Forestry discourses and forest based development – an introduction to the Special Issue

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INTRODUCTION

With the first quarter of the 21th century well underway there are promising developments but also crucial concerns regarding the current state and future direction of planet earth. The global political community unanimously came together to approve the Paris Agreement in 2016, the successor to the Kyoto Protocol and is now taking tangible steps to reduce greenhouse gas emissions. The United Nation member countries adopted in that same year the 2030 Sustainable Development Agenda, manifested in the Sustainable Development Goals (SDGs) that are now being pursued in a concerted fashion by a large number of actors, and at multiple levels. Forests and trees outside forests hold an important potential to contribute to the achievement of these global commitments; they are crucial for curbing climate change and contribute to almost all of the SDGs (Bonan 2008, Katila *et al*. 2017).

Significant progress has been made in many of the Millennium Development Goals, a precursor to the SDGs, particularly in economic and social aspects. Yet there are large gaps in others, for instance the goal that addressed protecting the integrity of the biosphere. The most recent report on the global environment paints a still disconcerting picture of the condition of the worlds' natural resources. Deforestation, and land and forest degradation, while declining in recent years, still occur at rates that are worrisome, often as consequences of ruthless or inconsiderate exploitation driven by short-term expectations of profits within producer countries, but also as negative spillover effect of growing demand in consumer countries. Deforestation also continues to be caused by local investors and rural dwellers eking out a living.

The latest global forest assessment (FAO 2015a) provides evidence that deforestation and forest degradation, while still common, have declined over time. An increasing number of countries, especially in Asia report a reversal of net deforestation to net forest cover increase primarily due to reforestation and plantation programs (de Jong *et al*. 2016). Persisting deforestation is concentrated in hotspots characterized by rapid, widespread expansion of commodity crops targeting both domestic and global agricultural markets (Henders *et al*. 2015).

The interplay of multiple contemporary global processes such as population growth, rapid urbanization, migration, and changes in global production and trade patterns, have significant implications for the world's forests. Societal demands on forests have evolved and diversified with economic growth and development. In many countries where forests have been viewed as a source for timber and non-timber forests products or land for agriculture, there is a growing understanding that forests provide ecosystem services, many of which are vital for human well-being. Even with these evolving perceptions of forests, they continue to face powerful, conflicting demands from other economic sectors.

Shifting societal demands and impacts on forests have led to new international, national and subnational governance arrangements and transnational policy regimes (e.g. around legal timber trade, climate change mitigation, and biodiversity protection) aimed at meeting demand, while mitigating negative impacts. Indeed, efforts to curb natural resource degradation while mobilizing their use to contribute to development goals, are at the center of international, regional and national resource governance and policy arenas. Evolving environmental demands and the desire to reconcile economic and environmental goals, while accommodating multiple stakeholders and following good governance principles are issues that are reflected in the current debates embraced by forest environmental scholars(e.g. Landsberg and Waring 2014, Sayer *et al*. 2013). One rather recent approach to understanding forest policy and governance is by turning to the concept of discourse, discourse theory and discourse analysis. While discourse theories and analyses were developed by social scientists in the 1960s, it was not until the late 1990s that forestry social scientists began to embrace the discourse concept, theory and analysis, and apply it to the analysis of an array of forest and forestry related social processes (Leipold 2014).

This Special Issue of the International Forestry Review brings together 12 papers that are published under the title: 'Shifting global development discourses: Implications for forests and livelihoods'. Collectively, the papers reflect changes in societal demands on forests and forest landscapes, changes in how multiple constituencies compete for forest goods and services (forest ecosystem services), and how these changes are influencing forest governance and policies in multiple international, national, sub-national and local contexts. The Special Issue explores how shifting global discourses influence forest management and conservation with important repercussions for livelihoods. This editorial introduces the Special Issue and provides a conceptual and theoretical basis to position the papers in a common framework. In section 2, attention is focused on forest development and discourse theory in forest science. Then, in section 3, the 12 papers are situated in the common framework alluded to. Next, section 4 draws on the contributions of the papers to further develop ideas introduced in section 2. Finally, section 5 concludes.

CHANGING FOREST DEVELOPMENT DISCOURSES

The concept and theory of discourse first entered forestry social science in the 1990s (Hajer and Versteeg 2005, Leipold 2014). Since then, scholars have utilized a variety of approaches with diverse theoretical underpinnings in their efforts to apply discourse analysis. In this growing body of work, definitions of discourse have ranged from linguistic perspectives to post-modern theories focusing on power relationships in society as expressed through language and praxis. An often sited and useful definition for this Special Issue defines discourse as: "An ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices" (Hajer and Versteeg 2005). Discourse, according to this definition, refers to a particular set of related ideas which are shared, debated and communicated using different formats, including academic writings, policy advocate communications, and public media. The term discourse is closely related to the concept of narrative. Among some discourse theorists, a discourse emphasizes the form and methods of communication of an ensemble of ideas, while a narrative emphasizes the content, i.e. meaning of the ideas of the discourse (e.g. Greenhalgh *et al*. 2012). Discourses can consist of an array of different elements presented as narratives or storylines (Hajer 1993). Depending on the social phenomena under interest, numerous successive or overlapping and parallel discourses can be identified at the same moment in time.

Since development cooperation became part of international relations, the dominant focus of development discourse has undergone frequent changes. The post-colonial period gave way to 'modernization' during the Cold War era followed by an emphasis on 'basic human needs' and 'integrated rural development' in the 1970's. Then discourse became associated with 'sustainable development' and 'participatory development' in the 1980's and more recently 'capacity building', 'human rights', and 'good governance' in the 1990's, and in recent years 'poverty reduction' (Leal 2010), 'climate change' and 'transformational change' (Di Gregorio *et al.* 2015). There is an overlap between shifts in development discourses and shifts in environmental discourses. Arts *et al.* (2010), for instance, provide an overview of environmental meta-discourses, which they believe have shaped and been shaped by global forest issues. They distinguish modernity, limits to growth, ecological modernization and sustainable development discourses. A more recent bioeconomy discourse (Pülzl *et al.* 2014) is described as a multi-source discourse that includes elements from limits to growth and ecological modernization, with theoretical assumptions based on neo-liberal economics.

Another layer of discourses of interest to this Special Issue corresponds to international discourses on forests and forestry that have been in the public debate and communication media since the 1960s. These discourses have evolved, linked to notions of industrial forests, wood fuel, forest decline, forest parks, deforestation, degradation, sustainable forest management, forest-related traditional knowledge, and biodiversity conservation (Arts *et al.* 2010), and have been instrumental in the process of building wider discourses and narratives with regard to sustainable development, and recently on climate change mitigation and adaptation.

In a similar fashion, shifts in development and environmental discourses are reflected in changes in forest discourses and include the reframing of the problems and possible solutions related to forests and their relevance for societal needs, such as energy and food (FAO 2015b). In connection with the bioeconomy discourse, for example, the industrial forestry discourse has been reframed with the bioeconomy discourse, and the fuel wood crisis discourse with woody biomass production and its relevance to climate change mitigation (Pülzl *et al*. 2014) and renewable energy discourses. As far as the food security agenda is concerned, evolving narratives stress how forests and forest landscapes can contribute to meet the needs of an increasing demand for nutritious food (HLPE 2017).

Forests entered the rural development domain in the 1970s, when development organizations such as FAO recognized the importance of trees and forests for firewood and other purposes, and how the provision of important products and services might be affected by deforestation and/or forest degradation (FAO, 2015b). Many regions of the world, often with low–income, rural populations, had already been impacted by deforestation due to forest conversion. The lack of trees on the landscape was seen to be a major environmental problem with social and economic repercussions. Picking up on pioneering work by anthropologists that described indigenous forest use and management (e.g. Conklin 1957), anthropologists, geographers, ethnobotanists and scholars from other fields refocused attention to local forest management in the 1980s. This coincided with the transition from rural development as the main focus of development cooperation to sustainable management of natural resources as a win-win for poverty alleviation and conservation. This transition

was clearly evident in the outcomes of the 1992 Earth Summit, which advocated placing greater emphasis on local forest management and the use and commercialization of non-timber forest products as a promising path to achieve tropical forest conservation, while improving rural livelihoods. This approach was tested in the widespread implementation of integrated conservation and development projects, particularly in the Global South, and often under the umbrella of community forestry, as defined by Charnley and Poe (2005): "*Forest management that has ecological sustainability and local community benefits as central goals with some degree of responsibility and authority for forest management formally vested in the community*."

The predominant global development perspective at that time, thus became anchored in 'local based development' and 'decentralized management', and community forestry can be seen as a narrow representation of it in the forest sector, frequently linked to the interests and demands of indigenous peoples. Community forestry became a process driven by projects involving forest community support activities largely initiated and carried forward by rural development activists representing development agencies, business-conservation partnerships and national non-governmental organizations and government agencies. Over time, these concerted efforts led to community forestry being integrated into national policies, legislation, and also into academic inquiry (Arts *et al.* 2017, Baynes *et al*. 2015, Charnley and Poe 2007, Katila *et al*. 2014, Pagdee *et al.* 2007, Pelletier *et al.* 2016).

There is now an intersection between community forestry discourse and that focused on climate change mitigation and adaptation. It is also viewed as a promising option to progress towards goals related to livelihoods of forest communities and the simultaneous provision of forest ecosystem services for an array of different stakeholders. One prominent example, for instance, is to direct compensation for avoided forest carbon emissions to forest communities who protect forests from deforestation and degradation. Under multiple international REDD+ programs, communities, that over the past few decades have been granted rights over forestlands and forests in many parts of the world, are now meant to be compensated for avoided deforestation and thus avoided atmospheric carbon emissions. This approach is similar to integrated conservation and development projects that seek to increase livelihood benefits to communities that make concerted efforts to conserve forests and biodiversity.

Compensation for carbon and biodiversity conservation are but two examples of the mechanism known as Payment for Ecosystem Services (PES). Other ecosystem services involving forest communities have been analyzed for their potential to be subjected to PES schemes. More recently, the focus has shifted to the potential role of forests in adaptation strategies that increase community resilience to climate change by mitigating negative impacts on rural livelihoods (e.g. Locatelli *et al.* 2015, Saxena *et al.* 2016).

Interestingly, evolving demands on forests by multiple actors is strongly associated with changes in the international and transboundary governance frameworks on forests, which not only look at forests in the contexts of sustainable forest management and legality, but also with regard to governance of ecosystem services, including carbon emissions. This has enhanced forest and biodiversity management and carbon monitoring know-how, and technology and practice at all levels and among all actors. Concomitantly, there have been changes in institutional architecture, policy frameworks, and regulatory measures that affect forests. As a result, forests are currently strongly embedded in multiple international conventions, for example, the Framework Convention on Climate Change, the Convention on Biological Diversity, and the Convention on Desertification, among others. In response, national governments have adopted national forest plans, national biodiversity strategies, and are implementing national REDD+ strategies. They are also adopting bioeconomy policies and developing national climate change adaptation strategies, that include special measures and considerations related to forests.

