

### *The bioeconomy as a high-value accumulation regime*

The third discursive framing is related to the bioeconomy's economic potential and its ability to inaugurate a new stage of forest-based economic development. This framing stems from the long, slow decline—over more than a decade—of paper products, which were Finland's top export products for years (FFI, 2018). Due to digitalization and the declining profitability of paper, numerous paper mill closures characterized the industry's development in the 2000s and 2010s. The fixed capital and extra production capacity tied to paper has led to a scramble for the internal restructuring of the forest industry. Amid this process, the bioeconomy emerged as the solution: innovative new pulp-based bioproducts could reinstate the industry's profitability, while its ecological practices would maintain the supply of pulpwood as raw material. This would also surpass the strategy of exporting unrefined wood pulp—the fifth-largest export product (FFI, 2018)—presenting new investment opportunities in domestic biorefineries and offsetting some of the job losses from paper mill closures. The discursive framing of the reinvigorating of the forest industry through a high-value accumulation strategy formed a central point of legitimacy for the bioeconomy's political imaginary:

The median price of pulp products is slowly rising. If the median price now is around 1,000 euros, it could rise to 2,000 euros in future. (Ali Harlin, VTT Technical Research Center of Finland, *Keskisuomalainen*, April 5, 2019)

Many high-value wood products, such as textiles, raw materials for the chemical industries, and substitutes for plastics, are pulp-based products. (Kimmo Tiilikainen, Center Party's minister of environment 2015–2019, *Maaseudun Tulevaisuus*, March 6, 2019)

Along with the first framing of the resolution or amelioration of rural decline, this framing is geared toward the building of public legitimacy for the bioeconomy as a state project, especially among the large sector of small private forest owners, who are closely connected to the forest industry's value chains:

The position of the forest industry and the income derived from private forest ownership explain why it is not easy to accept that climate change might set boundaries on the utilization of Finnish forest resources. (*Helsingin Sanomat*, November 16, 2018)

The representations of the bioeconomy's economic capabilities rely ideologically on the aforementioned historical symbiosis of the state, the forest industry, and private forest ownership, in which forest-based income comes to represent the production of national wealth shared across social strata. The bioeconomy's promise to private forest owners is that

it will reconcile the economy with ecology: intensive felling and value extraction can continue and even increase while the industry maintains its ecological practices.

The imaginary of the bioeconomy as a high-value accumulation regime is also geared toward the state in the sense that it aims to signal the forest industry's future potential as a central export-focused fraction of capital that the state should support through its economic policies. In resolving the profitability decline by pivoting away from the paper and pulp production model and toward the innovation- and refinement-driven bioeconomy, the forest industry seeks to position the bioeconomy as a state project that would form a coherent accumulation regime. Depoliticization is a key strategy for building the political legitimacy of accumulation regimes, and the high-value bioeconomic framing is geared toward both the state and the private sector. This framing is meant to manage and produce future economic expectations regarding the bioeconomy in the public sphere in order to attract investments from the private sector and the state. It is central in bracketing off alternative forest-based economic models and advancing an economic vision of the bioeconomy that is controlled by the forest industry. Thus, the current bioeconomy is simultaneously bolstered as the only "realistic" option while also being presented as the economic lodestar for the state.