The evolving and growing demands on forests and the hope that forests may contribute to rural development is reflected in multiple forums, international and national initiatives, and platforms, leading to multi-stakeholder commitments on forest-related goals (e.g. legality, zero deforestation, and restoration). Forests are now linked to zero deforestation, bioeconomy and green growth strategies, and are seen as a key element in the emergence of a greener economy capable of balancing more sustainable production and consumption (e.g UNEP 2011). The zero deforestation initiatives, resulting from the New York Declaration on Forests (2014) has attracted increasing attention, mainly from consumer goods manufacturers, retailers and traders, concerned about risks that deforestation poses to their corporate reputations. The zero deforestation movement has motivated several platforms, notably the Tropical Forest Alliance 2020, to implement operational commitments to delink agricultural commodity supply and deforestation. Complementary, restoration initiatives (e.g. the Bonn Challenge) are also enriching current discourses on the avenues to protect planetary environmental integrity. Finally, forests have also been shown to have considerable potential to contribute to the attainment of the sustainable development goals adopted in 2015 (e.g. IIED 2014).

In summary, new forest development discourses have emerged associated with wider debates on planetary boundaries and the sustainable development goals, climate change mitigation and adaptation, and transitions to a greener bioeconomy, which collectively are dominating international forestry debates. Others, in contrast, have moved to the background, while they have not entirely disappeared (Arts *et al.* 2010).

BRIEF INTRODUCTION TO THE PAPERS OF THE SPECIAL ISSUE

All of the papers in this Special Issue can be linked to one or several forest development discourses, or to what Arts *et al.* (2010) characterize as environmental meta-discourses. Three

papers engage in conceptual discussions on these meta-discourses. The Sconfienza (2017) paper specifically identifies and compares three environmental discourses and their embedded norms: ecological modernization, civic environmentalism, and radical environmentalism. This paper makes the link with a normativity that underpins the three discourses. The contrasting normativity results in quite different and possibly conflicting policy options for REDD+. The second paper in this group, Tomaselli *et al.* (2017), also employs meta-discourse analysis to make its points. The paper distinguishes between a conventional expansionist and unsustainable worldview and an alternative ecological, i.e. sustainable, worldview. Both represent opposite economic development meta-discourses. The authors use this as a yardstick to assess UNEP's (2011) conceptualization of the green economy, asserting that while UNEP uses an ecological narrative, the organization's proposal to move forward towards a true green economy, including forestry, in reality remains situated within a conventional expansionists worldview.

The paper by Gregerson *et al.* (2017) focuses on the sustainable development discourse, a discourse that Arts *et al.* (2010: 60) also identify as a meta-discourse. Essentially, the paper aims to place forestry within the sustainable development concept, but argues, that if this is done, the forest-based sustainable development narrative needs to be revised. Rather than a fixation on specific end goals and targets, the narrative should adopt a set of principles that guide praxis through a process subjected to inevitable shocks and disruptions over time, including changing societal demands.

The next set of four papers specifically focus on analyzing forest-related discourses or an element of a forest-related discourse. They make a specific forest development discourse the topic of inquiry. Kleinschmit *et al.* (2017), for instance, undertake an analysis of the bio-economy discourse, which the authors identify as a meta-discourse. The authors assess to what extent environmental narratives form a part of the bio-economy discourse, and how environment and environmental policies are 'framed' and integrated into what the authors emphasize is a political discourse. The paper undertakes both discourse analysis and policy integration analysis. The paper by Winkel *et al.* (2017), on the other hand, explores illegal logging narratives in different contexts around the world. The paper illustrates how perceptions and discourse related to illegal logging vary among different countries, according to the underlying interests of different actors. In essence, Winkel *et al.* (2017) analyze national manifestations of the global, illegal logging discourse.

The other two papers in this second group by Pham *et al.* (2017a and *et al.* 2017b) look at quite specific manifestations of global discourses. Pham *et al.* (2017a) focus on the national REDD+ discourse in Vietnam, by exploring how REDD+ appears in public media. The authors are particularly interested in how the public media debate becomes a proxy for a national REDD+ policy debate, which because of the country's authoritarian government, is highly constrained within other governance forums. Pham *et al.* (2017b) examine narratives related to REDD+ in Indonesia and Vietnam, comparing them to green growth, or green economy narratives in each of the two countries.

The remaining five papers discuss more specific forest development issues, also linked to forest development discourses. The paper by Chowdhary *et al.* (2017) can be linked to the forest based climate change adaptation discourse. The paper reports on the development of an approach that in theory should make it possible to harness community forestry as a means to bolster climate change adaptation. The paper by Hiedanpää and Salo (2017), on the other hand, explores innovative approaches to forest ecosystem services entrepreneurship. The paper's basic argument is that innovative ideas are already being pursued to create economic opportunities for various actors with links to forests while complying with a new green economy normative. The paper refers to the concept of ecosystem service entrepreneurship as a discourse, and one can indeed recognize an ecosystem services global discourse that has emerged since the publication of the Millennium Ecosystem Assessment (MEA 2005). Ingram (2017) explores how governance arrangements adjust themselves when forest product value chains emerge and transform. The paper analyses how changes in these arrangements create both opportunities and challenges to support more effective non-timber forest product value chain governance. Again, while the paper does not specifically focus on analyzing or positioning itself in a specific forest development discourse, one can argue that it is part of both the non-timber forest product discourse and the forest governance discourse.

The final two papers focus on forest development related topics. Katila (2017) reviews the evolution of Finland's National Forest Programmes through a process of periodic revisions. The paper reviews how broader national problems that can be linked to forests are 'framed' in the country's national forest programmes. The paper does adopt a discourse theory approach to find answers to its overarching question, noting that while the Finnish National Forest Programmes adopt narratives of broader ecological and social sustainability, the core of the national forest programmes continue to emphasize profitability and competitiveness of the forest sector. Finally, Toppinen *et al.* (2017) examine how Finnish companies that operate in China view plantations, and juxtaposes these views with those held by village leaders. The paper argues that the analysis makes it possible to understand how companies that rely on plantation production can turn to an 'ecosystem services of forest plantations discourse' to obtain legitimacy and social acceptance for their operations in China, while also pointing out how different stakeholders understand to varying degrees the concept of ecosystem services.

Table 1 lists the papers of the Special Issue and indicates the forest development discourse that most closely links with each paper.

DRIVERS AND DYNAMICS OF FOREST DEVELOPMENT AND DISCOURSES

This Special Issue aims to bring together two main ideas. Firstly, it explores dynamic, conceptual underpinnings of forest development and how these play out in different contexts.

TABLE 1 *Papers of the Special Issue and their associated discourses*

Forest development discourse	Authors	Title
Forests and sustainable development	Gregerson *et al*.	Forests for Sustainable Development: A process approach to forests contributing to the evolving UN 2030 Agenda for sustainable development
Forests and climate change	Chowdary *et al*.	Integrated climate change adaptation: towards a participatory community forestry-based approach
Forest in a green economy	Kleinschmit *et al*.	Striving towards sustainability: integrating environmental concerns into the political bioeconomy discourse?
Forests and climate change	Pham *et al*.	From REDD+ performance to Green growth: Synergies or discord in Vietnam and Indonesia
Forest and climate change	Pham *et al*.	REDD+ politics in the media: A case study from Vietnam
Illegal logging and legality verification	Winkel *et al*.	Narrating illegal logging across the globe: Between green protectionism and sustainable resource use
Forests and climate change	Sconfienza	Environmental narratives and their normative presuppositions as heuristic devices to learn about forestry conflicts. The case of REDD+
Forest in a green economy	Hiedanpaa and Salo	Emerging forest ecosystem service entrepreneurship in Finland and Peru
Forests and sustainable development	Katila	Forestry development priorities in Finnish national forest programmes
Forests in a green economy	Tomaselli *et al*.	The problematic old roots of the new green economy narrative: How far can it take us in re-imagining sustainability in forestry?
Non timber forest products and forest governance	Ingram	Changing governance arrangements: NTFP value chains in the Congo Basin
Ecosystem services of forest plantations	Toppinen *et al.*	Forest ecosystem services, corporate sustainability and local livelihoods in industrial plantations of China: building conceptual awareness on the interlinkages

By forest development, we refer to options or opportunities to undertake forest management to achieve both broad and narrower societal goals. Secondly, the papers in this Special Issue look at the dynamics of forest development from a discourse perspective.

The focus on forest development from a discourse perspective leads to questions such as the following: What are the main forest development trends, how are they reflected in evolving discourses? What are the dynamics shaping shifts in forest development discourses, i.e. what are the drivers of changing forest discourses? How do these drivers relate to other environmental and development discourses, such as discourses on development, conservation or climate change? Do forestry or forest discourses reflect changes in global development discourses, and do forestry discourses affect the latter? A final question most relevant to forestry development outcomes is: To what extent do forest (development) discourses shape policy action and behaviors of different actors?

The papers in this Special Issue provide mixed answers to these questions. They cover a continuum of discourses and narratives that accommodate quite contrasting forest development approaches. At one extreme, they focus on a radical ecological worldview, or radical environmentalism points of view, which argue for extreme restraint in the use of nature. At the other, they examine narratives that see economic growth as compatible with nature and forests (i.e. environmental sustainability). While Sconfienza (2017) and Tomaselli *et al*. (2017) indicate that while proponents of these contrasting environmental narratives do not easily find common ground, discussions in other papers suggest that some convergence and compatibility may be possible.

For instance, while the radical ecological worldview (Tomaselli *et al*. 2017) contrasts sharply with an expansionists worldview, Hiedanpää and Salo (2017) suggest that ecological expansionism may be more than an oxymoron if ecosystem services entrepreneurship or green economy can lead to sustainable development options. In other words, ecological modernization might satisfy the basic tenets of radical environmentalism. Equally, one could argue that the Gregerson *et al*. (2017) paper sees a way out of the apparently incompatibility between contrasting narratives or views by focusing on process, rather than on fixed outcomes.

Another question that begs answers relates to how forest development discourses emerge and enter communication channels through which they are transmitted and retransmitted. The papers in this Special Issue provide some insights into this, focusing attention on drivers that lead to the emergence of these discourses. Hiedanpää and Salo (2017), for instance, note that evolving societal awareness underlies the demand for new ecosystem services, resulting in the

emerging discourse on ecosystem services entrepreneurship. Similarly, the importance of climate change adaptation has gained broader recognition over time, but received little attention in climate change debates until the early 2000s (Pielke *et al*. 2007), although its importance was considered in UNFCCC documents. Now as climate change adaptation has gained prominence in global climate discourse, the discourse relating to the role of forests in climate change adaptation has emerged (Chowdary *et al*. 2017, Laxmi *et al*. 2017) and its international profile is likely to increase in years to come. Other forest development discourses that are emerging and gaining strength include zero deforestation, and forests' role in the green or bio-economy.

The drivers that shape and reshape forest development discourses lead to changes in societal interest in forests and forest ecosystems which in turn, influence the evolution of discourses over time. As indicated above, Gregerson *et al*. (2017) argue that SFM should be viewed as a process, rather than as an effort to achieve rigidly defined goals. This position contrasts with the widely held notion that progress and accountability require tracking progress towards measurable targets laid out in planning documents. The widespread use of logical frameworks in project planning exemplifies this approach, though many authors have emphasized the need to integrate flexibility into logical frameworks to accommodate contextual differences and unforeseen factors influencing project performance (Bakewell and Garbutt 2005). The approach proposed by Gregerson *et al*. (2017) seems to align with views previously expounded by Campbell and Sayer (2003), who argue for adaptive management when pursuing forest development goals, rather than rigid planning to achieve fixed targets and outcomes, an outmoded approach that often predominates in development interventions.

The papers also illustrate how the content and interpretation of particular forest development discourses can vary among different constituencies or geographic locations. While it might be argued that a discourse on a single issue does not necessarily have to reflect a narrow view on a societal problem and its underlying causes and possible solutions, some discourse theorists would characterize alternative views on a specific societal issue as competing discourses. Independent of one's position on this topic, it is important to recognize that interpretations of a forest development discourse often vary significantly in different contexts as illustrated by Kleinschmit *et al*. (2017) and Winkel *et al*. (2017). Winkel *et al*. (2017), for example, find that considerable difference exists in national narratives of the forest legality discourse across countries like Australia, Cambodia, China, the EU, Indonesia, Peru and the US. The paper concludes that these types of differences need to be recognized, for instance if and when a more institutionalized international forest legality regime is being considered. For their part, Kleinschmit *et al*. (2017) review the bio-economy discourse among EU member countries, observing that the discourse is adopted and communicated by different stakeholders. Again, the motivation for acceptance or adoption varies depending on the particular interests of the stakeholders. These examples illustrate that in essence the emergence of discourse can be viewed as an exercise of power since they seek to influence meaning and social practices. Political debate and contestation influence how discourses play out over time (Hajer and Versteeg 2005). In the case of the bio-economy discourse within the EU, proposals to mobilize forestry are still lacking, as are strong cases for integrating environmental policies into emerging bio-economy policies.

Another challenge associated with the understanding and interpretation of discourses is pointed out in this Special Issue. Once a particular discourse emerges in political and professional spheres, it often must be communicated in an appropriate fashion to stakeholders closer to where the issue of interest plays out. Several of the papers (Sconfienza 2017, Pham *et al*. 2017b; Toppinen *et al*. 2017) demonstrate that while forest development discourses shift, understanding among key actors of an emerging discourse often lags, creating a barrier for meaningful participation. In other words, broad societal understanding of discourses often fails to keep pace with discourse changes. This is problematic since an emerging discourse may conflict with existing, local interpretations of the world, or they may be shaped by local powers or hegemony that influence how some discourses are interpreted and become dominant.

The lack of understanding of shifting discourses is not limited to marginalized stakeholders such as inhabitants of rural communities, but often extends to representatives of governmental agencies, NGOs and corporate entities. For example, Pham *et al*. (2017b) report that donors in Indonesia and Vietnam are skeptical that government officials even understand the concept of green growth, even though they participate in conveying forest and climate change and green growth discourses. For their part, Pham *et al*. (2017a) provide an illustrative example of how infrequently discourses like REDD+ actually find their way into the media; in this case in Vietnam with restrictions on public debate. It can be assumed, however, that frequently public awareness is not much greater in other, more open societies, except among persons 'in the know'.

Along this line of reasoning, Kleinschmit *et al*. (2017) observe the need for greater linkages between science and society through awareness raising and stronger integration of bio-economy research and teaching. Their paper highlights the lack of substantive links between policy making and the constituent parties that have a stake in a particular policy issue. Winkel *et al*. (2017) also echo this point, observing that in the countries included in their paper, knowledge and awareness of legality verification is absent outside government agencies and specialized civil society groups.

The apparent limited societal reach of forest development discourses is important since an underlying aspiration of many of these discourses is to galvanize support or even foster bottom up processes, like those alluded to in the following discourses: ecosystem service entrepreneurship (Hiedanpaa and Salo 2017), forest based climate change adaptation (Chowdary *et al*. 2017) or forest legality (Winkel *et al*. 2017).

In order for forest development discourses to influence action on the ground, they must reach relevant constituencies through effective channels. For that reason, studies like the

one undertaken by Kleinschmit *et al*. (2017), Pham *et al*. (2017a) and Winkel *et al*. (2017) are essential contributions to forest development scholarship, in particular, since they draw attention to linkages between emerging discourses, policy formulation and implementation. Each of these papers analyze how key forest development discourses are conveyed in modern day channels of communication and eventually find expression in the policy domain.

The five papers of this Special Issue situated closest to forest development implementation – Chowdary *et al*. (2017), Hiedanpaa and Salo (2017), Ingram (2017), Katila (2017) and Toppinen *et al*. (2017) – provide evidence that shifting forest development discourses find their way into forest development initiatives. Chowdary *et al*. (2017), for example, report on research that was inspired by the forest and climate change adaptation discourse, seeking to leverage local participation to identify and carry out adaptation measures, including community forestry (e.g. Dugan *et al*. 2016). Ingram (2017) links the long existing non-timber forest product discourse with new modes of governance discourse, suggesting alternative governance arrangements in non-timber forest product value chains. Toppinen *et al*. (2017) adopt an ecosystem services discourse to examine the converging or conflicting interests between forest companies and local leaders in plantation establishment in China. While possible less specifically linked to a forest development option, Katila (2017) also uses a social and ecological forest sustainability discourse to assess Finnish national forest plans, the related narratives and the actual praxis emerging from those plans.

CONCLUDING REMARKS

The appropriation, use and conservation of forests and associated problems and proposed solutions have led to evolving discourses and narratives. In some cases, these discourses and narratives are synergistic in nature and in other cases reflect competing or even conflicting interests. The more influential discourses find expression in new institutional arrangements and regulatory frameworks. Over time, forests and forest-based livelihoods have found resonance and expression at the global level, resulting in greater attention being placed on forest discourses and narratives.

In this Special Issue, we have focused on forest development discourses, placing special attention on the drivers that lead to their emergence and how they are reflected in forest policy, administration, management and forest development support. This analysis was conducted taking into consideration broader development, climate change and conservation discourses. The result has been 12 papers that confirm that forest development discourses are diverse, changing, and allow for the exploration of new options and opportunities for forest development initiatives. Each of the forest development discourses have clear linkages with major societal-environmental issues and thus with higher level meta- or even macro-discourses. The papers provide rich insights into current forest development thinking, and also into how this thinking is transmitted and shared. The papers also offer some glimpses into how contemporary forest development discourses influence what multiple actors do to regulate, administer and implement forest development.

Pursuing a forest development discourse analysis is an innovative approach, even though discourse analysis in forestry is not new (Leipold 2014). We recognize the value of trying to better understand forest development discourses, their emergence, dynamics and impacts. We also recognize that this a complex topic, the boundaries of which are not easy to identify. Empirical evidence to distinguish forest development discourse is a challenge. It is even more problematic to find solid empirical evidence that establishes causal linkages between forest development discourse and corresponding forest policy design and implementation, forest administration or forest development support. While we acknowledge this, we believe that a focus on forest development discourses, how they emerge, why they change, how they are communicated and interpreted and finally how they impact the forest policies, forest development support or forest management was a relevant and useful departing point for our effort and this Special Issue.

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Forests for sustainable development: a process approach to forest sector contributions to the UN 2030 Agenda for Sustainable Development

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SUMMARY

The paper takes off from the point stressed in 1987 by the UN World Commission on Environment and Development (WCSD) when it introduced the concept of sustainable development into the UN as. . .*not a fixed state of harmony, but rather a process of change.* This paper describes a "sustainable development as process" (SDAP) approach for the forest sector and the principles involved in such an approach. These principles relate to how the forest sector processes need to evolve to meet the ever-changing global challenges facing the sector in the context of the new UN 2030 Agenda for Sustainable Development. It is argued that there is need for much stronger, effective linkages between processes within the sector and with other sectors locally and across countries. The final part of the paper discusses how the forest sector best can contribute to the success of the new UN Agenda using a SDAP approach.

Keywords: sustainable development, UN 2030 Agenda for sustainable development, sustainable forest management, inter-sectoral linkages, Brundtland Commission

Les forêts au service du développement durable: une approche programmatique de la contribution du secteur forestier à l'Agenda 2030 de l'ONU pour le développement durable

H. GREGERSEN, H. EL LAKANY et J. BLASER

Le présent article part du point souligné en 1987 par la Commission des Nations Unies sur l'Environnement et le Développement (World Commission on Environment and Development, WCED), lorsqu'elle a introduit aux Nations Unies la notion de développement durable comme . . . *[non] un état d'équilibre, mais plutôt un processus de changement*. Il décrit une approche du «développement durable considéré comme un processus», adaptée au secteur forestier, ainsi que les principes qui la sous-tendent. Ceux-ci portent sur l'évolution que doit connaître le secteur forestier afin d'être à même d'affronter les nouveaux enjeux globaux qui ne cessent d'évoluer, dans le contexte du nouvel Agenda 2030 de l'ONU pour le développement durable. Il argumente de la nécessité d'établir des liens nettement plus étroits et plus fonctionnels, aussi bien entre les différents processus internes au secteur qu'avec d'autres secteurs, sur le plan local et à l'échelle internationale. La dernière partie de l'article discute comment le secteur forestier peut le mieux contribuer au succès du nouvel agenda de l'ONU en adoptant une approche programmatique.

Bosques para el desarrollo sostenible: un enfoque basado en procesos para las contribuciones del sector forestal a la Agenda 2030 de las Naciones Unidas para el Desarrollo Sostenible

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El documento parte del punto destacado en 1987 por la Comisión Mundial de las Naciones Unidas sobre el Medio Ambiente y el Desarrollo (CMMAD), cuando introdujo el concepto de desarrollo sostenible en las Naciones Unidas como ". . . *un proceso de cambio y no un estado permanente de armonía"*. El presente documento describe un enfoque de "desarrollo sostenible como proceso" para el sector forestal y los principios que conlleva ese enfoque. Dichos principios están relacionados con el modo en que los procesos del sector forestal deben evolucionar a fin de poder encarar los desafíos mundiales en constante cambio que afronta el sector en el contexto de la nueva Agenda 2030 de las Naciones Unidas para el Desarrollo Sostenible. Se sostiene que se necesitan vínculos mucho más sólidos y eficaces entre los procesos dentro del sector y con otros sectores en el plano local e internacional. La parte final del documento analiza el modo en que el sector forestal puede contribuir de la mejor manera al éxito de la nueva Agenda de las Naciones Unidas adoptando un enfoque de desarrollo sostenible como proceso.