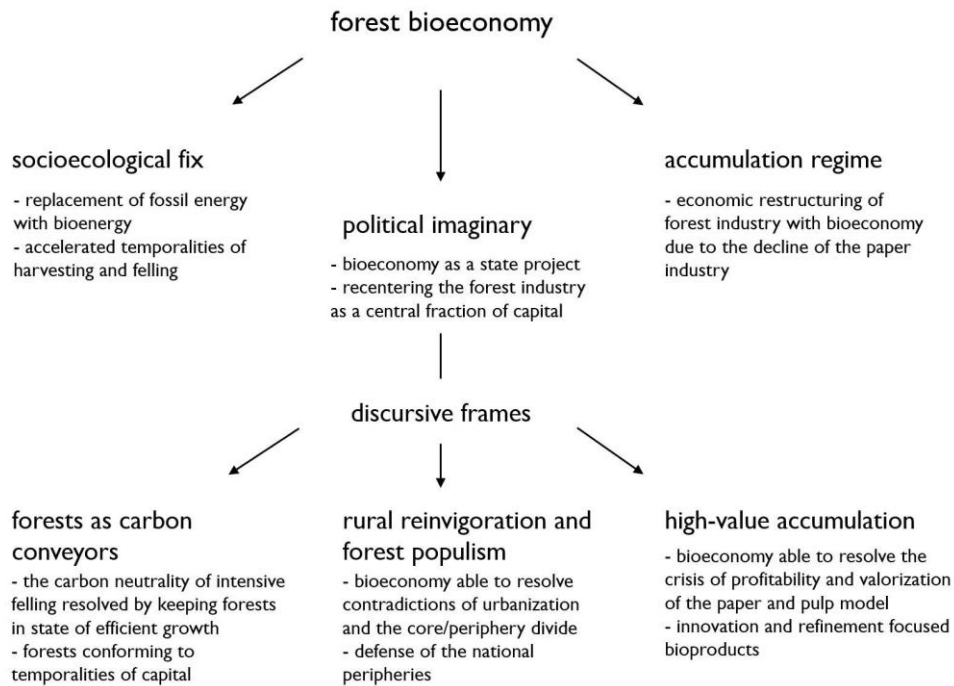


Figure 1. The three discursive frames of the forest bioeconomy in the public sphere.

## Conclusions

The analysis has explored how the political dynamics of the bioeconomy have unfolded in Finland, specifically in the context of climate change and carbon sink politics. The political imaginary of the bioeconomy relies on three key discursive frames that seek to resolve central contradictions of capitalist ecology and economy: 1) the spatial contradiction of urbanization and the core/periphery divide, through rural reinvigoration; 2) the temporal contradiction between intensive harvesting and carbon neutrality, by viewing forests as carbon conveyors; 3) a reversal of the forest industry's profitability decline, through high-value accumulation. I have outlined a sketch of the results of the empirical analysis in Figure 1. In terms of depoliticization, the bioeconomy has been relatively successfully diluted into the forest industry's vision of bioeconomic productivism; alternative visions of sustainable forest use in the context of ecological crises have largely been left unarticulated or suppressed. In forming a new forest hegemony, forest capital has been actively policing the boundaries of what is seen as legitimate forest politics and diluting emerging conflicts over forest use, in hopes of securing a favorable operational environment for the industry.



been indifferent or outright hostile toward the increasing resource peripheralization of rural areas, and have rarely presented integrative policies that would address the issues of spatial unevenness in an ecological transition. This gives easy room to resentment-based politics and capture by reactionary tendencies.

The forest industry's bioeconomy also emerges as a project to reconfigure relations between the industry and the state apparatus and to recenter forest capital as the central fraction of capital. Moreover, the political imaginary of the bioeconomy is geared toward building public support and legitimacy as a state project. This entails the construction of the bioeconomy as a hegemonic framework for interpreting forest politics and forest use, and the depoliticization of the three discursive frames: 1) the economic interests of the forest industry incontestably align with the interests of rural regions; 2) the carbon neutrality of intensive harvesting can be retained by maximizing forest growth; 3) the bioeconomy can resolve the industry's profitability crisis through high-value accumulation while reconciling the economy and ecology of forestry. The construction of a hegemonic forest politics also requires the aforementioned strategic politicization; thus, depoliticization cannot be severed from this dialectical counterpart.

Insofar as the bioeconomic project has been successful, its appeal has stemmed from its ability to present a sufficiently politically credible model that is ostensibly able to resolve different spatial, temporal, and value contradictions. The bioeconomy's political and class base is derived from the long-standing bloc of forest owners, the industry, and the state, for which the bioeconomy is the latest attempt to reconfigure forestry in the climate change era. However, the "more of everything" approach has also revealed the fragility of this image and of the bioeconomy's ability to reconcile various contradictions ranging from urbanization and rural decline to the ecological problems of current forest use models.

## **Endnotes**

1. The Supreme Administrative Court denied Finnpulp an environmental permit on December 19, 2019, on the grounds of heightened environmental risks. The investment decision on the Kemi bioproduct mill was confirmed in February 2021.
2. Carbon offsetting markets, however, position Finland in an uneven global core/periphery dynamic with the global South, whose carbon sinks compensate for our emissions.

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