THE CONTEXT, BACKGROUND AND PURPOSE OF THE PAPER

After almost 30 years of discussions and debates, "sustainable development" (SD) finally is taking centre stage in the new UN 2030 Agenda for Sustainable Development, which is focused on achieving a state of global sustainable development by meeting a set of 17 broad, global sustainable development goals (SDGs) and their associated targets.[1] The widespread interest in SD can be traced back to IUCN World Conservation Strategy in 1980.[2] Formal interest in the concept by the UN members came in 1987 through the UN World Commission on Environment and Development (WCED), commonly called the "Brundtland" Commission. The Commission formally defined SD as: *development that meets the needs of the present without compromising the ability of future generations to meet their own needs.* (WCED 1987). However, a key but often forgotten point made by the Commission is that: *In the end,* ***sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs.*** (WCED 1987, bold added). The present paper takes off from this message that sustainable development is a dynamic process of interactions and changes; it is not a static end-state that can be achieved by some fixed date in the future.

How does this concept relate to the fact that many of the SDGs are time-bound, end-state goals, with only a few being open-ended process-related goals? The fact is that the SDGs are global, political rallying points that represent global society's agreed upon ideals and ultimate aims. The basic argument put forth here is that, if *sustainable* development is the focus, and if SD is a closely linked set of processes as defined by the Brundtland Commission, then countries and sectors need to set aside the SDGs as strict end state goals and adopt a more dynamic "SD as process" (SDAP) approach in moving *toward* meeting societal aims, as expressed broadly by the intent of SDGs.

The next section describes the SDAP approach and how it relates to the more traditional time-bound, static end-state goal approach, e.g., as adopted in the previous UN Millennium Development Goals (MDG) agenda. The following section then assesses the main forest-based processes as they are evolving to meet the ever-changing strategic global forest challenges faced in implementing the new UN 2030 agenda for SD. Finally, the paper discusses, to the extent possible at this early stage, how forest SD processes might be strengthened further in a SDAP context to more effectively contribute to the evolving UN agenda.

SUSTAINABLE DEVELOPMENT AS A SET OF DYNAMIC PROCESSES IN THE CONTEXT OF A SDAP APPROACH

Foresters already are comfortable dealing with the SDAP approach since they deal daily with sustainable forest management (SFM) as an evolving dynamic process, recognizing that in SFM there is no time-bound end state goal.[3] Rather, the objective is to sustain forests over time as productive, multi-functional, evolving renewable assets that can meet ever-changing needs. Achieving the objective depends on use of the appropriate adaptive management processes. In fact, SFM provides a good example of a SDAP approach in practice at the sectoral level: The focus and ultimate objective in the SFM/SDAP approach is to design and put in place the right dynamic, evolving processes *". . . to maintain and enhance the economic, social and environmental value of all types of forest, for the benefit of present and future generations*".[4]

In contrast, in the traditional end-state goal approach, the focus primarily is on achieving static end-state goals and output targets within fixed time frames. Processes to achieve the targets become means rather than goals in and of themselves. The differences in approaches are primarily related to differences in focus, emphasis and actions. They do not constitute a paradigm shift, but are important in terms of moving towards implementation of the UN 2030 Agenda on Sustainable Development.

In fact, in today's world the two approaches should be complementary rather than mutually exclusive alternatives: In high level global political debates the focus naturally is on getting agreement on some big, overall, societal end-state goals to be achieved in some finite time frame; while at the strategic and operational sector levels the focus and goal is to design, get agreement on and then implement the right processes to move *toward* the societal aims and end-state goals.

It is a bit like a football game: each team owner is focused on a fixed, clear end-state goal: at the end of the game I have won. On the other hand, the teams and coaches on the field focus on the strategies and processes they will use to guard their own goal and get the ball in the opposing team's goal as many times as possible, i.e., playing the best game possible, given their ever changing constraints.[5] While the overall end state goal of winning each game remains, the strategies and processes used by each team will change from game to game and even during a game and in response to changing conditions – injuries, changing strategies of the other team, weather, new teams entering the field, etc. In the same way, the SDAP approach is dynamic, evolving constantly to adapt to changing conditions and events, while the ultimate societal aims, e.g., eliminate poverty and food and water insecurity, remain the same.

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[1] Cf. UN General Assembly 2015.

[2] Cf. Lele 1991.

[3] http://www.fao.org/forestry/sfm/85084/en/ and Gregersen *et al.*, 1998.

[4] According to the UN Forest Instrument, which is the new name given by UNFF to the older "UN Non-legally Binding Instrument on all Types of Forest" (NLBI). See UN General Assembly. 2008.

[5] i.e., the ***process*** of playing the game well is a goal in and of itself to the team and many of the ardent fans watching the game.

What are some key SD processes needed, to move toward, for example, *sustainable* poverty reduction for poor forest communities (SDG 1)? The SDAP approach would involve, in addition to forest based processes, developing and effectively activating:

(1) processes to improve human health and well-being and thus the capacity of the poor forest dwellers to be productive on a sustainable basis,
(2) educational and knowledge generation processes (including R&D processes) that also lead to improved capacity to be productive through application of new knowledge related to production, processing and marketing technologies and strategies; and
(3) improved institutional/governance processes, such as those associated with equitably securing property and use rights and access to resources, reducing greed. graft and corruption, and enforcing laws, including those used to insure that the negative and positive externalities created by human activity are internalized by the actors creating them.[6]

If these and other forest-based processes are designed properly and actively implemented, then reductions in poverty should result, baring other constraints. These processes are necessary ones in any society, but not sufficient conditions for poverty reductions. The SDAP approach explicitly recognizes that, over time, conditions will change: Migrants might enter the picture, particularly if the programs for poverty alleviation are successful. Generational change brings the offspring of today's poor forest dwellers into the local picture. They may or may not leave the homeland and move to the cities. The extent of progress also depends on political will and fairness, incentives available and created, and factors that lie outside the control of humankind, such as climate variability, natural disasters and other extreme events.

The key thing to note here is that getting poor forest dwellers *sustainably* out of poverty is not just a forest-related problem. It should be stressed that many of the basic processes needed, e.g., related to health care, food and water security, infrastructure and education, are not at all specific to the forest sector. It is essential that these other processes work together with the forest-specific processes to effectively create the environment for sustainable poverty reduction for forest and forest fringe dwellers.

The overall aim discussed above is absolute poverty reduction. However, we can see that this aim is closely interconnected with other societal aims such as food and water security, climate change adaptation and mitigation, and universal health care and education, among others. This leads to a first principle that is central to the SDAP approach: processes within a sector and between sectors are, and should be interrelated when it comes to achieving societal aims, just as societal aims themselves are, and should be inextricably interlinked. Planning and actions need to focus on process interactions across time, across sectors and across space—from local level on up to country, regional and global levels, to make sure that the processes being implemented are as a whole leading toward desirable and sustainable improvements in human welfare.[7]

This need for explicit linking of sectors, and local, national and regional planning and action makes the overall process of SD a very complex one, but also a much more realistic one in terms of what is needed to actually implement, and not just talk about the UN 2030 Agenda for Sustainable Development. This point is well recognized in several of the national submissions on how countries will implement the Agenda.[8] The key challenge is to design and develop effective mechanisms and incentives that will actually foster productive intra and inter sectoral relationships locally and nationally as well as internationally.

Meeting this challenge will require development of effective processes of integration of top-down and bottom-up planning and actions in a cross-sectoral context. This in turn will depend on development of trust, a common view of fairness, acceptable levels of accountability and checks and balances in the global system. As one example, the "forests in sustainable landscapes" and integrated landscape restoration and management[9] approaches have been evolving with this principle of cross-sectoral and territorial linkages and cooperation in mind. Such landscape level linkages often are defined by a common theme, such as watersheds or river basin boundaries.[10]

Given the point made above about the dynamics of change in the substance of processes over time, a second major principle can be identified for the SDAP approach: The evolution of past and present trends in processes is a very important consideration in designing a seamless transition from present to future SD processes. The past, present and future are part of a continuum of evolving interconnected trends where every

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[6] Meaning in this case expanding the use of "polluter pays" and "providers of social/environmental services are paid" principles, i.e., those who cause negative externalities pay for them, and those who produce positive externalities are paid for them. This relates to environmental taxes and payments for environmental services (PES).

[7] For example, in the past three to four decades countries have recognized formally and globally in policy and action that the major global challenge of reducing deforestation, which ultimately is a local process, is intimately tied up with the global processes involved in economic growth and trade, creation of food security, mitigation of global climate change, and reduction in biodiversity loss – all having global implications. Meeting the challenges involves local actions, but also interaction in a coordinated, joint fashion across sectors and across countries and globally over time.

[8] Cf. IDC 2016.

[9] See also the increased international efforts under the "Bonn Challenge" which aims to restore 150 million ha of the world's deforested and degraded lands by 2020; www.bonnchallenge.org.

[10] Cf. Sayer and Maginnis 2005, FAO 2011, An approach built around watersheds or river basins as the landscape unit has been around for many decades in the "Integrated Watershed Management" (IWM) approach. Cf. Gregersen *et al.* 2007.

day the present becomes the past, the future becomes the present, and a new future is built. History matters: in planning for the future, explicit consideration of how the present has evolved from the past is essential in a dynamic sustainable development context. The challenge here is to view the present world in the context of its evolution as a dynamic process of changes that are influenced by changing needs, desires, resources, technologies, and power structures that can only partially be influenced by deliberate changes introduced by humans.

The SDAP approach is a response to a constantly changing world, one in which it is difficult to know whether a given process will lead toward sustainable development in the longer run. The SDAP approach thus involves development of processes to identify and respond to early warning signs of unsustainable development.[11] Thus, a third important principle in the SDAP approach is that processes associated with avoidance of unsustainable development are just as important as processes that appear to lead to more sustainable development. Processes that help non-poor forest dwellers avoid moving into, or back into poverty are just as important as those designed to get the poor out of poverty, although perhaps not as politically visible. In a SD context, the results of both contribute to the same societal aim of reducing poverty *on a sustainable basis*.

In the approach of REDD+, REDD by itself describes processes that deal with avoiding unsustainable development (avoiding deforestation and degradation). The "+" in REDD+ relates to processes that lead to more sustainable development (managing forests more sustainably, enhanced biodiversity conservation and enhanced carbon stocks). A combined approach to implementing REDD+ is recognized as being most productive. In the Sustainable Forest Management definition, such a combined approach is well anchored. Also, in integrated watershed management practice this principle is well established and recognized: Avoiding degradation of healthy landscapes and restoring degraded watersheds both are equally important approaches, although oftentimes the former is ignored because its results are not as visible and thus politically attractive as restoration. There is a parallel in medicine: preventative medicine is not as politically and socially attractive as curing the sick, even though it is just as important and sometimes a much cheaper way to maintain a healthy population over time.

The above three principles associated with the SDAP approach are closely interrelated: All three emphasize linkages – between sectors, across space and time, and between building success and avoiding failure. The underlying framework for the rest of the paper incorporates these three principles and the basic context of a constantly changing forest sector SDAP approach designed to move *toward* meeting the global strategic aims or challenges implied in the SDGs. Adopting and implementing a forest sector SDAP approach is key to making the post-2015 International Arrangements on Forests (IAF) more relevant and effective in contributing to the UN 2030 Agenda.[12]

The next section defines the trends in the evolving forest SDAP processes being developed and implemented to meet the major global strategic forest-related aims and challenges facing humankind.

MOVING INTO THE FUTURE: LEARNING FROM THE PAST AND SHAPING THE EVOLVING FUTURE

TRENDS IN FOREST PROCESSES.[13]

Among the SDGs endorsed by the United Nations General Assembly, number 15 is the main one that explicitly mentions forests,[14] even though forests have a role to play in moving towards many of the other goals[15]. Goal 15 reads: *Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.* There are fifteen targets associated with Goal 15, only 3 of which refer specifically to forests.

One could interpret SDG 15 as implying that the fate of forests, trees and SFM are not considered important enough to merit their own goal. However, a more plausible explanation is that forest-based contributions are considered primarily as a significant part of the *means* to meet more basic societal SD goals related more directly and visibly to the welfare of humans – poverty, food security, etc. This view of forests is widely recognized. For example, the distinguished members of the Global Commission on the Economy and Climate, in their global report on achieving the goal of global sustainable economic growth while tackling the risks of climate change, put forth a 10-point Global Action Plan, where two of the ten action areas (means) deal explicitly and directly only with forests: "stopping deforestation by 2030" and "restoring at least 500 million hectares of lost or degraded forests and agricultural lands by 2030." (GCEC 2015).

The next logical stage for the UN member countries is assessing and reaching agreement on the processes that will be needed to move toward implementing the 2030 Agenda for Sustainable Development. By endorsing the Agenda, the UN members have implicitly agreed to a fundamentally different development paradigm, one that is much more dynamic and difficult to implement, but also more rewarding for future generations and the younger members of this generation, if it can be and is implemented.[16]

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[11] Cf. Hirschnitz-Garbers *et al.* 2015.

[12] Cf. Blaser *et al.* 2014.

[13] Much of this section is adapted from an unpublished paper by the authors, presented at the 2014 IUFRO World Congress, Salt Lake City, USA.

[14] UN General Assembly 2015.

[15] E.g., SDGs 6, 7 and others also link closely to forests and trees. Cf. Seymour 2015, Reeves and Milledge 2015.

[16] In this regard, it is worth reading Lele (1991) early critique of the concept of sustainable development.

The focus now has to shift to the dynamic SDAP approaches needed for implementation, ones where intersectoral cooperation and linkages are established between sector processes locally within countries and country programs are harmonized regionally and globally; where evolving processes are treated as integral parts of a dynamic continuum of past, present and future; and where processes to avoid unsustainable development become just as important as processes instituted to further advance sustainable development. Comprehensive, integrated and participatory approaches will be essential to get on a path of *sustainable* development and to move towards the broad societal aims expressed in the SDGs.

In the context of the 2030 Agenda and beyond, the overarching goal and challenge for the forest sector is to further develop and implement the complementary processes necessary *to meet the ever-changing and growing needs of present and future generations for the goods and environmental services provided by forests and trees outside forests*. Within this overarching aim, three global strategic challenges emerge:[17]

- curtailing illegal deforestation and unneeded forest conversion and degradation, particularly in old growth forests that are not renewable in a humanly meaningful time frame;
- building up the global forest estate through afforestation, reforestation, and agroforestry, including restoring degraded forests and abandoned agricultural and other lands; and
- governing, managing and utilizing both natural and planted forests and trees in more efficient, effective, equitable and sustainable ways.

A fundamental requirement to meet these challenges is that forest sector processes are working locally in conjunction with processes in other sectors, encouraged by national and international support and guidance and compatible incentives and local governance processes and investments in the UN member countries.

These three basic forest challenges of the past and present continue to evolve into the future; and the trends in the processes developed to deal with them also are evolving to set the course for the sector and its contributions to the UN 2030 Agenda. The relevant forest-related processes are aimed both at avoiding unsustainable developments and at creating the conditions for forests to contribute more to sustainable development. The evolving trends for forest processes are as follows:

(i) The trend toward broadening and intensifying processes aimed at curtailing illegal deforestation and unneeded forest conversion and forest degradation.[18]
Regardless of how rapid the rates of deforestation and the gross level of forest loss or gain are,[19] there is growing pressure at high political levels to reduce deforestation further, particularly as a means of reducing greenhouse gas emissions from deforestation and forest degradation.[20] The growing pressure is backed up with an un-paralled expansion of resources coming into the sector for this purpose (commonly into REDD+ type programmes).[21] A major challenge for those involved with the associated processes is to convince the funders that the best approach to achieving reduced deforestation for climate change mitigation will be to develop the processes that address in an integrated fashion all the reasons to curb deforestation and unneeded forest conversion, and not just climate change[22]. The knowledge and understanding is available to make a strong factual argument for an integrated SDAP approach to control illegal and unneeded forest conversion while at the same time building up the forest estate, both in quality and quantity. The challenge will be to make the argument effectively in the appropriate political, economic and popular contexts.

Complicating the challenge is the need to get politically powerful anti-deforestation groups to support strategic SD

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[17] These challenges to a great extent parallel the first three of the UNFF's four global objectives. Cf. http://www.un.org/esa/forests/pdf/notes/bali_081207_pc.pdf

[18] Three main types of forest loss are relevant in the SDAP approach: that which is illegal, that which is legal under existing law, but no longer needed nor desirable from society's changing point of view; and that which is legal and still deemed by the relevant jurisdiction/governance body as needed to make room for other priority land uses.

[19] Cf. FAO 2015b for the latest official data on rates and levels of net and gross forest loss by regions. With the increased information available through the REDD+ readiness processes in the 65+ countries involved in REDD+, data on forest extent and trends are becoming increasingly more accurate and also bear surprises (e.g. countries that have a much larger forest extent than previously reported over many decades to FAO/FRA).

[20] In the 2015 Paris Agreement, forests feature as a key climate change mitigation tool, and previous COP decisions for a framework to **reduce emissions from deforestation and forest degradation (REDD+)** were reaffirmed. Article 5 states: "Parties should take action to **conserve and enhance**, as appropriate, **sinks and reservoirs of GHGs** as referred to in Convention Article 4.1(d) **including forests**;" and, "Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for policy approaches and positive incentives for activities relating to **REDD+,** and **alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests**, while reaffirming the importance of **incentivizing**, as appropriate, **non-carbon benefits** associated with such approaches."

[21] According to UNFCCC definition: "Reduced Emissions from Deforestation and Forest Degradation in Developing Countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.", The "+" in REDD+ refers to the elements indicated in the latter half of the definition.

[22] Such reasons include, but are not limited to biodiversity conservation, watershed protection, local livelihoods.

decision processes that recognize that not all forest conversion is bad and that some of it will be required in the interest of moving the broader SD agenda ahead.

Major effort is required to develop effective processes for determining what forest conversion is justified and needed. A first step is to develop realistic economic values for the non-market goods and services generated by forests and trees outside forests.[23] Better decisions can be made on needed forest conversion recognizing that sustainable land use strategies require inclusion of forests based on their full value and not just commercial potential. A parallel step in the SDAP approach is to increase constructive interactions among land using sectors and to improve the processes of collective decision making. This could be done through multi-stakeholder consultations and consensus building, both public with private and private with private stakeholders.[24]

In a SDAP context, future processes need to distinguish between old growth forest loss that should be avoided and managed natural secondary forest conversion that meaningfully can be reversed in a meaningful human time frame. More effort also needs to be devoted to expanding and intensifying the processes of assigning tenure and sustainable use rights and management responsibilities for public domain forests to local forest authorities and responsible enterprises that can manage forests on a sustainable basis. Partly this is a human rights issue; and partly it is a question of increasing the verifiable SFM and protection of "public domain" forests, since many governments do not have the human and financial resources to manage them under a public SFM regime. Without clear, secure long term legal rights and responsibilities, local communities and enterprises have little incentive to manage such forests on a sustainable basis, where major benefits may only arise in the future. The trend toward expanding rights and responsibilities needs to be speeded up in the quest to meet this overall challenge.[25]

(ii) The trend toward increased establishment of new planted and assisted natural regeneration forests on degraded forests and lands as part of broader land use systems

It is interesting to note that afforestation and natural forest management, including forest restoration have been accorded renewed importance in the REDD+ arrangements and in broader initiatives such as the Bonn and Paris agreements.[26] As opposed to pure monoculture plantations, which are well understood, multiple purpose, planted forests still require substantial R&D in the area of species selection, tree improvement and economics in the context of restoration and rehabilitation of degraded forests and agricultural lands. There also is a need to make sure that the poor and disenfranchised participate in the benefits that can flow from restoration and rehabilitation efforts. This means for such an initiative to be sustainable, first off, effective processes of tenure reform and sorting out rights and associated responsibilities of such groups to the lands being rehabilitated and restored to forest. It also means focusing technology R&D on, e.g., more effective and profitable ways of utilizing smaller diameter logs, faster growing species, including what are today "lesser known species," in addition to utilizing NTFPs and services.

There are several hundred million hectares of degraded lands, often abandoned, that are of use for little other than growing trees.[27] Based on the economic, environmental and social parameters of project feasibility, large areas have been, and could be in the future transformed into resilient, multifunctional forest assets which would contribute to local and national economies, sequester significant amounts of carbon and provide other forest-related benefits, all in a SDAP context. Many countries have shown that this is possible.

The challenge is not to plant more trees just to produce more roundwood and fibre. As illustrated by the plantings in China, across Northern Africa and many other countries, there are legitimate environmental and non-timber reasons to establish large areas of planted forest. The challenge is to plant in more efficient and effective ways than in the past, and to manage such planted forests on a sustainable basis for climate change mitigation and for the benefit of the poor as well as for meeting national economic and other environmental needs.

The successful "greening" of the Republic of South Korea illustrates the importance of taking a flexible SDAP approach where the focus was on the process of planting degraded lands around rural villages, primarily to meet fuelwood needs, but also for watershed purposes and potential commercial uses, if fuelwood needs turned out to be less than initially anticipated. The tree planting process was looked at in the context of the totality of regional and national development plans and processes (i.e., the *Saemaul Undong* movement), recognizing that priorities would shift as other development goals were achieved or changed.[28] It is increasingly being recognized that forestry processes need to be considered in the context of broader land use and development processes; and it is essential that managing natural and planted forest be included in local and national development strategies and not just put in isolated forest plans as in the past.

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[23] Cf. ECE, FORESTRY AND TIMBER SECTION 2014, Gregersen *et al.*, 1995.

[24] Cf. Bäckstrand, K. (2006).

[25] Cf. Gilmour 2016, and http://www.landrightsnow.org/en/home/

[26] Cf. WRI 2011: Global Restoration Initiative. http://www.wri.org/our-work/project/forest-and-landscape-restoration/bonn-challenge. As mentioned earlier, the Global Commission on Climate and Economy (GCCE 2015) calls for restoration of some 500 million has.

[27] Cf. Christophersen 2010, Richard and El Lakany, 2014; and Gregersen *et al.*, 2012, and case studies therein. In India alone some 120 million hectares of ravine land have been deforested and severely degraded (Global Partnership on Landscape Restoration, undated). See also: Measuring Forest Degradation. FAO Forestry Department Presentation at: http://www.fao.org/forestry/17960-0cc8c0ccc973c3b6550f86291b30155b7.pdf, FAO 2009, and Lanly, 2003.

[28] Cf. Korea case study and associated references cited in Gregersen *et al.* 2012.

The results related to addressing this broad challenge have been significant (FAO 2015b): Planted forest area has increased by over 110 million ha since 1990 and accounts for 7 percent of the world's forest area. At the same time they provided 562 million m3 or more than 30 percent of industrial wood globally in 2012, and this percentage is growing rapidly as technology and economic change occur. If one adds in wood produced in semi-natural planted forests (SNPFs), the total supplied from planted and SNPFs goes up to nearly half (46 percent) of industrial roundwood consumption.[29]

The plantings have been for commercial purposes, but also for environmental reasons, and to improve local livelihoods, such as trees planted in various agroforestry systems and in rural landscapes on a very large scale.[30] Processes to effectively continue expanding such systems are a priority in terms of aiming for sustainable systems of production and conservation of resources to meet future needs.

(iii) The trend toward increasing the effectiveness and efficiency of forest management and utilization processes. The subject of this strategic challenge is broad. It was a major challenge recognized in the World Commission on Forests and Sustainable Development report (WCFSD 1999), and was focused on by the United Nations Conference on Environment & Development (UNCED) in 1992 in Chapter 11 of Agenda 21.[31] It has been a common theme in United Nations Forum on Forests (UNFF) discussions on sustainable forest management (SFM) and in FAO's biennial *State of the World's Forests* ever since FAO started reporting in 1995. Improvements in forest governance, management and utilization have been and should continue to be priorities in the forest sector SDAP approach, but broadened out considerably to include improving and strengthening cross-sectoral linkages and multi-sectoral planning, management and decision-making processes.

A key tactical challenge has been to expand the practices of SFM, keeping in mind the multi-functional nature of forests in SD: As discussed earlier, SFM is an evolving process and not a simple static end-state that is definable.[32] It is a prime example of a SD process in the SDAP context. Managing forests sustainably has been a recognized aim of the forestry profession for over three centuries. According to FAO's Global Forest Resource Assessment (FAO 2015b) the area under forest management certification has continued to increase, from 18 million ha under internationally verified certification in 2000 to some 438 million ha in 2014. About 90 percent of the total area certified in 2014 is in the temperate and boreal climatic domains although there has also been growth, albeit at a slower pace, in the tropics and subtropics. Some forests also are managed sustainably outside certified areas. ITTO estimates that about 31 million ha out of the 403 million ha of tropical natural production forests are managed under sustainability standards, certified or not certified (Blaser *et al.* 2011). In many cases, although communities do not have the resources nor capacities necessary to seek formal certification, they are applying SFM principles.

The forest sector is expanding development and use of new utilization technologies, such as nanotechnologies and bioenergy developments, and other technologies that better utilize the smaller diameter roundwood coming from fast-growing planted forests and secondary forests. Many of these technologies have become a reality only during the past quarter century, thanks to massive efforts in R&D. New opportunities for better or different uses for wood and wood fibre are emerging constantly. Progress is rapid in forest technology process development and must continue to be so if forests are to meet their potential in terms of contributing to the SD agenda.

(iv) The trend toward incorporating all forest values, not just commercial values in decisions related to forest land use and in decisions concerning forest restoration and forest expansion.
Processes for valuing an expanding number of recognized non-timber uses of forests are increasingly being developed and used to establish values that, among other things, can be connected to payments for the environmental services (PES) from forests, or can be used to level the playing field in economic terms for different forest stakeholders.[33]

Recognizing the values of forests beyond timber and incorporating them in decisions has led to some trade-off considerations that were hardly thought possible fifty years ago. These trade-offs are accompanied by development of broader landscape management processes as knowledge improves of the linkages between the value of forests/trees and other land uses. Governance reform and decision-making in this broad area of land use trade-offs will be needed in the future. Given that the SDGs will take on greater global importance as the world moves forward, this trend is destined to move even faster, given that trees are one of the few renewable and sustainable resources, beyond food resources, widely available and useful for humankind.

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[29] Jurgensen *et al.* 2014. Semi-natural planted forests comprise the planted component of semi-natural forests mainly native species established through planting, seeding or coppice.

[30] Cf., Zomer *et al.* 2009; de Foresta *et al.* 2013.

[31] UNCED. 1992. AGENDA 21. United Nations Conference on Environment & Development, Rio de Janerio, Brazil, 3 to 14 June 1992. https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

[32] A Collaborative Partnership on Forests (CPF) initiative on better understanding SFM was initiated in 2010 - see: http://www.cpfweb.org/76228/en/. From this initiative emerged the SFM Toolbox to assist forestry planners and practitioners and those beyond the forestry sector to better understand the multiple functions and demands on forestry and the tools available to assist in their management. (http://www.fao.org/sustainable-forest-management/toolbox/sfm-home/en/). The toolbox is still under development. See also: ITTO 2015.

[33] Cf. Center for Global Development 2015, ECE FORESTRY AND TIMBER SECTION 2014, Gregersen *et al.* 1995 and references cited therein to gain insight on the evolution of forest values and valuation processes.

A complicating factor here is that old growth natural forests, as distinct from trees in plantations and secondary forests, are not a renewable resource within a meaningful human time scale. While an acceptable total economic value of these non-reproducible forest ecosystems is difficult to estimate, they need to be protected as a priority if they are to supply their unique services on a sustainable basis. Sustainable management of old growth natural forests is a viable SDAP approach to achieve SD in terms of their role in watershed management, global carbon balance, biodiversity conservation, etc. It should be kept in mind that even "old growth," mature forests are in a constant state of flux. The goal is not to maintain a fixed resource, but rather to establish a process of management. that can maintain the natural evolution of this dynamic resource.

(v) The trend toward increased decentralization of forest rights and management responsibilities from the national to local levels; and the trend toward expanding processes to secure in statutory law the traditional rights and responsibilities of forest dwellers for the forests that they depend on for their livelihoods, indeed survival in some cases.

This evolving trend started a long time ago. It has picked up speed over the past decades, due largely to a conscious international effort. One of the challenges is to bring together at the country level the positives of the processes of decentralization and tenure rights transfer to locals with the positive impacts that can flow from the expanding globalized approaches to sharing knowledge and resources. To do so will require effective blending of top down and bottom up planning and action.[34]

The challenge here is to develop and implement a SDAP approach that is consciously more sensitive to varying and evolving local needs, rights and responsibilities, and yet one that at the same time can articulate concretely (a) what can be gained from a more regional and globalized interaction and cooperation on forests and (b) how to effectively establish the processes of collaboration and cooperation. This becomes even more urgent when the focus is on global sustainable development, where building on inter-dependencies becomes essential.

Some of the processes to be dealt with in a SD context include: "exporting deforestation" or "leakage" through trade in forest products, working with international agro- and mining industries that are the main drivers of deforestation, dealing with trade and illegal forest activities, dealing with the process of international "land grabbing" as a potentially destabilizing factor in SD over time. All of these elements can best be dealt with in a SDAP context, where the focus is on redesigning processes to make their implementation more mutually beneficial over the longer run to the parties involved and making sure that the politically weak and disenfranchised groups are not made worse off in the process.

The vast majority of forests in Africa and parts of Asia and Latin America are publicly owned. But private, including communal and Indigenous People's forest area has increased from 13 percent to 19 percent between 1990 and 2010.[35] In many cases, some of the so-called "publicly owned" forest lands have been in tribal or community ownership under traditional law for centuries. However, many governments have not recognized such rights under modern statutory law. At the same time many governments often do not have the resources nor the knowledge to productively manage and protect their forests. When rights and responsibilities are transferred legally to forest communities and other responsible entities in an appropriate fashion that stresses both the benefits of such rights as well as the responsibilities that go along with them, the protection, management and use of the resources can be improved.[36] The process of poverty reduction among the poorest of the poor also can be aided, if the right incentives and support processes are created, and if an appropriate "enabling environment" exists, including empowerment of local populations to effectively utilize the incentives and support processes. The key here is that the various processes inside and outside the forest sector are appropriately linked to help poor forest dwellers pull themselves out of poverty.[37] There is a great need to intensify the processes of clarifying and securing the rights and responsibilities of forest communities and indigenous peoples. As mentioned earlier, this is a significant requirement in an effective SDAP approach to having forests contribute more toward achieving the SDGs.

(vi) The trend toward more inclusive landscape level planning and management processes in some countries, a process that involves intensifying interaction, cooperation and coordination among land and water using sectors.

This trend is in response to the increasing understanding, in a SDAP context, of the importance of links between forest and other land and water use sector processes over time and space.[38] This trend will become stronger as such resources as water rapidly take on greater value, since it could shift dramatically the value of forests for watershed protection; and a shift in that value could have significant implications

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[34] Cf. Larson *et al.* (eds), 2010, Pierce-Colfer and Capistrano (eds.) 2005, and Pierce-Colfer *et al.* (eds), 2008.

[35] FAO 2015b.

[36] Gilmour 2016. However, see also Bowler *et al.* 2010, Yin *et al.* 2014.

[37] There has been some progress in this area over the past decades. Many groups, such as the Rights and Resources Initiative (RRI), the Forest Peoples Programme, etc., have been working to expand statutory legal rights of forest dwellers and indigenous peoples who have traditional rights. Cf. RRI 2015; Larson *et al.* 2010; Gray *et al.* 2015; Sayer *et al.* 2008.

[38] The fairly recent establishment of the Global Landscape Forum (www.landscapes.org) is concrete evidence of the expanding interest in broad landscape management approaches. See also CIFOR 2015.

for biodiversity conservation, climate change mitigation, livelihoods of local forest communities, etc.

The practical challenges in implementing integrated natural resources management (INRM) processes are many. It is easy in theory to argue the benefits of landscape or INRM approaches, but difficult in practice because of conflicting interests, without clear lines of inter-sectoral authority and decision-making.[39] Examples of successful INRM processes exist in the form of river basin commissions, upstream-downstream watershed management agreements involving PES for upstream land owners/users, etc. A focus on water most often provides the integrating interest in successful INRM or landscape management processes. The challenge here is to adjust, integrate and change the decision processes within the SD framework so they become more effective in the future and take forest values more explicitly into account in decision-making. This in turn will require new kinds of incentive processes.

In sum, with high level encouragement, the forest sector is enlisting and gaining the support of outside forces to more aggressively come to grips with the deforestation issue, while at the same time increasing investment in restoration of degraded forests, new planted forests and tree growing outside forests. The trend toward rationalizing and improving forest governance and management continues to move in a positive direction, albeit, slowly, along with the process of clarifying in statutory law forest rights and management responsibilities currently held by local forest communities under traditional law. The trend toward greater formal recognition of the multi-functional values of forests is building; and along with that has come an increased investment of effort and resources in the non-wood goods and environmental services of forests. As interest in non-timber outputs has expanded, so has the trend toward linking forest sector processes more closely to each other and to processes in other sectors, e.g., through introduction of landscape level planning and management. Yet, so far the inter sectoral processes involving the forest sector have been weak and few and far between. This is definitely an area for future emphasis, as discussed in the following section.

The above trends in forest sector processes have been evolving in the context of some fixed end state goals, namely the MDGs that formed the basis of the UN's development agenda over the past fifteen years. Now, with the MDGs a thing of the past, and the spirit of the new sustainable development paradigm in place, there are good opportunities through a SDAP approach to consciously influence and enhance the evolutionary paths of some of the major forest governance, management, and utilization processes to contribute more effectively to this new sustainable development agenda. The next section discusses some of the opportunities.

FOREST-RELATED PROCESSES AND THEIR POTENTIAL CONTRIBUTIONS TO THE UN 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT.

Evolving forest processes for SFM, forest restoration, planted forest development, watershed management, biofuel production, forest wildlife management, etc., have provided essential support in the past for global development in the context of the MDGs. They can provide even more support to successful implementation of the new UN 2030 agenda for SD. There are new opportunities through a SDAP approach to redefine and enhance forest processes, closely linked to processes in other sectors, to contribute to this new more dynamic agenda.

Higher priority needs to be given to developing strategic relationships between processes in the forest sector and those in other sectors. The first step is to focus on win-win relationships that could be enhanced by development of viable long-term inter-sectoral processes and partnerships, ones such as those being explored in the earlier mentioned landscape level planning and management and in the evolving multi-stakeholder processes guiding interaction between the industries mainly responsible for deforestation, the consuming sectors, international financing and trade sources, and governments. One of the principles of the SDAP approach is that linkages are necessary, desirable, can be mutually beneficial, and should be encouraged and aggressively pursued. The ultimate aim in successful SD programs is that the process synergies within a sector link positively with processes in related sectors, and that international and national strategies and policies for the forest sector link closely to those governing and guiding these other sectors. Pursuing strategies that lead to more favourable outcomes over time in local and national linkages within and between sectors is worthwhile in itself, as well as being essential for successful implementation of the UN 2030 Agenda for SD. So are improvements in the more difficult to achieve linkages and synergies across the public, private, and NGO sectors.

Linkages at the local level are key to success in the overall global process. If they do not evolve, then national and international linkages agreed to on paper will be void of substance. Thus, for the forest sector, success in creating effective linkages and synergies across sectors locally has direct implications in terms of designing a more effective International Arrangement on Forests (IAF) to support the UN 2030 SD Agenda: The new IAF, endorsed by the UNFF-11 in May of 2015[40], has to link more formally and strongly to the international arrangements for other sectors, particularly land-using ones. Because of the substantial externalities or non-local benefits that eventually can flow from cross sectoral linkages at the local level, their organization, management and implementation most often need to be jump started by incentives (financial and knowledge based) provided at the national and

[39] Kozar *et al.* 2014.

[40] C.f. Summary of the eleventh session of the United Nations Forum on Forests: 4–15 May 2015. Available from: http://www.iisd.ca/forestry/unff/unff11/

international levels. It will have to be a dynamic, integrated "bottom-up" and "top down" SD process, starting with the building of local awareness of the potential mutual benefits from adopting a SDAP approach for forests with strong intersectoral and international linkages. This will involve local and national strategic planning followed by action and actual cooperation, collaboration and coordination between the relevant sectors, both locally and nationally, and eventually at the international level. This is a major challenge, but definitely achievable if the right situation-specific incentives are created. Positive linkages need to be created with the various sectors that interact with the forest sector. First, cross-sectoral alliances based on mutual interests and win-win situations can be formed. Some of the promising areas for future linkages in a SDAP approach include links with:

A. **Consumer, producer and trade sectors**: Expand both formal and informal interactions between consumers and producers of agricultural/forest products responsible for the major portion of current deforestation in order to create effective net deforestation-free supply chains.[41] At the international level, this also involves improving information and decision making on trade in forest products. More specifically, this will involve a drastic reduction in trade of illegal forest products and an increase in knowledge of, and commitment to avoid imports of products with significant "embodied deforestation" that is harmful in the context of global sustainable development.[42]

B. **Agricultural Sector**: develop stronger, positive linkages with the agricultural sector, broadly defined, that lead to support from the forest sector for expanded resources for agricultural productivity R&D and expansion of agricultural productivity and production on non-forest lands, including through reclamation and restoration activities. This, in turn, needs to lead to support from the agricultural sector for conserving and protecting priority old growth forest areas (including reducing/abolishing incentives for old growth forest conversion for agricultural land uses) and expanding the growing of trees as a complement in agroforestry and silvo-pastoral production systems.[43]

C. **Energy sector**:[44] More than 840 million people, or 12 percent of the World's population collect and depend on wood fuel and charcoal. Wood fuel accounts for 27 percent of total primary energy supply in Africa.[45] Thus, it is critical to recognize that wood-based biomass energy needs to be considered within the evolving overall global energy supply and demand strategy. There is need to develop stronger linkages between forest biomass energy and other renewable energy sectors, among other things, in the context of providing the best means for poor forest and forest fringe dwellers to effectively and efficiently meet their energy needs as they move out of poverty. This is particularly important since those who depend on wood energy generally are among the poorest citizens.

D. **Water sector**: Develop further the particularly strong linkages between forest and water sectors. Forests will have an even more important watershed protection role in the future in many areas, since water is the limiting factor in SD in many parts of the World and will become more so over the next decades. At the same time, since some forests and trees can compete with food crops for water, policy makers need to recognize that in some areas planted trees and human assisted natural regeneration should be discouraged, and in some extreme cases, some earlier established plantations may have to be phased out in order for higher priority water needs to be met.[46]

The above are just some of the main linkages that need to be effectively developed. To facilitate their formation, considerable institutional strengthening is needed, including:

E. **International institutions**: Develop stronger cross sectoral linkages within and among international organizations, e.g., UN organizations, regional institutions, NGOs and the private sector.[47] This can provide examples to countries of what can be accomplished through stronger cooperation, collaboration and coordination. This includes the need for stronger involvement of international forest sector institutions, particularly with those other entities promoting agriculture, livestock, agroforestry, and other land uses.

F. **National and local governments**: Creating a lasting global process of SD depends very much on taking advantage of complementarities and creating dynamic synergies within national and local governments. The need for a "whole government approach" is widely recognized: For example, the UK International Development Committee (IDC 2016) states: "It is clear that a cross-government approach will be needed in order to: (1) Implement the SDGs in the UK; and (2) Support other countries to make progress towards the SDGs."

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41 Cf. Bregman *et al.* 2015, http://forest500.org/, Rautner *et al.* 2015, Smit *et al.* 2015.

42 The EU has had the foresight and courage to recognize its impacts on deforestation through trade. Cf. European Commission 2013a. It also has suggested some ways in which it can address the issue: European Commssion 2013b, 2013c.

43 Cf. Buttoud 2013, Carter *et al.*, 2015, and an open letter to World leaders from the CGIAR centers urging them to support "co-advancement of agriculture and natural resources management." http://blog.worldagroforestry.org/index.php/2015/09/19/open-letter-to-world-leaders-from-the-cgiar-centres/

44 SDG 7 "**Ensure access to affordable, reliable, sustainable and modern energy for all",** is the one most directly relevant SDG's to Forestry besides Goal 15. Wood energy fits directly within this goal.

45 FAO 2014.

46 Cf. FAO 2013, 2015a.

47 FAO already is in the process of developing much stronger inter-department and division level linkages, e.g., between forestry and agriculture, livestock, land and water and other themes. UN-REDD illustrates how different agencies are trying to come together to work on a common theme.

G. **Integrated land use planning and management processes**: Expand support for, and adoption of integrated landscape level planning and management processes, where such are feasible.[48] The evolving REDD+ strategies in many tropical countries include promising approaches in this regard. Research on the pros and cons of landscape level management and the costs and benefits associated with the projected outcomes of such is urgently needed, along with exploration of alternative adaptive management and decision-making models. Lack of unified authority at present is a major obstacle.

H. **Processes for identifying and avoiding unsustainable development**: Explicitly recognize in international debates, agreements and action on forests that, even though they may be less politically attractive, processes that divert society from unsustainable forest development practices are needed just as much as those processes that initiate, develop and implement new sustainable development strategies, plans and processes.

I. **Processes of property rights reform**: With strong, active international community support, countries can work more aggressively to sort out property rights and responsibilities, particularly for the public domain forests where resources are wasted and millions of poor people reside without any incentive to manage productively on a sustainable basis because they only have traditional rights not defined nor accepted in statutory law. It becomes difficult if not impossible to create formal linkages between relevant groups for the integrated management of forests and other land uses, unless those groups have recognized and defendable tenure and use rights, as well as management responsibilities well-defined in statutory law and adequately protected and enforced.[49] Such linkages are essential in the SDAP approach, as well as in REDD+ programmes.

J. **Information sharing on SD processes**: Of key importance is expansion of knowledge-sharing processes that rapidly can disburse evolving information on inter-sectoral and international linkages in a SD context. CPF members, especially UN entities such as FAO and UNEP; the World Bank and forest-focused research and development organizations such as CIFOR, ICRAF and ITTO, special programmes such as FCPF and UN-REDD, and various NGOs, need to increase the effectiveness of development and dissemination of technical, legal and social knowledge that can complement local knowledge and strengthen the SDAP approach in the forest sector. Cooperation among international groups in achieving this will provide an example that is essential to encourage and ensure complementarities and productive linkages within and between local and national programs. In fact, "breaking down the silos" and implementing more productive intra and inter agency programmes, both for national government agencies and international entities is a necessary first step in implementing the evolving UN Agenda for Sustainable Development.

CONCLUDING COMMENTS

Almost 30 years ago the UN-appointed Brundtland Commission formally introduced in the UN the concept of sustainable development. After many follow-up discussions and major meetings over the years, the UN members finally have come together to take up the challenge of sustainable development through the new UN 2030 Agenda for Sustainable Development. There are major obstacles to be faced in implementing the UN Agenda, but they can be overcome if nations act on what the Brundtland Commission pointed out to us almost forty years ago: "*In the end, sustainable development is not a fixed state of harmony, but rather a process of change.*" Thus, there is no definable "fixed end state" in sustainable development. Rather, as discussed in the paper, sustainable development is focused on designing and implementing over time an evolving set of processes that move humankind *toward* some broad, agreed upon societal aims, as represented by the SDGs which underpin the UN 2030 Agenda.

This is the right time to design and implement a much more dynamic, integrated and inclusive approach to sustainable forest development as a set of complementary, dynamic processes, both inside and outside the sector that are leading toward a number of the forest-relevant SDGs in an integrated fashion. This is the essence of a "sustainable development as process" (SDAP) approach.

Those dealing with the forest sector are for the most part comfortable viewing the sector in a SDAP context, since SFM is in fact part of an overall SDAP approach for the sector. Decision makers in the sector generally recognize and embrace that the world is much more dynamic than implicitly assumed in a fixed, end-state goal approach: Resource conditions, knowledge, opportunities, constraints and even the details defining the substance of societal goals and abilities are changing constantly. Thus, even though the broad global societal aims at the SDG level – poverty alleviation, food security, health improvements, etc., remain the same in name over time (e.g., from MDGs to SDGs), their substance at the local, national, and international levels is changing. Forest sector development processes have to be evolving accordingly if they are to reach their potentials in terms of contributing to the new UN 2030 Agenda. This will occur only if those implementing the processes:

(1) embrace and actively promote and create positive, better defined linkages and synergies between societal goals, among nations, and among the SD processes operating within the sectors that affect and are affected by the forest sector;
(2) maintain continuity in the sector by building future forest development processes as part of an evolution of the continuum from past to present and on into the future;

[48] Cf. FAO 2016 and its discussion under Theme 2 of the models of integrated land and water management.
[49] Cf. Rights and Resources Initiative website, http://rightsandresources.org/en/#.V4Um9mzrsuU

(3) pay equal attention in planning and action to processes that are designed to avoid unsustainable development and processes designed to promote sustainable development. Even though the latter may be more appealing politically, the former are equally as important in the quest for *sustainable* development, and
(4) develop forest governance and management processes that are sensitive to the good aspects of both the growing number of international processes and strategies and the evolving national and local processes, including those involving devolution of forest governance, and clear, secure and enforceable rights and management responsibilities to local governments, communities and forest-based entities.

Getting the right processes in place is a realistic and legitimate objective for the forest sector, and one that can be achieved through the SDAP approach. Progress can be assessed at any given point in time by, among other things, the extent to which these processes are helping society move toward its global aims as expressed in the SDGs. The SDAP approach recognizes that as part of the dynamic, overall SD process, forest sector processes will have to change, be eliminated or scaled up and improved as changing conditions warrant. The contributions also will change over time accordingly.

It all has to start at the country level, with international cooperation and support. Thus, the forest sector will contribute significantly to implementing the UN Agenda if each member country, through its own SDAP approach, defines, reconciles, links and then successfully implements its local and national forest sector processes and its needed multi-sector linkages within the context of its national sustainable development plan and strategy. Only when this has happened in many countries will the contribution of the sector to successful implementation of the UN 2030 Agenda emerge, broadly defined by movement toward the global societal aims expressed in the SDGs. If this is done convincingly, then the resources will become available to redefine and implement the forest sector SDAP approach in enough countries and on a large enough scale to meet the full potential of the sector into the future.

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Integrated climate change adaptation: towards an emancipatory community forestry-based approach

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SUMMARY

In recent years, the notion of "integrated adaptation" has emerged in international climate change discourse. This approach emphasises the need to analyse vulnerability across sectors and to develop adaptation interventions that create positive cross-sectoral impacts. This paper suggests that community forestry, as an already-embedded form of commoning, could be a useful entry point for implementing integrated adaptation. It presents a community forestry-based climate change adaptation (CF-CCA) framework, as conceived and implemented in Nepal's Terai. It then evaluates the framework – through the lens of political ecology – and its approach to community level data collection, building linkages with local government, and the tenability of "scaling up" the framework in its current form. We conclude by asserting that the CF-CCA framework is a promising tool for integrated adaptation that must be further "politicised" in order to address dynamic issues of power and inequality and provide emancipatory change.

Keywords: community forestry, climate change, integrated adaptation, political ecology, commoning

Adaptation intégrée de changement climatique: un pas vers une approche émancipatrice basée sur la foresterie communautaire

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La notion d'"adaptation intégrée" a surgi dans le discours du changement climatique international ces dernières années. Cette approche souligne le besoin d'analyser la vulnérabilité dans tous les secteurs et de développer des interventions adaptatives à même d'aboutir à des impacts intersecteurs positifs. Ce papier suggère que la foresterie communautaire, étant un moyen communautaire bien établi, pourrait-être un portail utile pour mettre en action l'adaptation intégrée. Il présente un cadre d' adaptation de changement climatique basé sur la foresterie (CF-CCA) tel que celui qui fut conçu et mis en route dans le Terai du Népal. Il évalue ensuite le cadre et son approche dans le domaine de la collection de données au niveau communautaire, à travers l'objectif de la politique écologique, en tissant de liens avec le gouvernement local. Il évalue également la possibilité d'agrandir le cadre à partir de sa forme actuelle. Nous concluons en affirmant que le cadre CF-CCA est un outil prometteur pour l'adaptation intégrée et qu'il a besoin d'être rendu politique pour pouvoir faire face aux questions de puissance et d'inégalité et produire un changement émancipatoire.

Adaptación integrada del cambio climático: hacia un enfoque basado en la silvicultura comunitaria emancipada

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En los últimos años, el concepto de «adaptación integrada» ha surgido en el discurso internacional climático. Este enfoque hace hincapié en la necesidad de analizar la vulnerabilidad en todos los sectores y desarrollar intervenciones de adaptación que creen impactos transversales

[1] This paper was jointly developed by all of the listed authors. The structure of the paper, and its focus on local data collection, building linkages with government, and scaling up, was conceived by R.S. Pairojmahakij and D. Gritten. The specific community forestry-based climate change adaptation (CF-CCA) framework, and the notion that community forestry can contribute to integrated adaptation, was developed by R.S. Pairojmahakij, B.H. Poudyal, C.L. Chowdhary, D. Gritten, and R. Triraganon. L.M. Sapkota contributed insights on the local context in Bishnupur and community forestry in Nepal. W. Conroy is responsible for the paper's overall emphasis on political ecology and the need to pursue a "politicised", emancipatory adaptation. Some of the text and data within this document have been featured in related publications that outline the framework and the project process in Bishnupur. These complementary documents can be found at recoftc.org/static-landing/all-publications.

positivos. Este documento sugiere que la silvicultura comunitaria, como forma de propiedad comunal, podría ser un punto de partida útil para la implementación de la adaptación integrada. Presenta un marco de adaptación al cambio climático en materia de silvicultura comunitaria (CF-CCA por sus siglas en inglés) tal y como fue concebido y puesto en práctica en Terai, Nepal. Evalua el marco – a través de la lente de la ecología política – y su enfoque para la recopilación de información a nivel comunitario, creando vínculos con el gobierno local y la posibilidad de ampliar el marco en su forma actual. Concluye afirmando que el marco CF-CCA es una herramienta prometedeora para la adaptación integrada que debería ser más "politizado" con el fin de abordar cuestiones dinámicas de poder y desigualdad y proporcionar un cambio emancipador.

INTRODUCTION

Climate change and integrated adaptation

Given the state of climate change, and the dominance of a global profit system that mandates capital accumulation, swift action is needed for the redirection of resources towards "genuine human requirements and ecological sustainability" (Foster 2015). This is most evident in the global South, where the "slow violence" of climate change is already apparent, and disproportionately impacting rural communities that directly depend on natural resources for their livelihoods (Nixon 2013). In this context, climate change adaptation has come to the fore of international policy discourse, which has increasingly emphasised the need to pursue adaptation with the same level of urgency as mitigation and to direct efforts towards minimising climate vulnerability in poor countries (IPCC 2007, UNFCCC 2011a). In some cases, international bodies have also started to redefine "adaptation" itself, moving away from definitions that present adaptation as an adjustment to new risks, towards definitions that present it is a practice of living with change that requires flexible and forward looking decision-making practices (ODI 2014).

In addition, a number of recent studies have been undertaken to identify best practices for adaptation in rural communities in the global South (see, for example, Forsyth 2013). Some have noted the potential of efforts that address multi-sectoral climate impacts through integrated and holistic landscape management – a practice we will refer to as "integrated adaptation" (Schipper *et al*. 2014, UNFCCC 2011b). This approach seeks to enable the analysis of vulnerability across sectors, and to maximise the positive cross-sectoral impacts of climate change interventions (UNFCCC 2011b). This literature has illustrated the artificial dichotomy between biophysical and social adaptation, and the ways in which sector-specific interventions can exacerbate negative climate impacts in other sectors (Newell *et al*. 2005). Integrated adaptation's proponents assert that sectoral approaches produce piecemeal solutions that fail to address the complexity of the climate change challenge, which includes "ecosystem dynamics, economic and social relations, governance issues" as well as "values, worldviews, and cultural norms" (O'Brien and Hochachka 2010, p. 91).

However, several gaps remain in the literature on integrated adaptation (Schipper *et al*. 2014). Most pertinently, scholars have identified the need for a rigorous framework that bridges sectors, disciplines, and approaches to adaptation; recognises climate change as complex and non-linear; and addresses the needs and aspirations of different groups with diverse perspectives (O'Brien and Hochachka 2010). Existing research from a range of disciplines suggests that the privatisation of natural resources is at odds with integrated adaptation, and that strategies of commoning will be a useful starting point for local integrated adaptation frameworks (Gibson-Graham *et al*. 2016, Maldonado 2014, Moss 2014, Murtinho 2016, Randhir 2016). Unfortunately, the "practical" grey literature has failed to provide such frameworks or an adequate range of tools to address complex, cross-sectoral climate impacts (CARE 2009, ICEM 2011, ICIMOD 2011).

Of course, the existing climate change vulnerability assessment literature has provided foundational research that can inform the development of such a framework (for an overview see Adger 2006, Eakin and Luers 2006, Fellmann 2012, Ribot 2014). This literature has made important strides in defining vulnerability and its three components – exposure, sensitivity, and adaptive capacity – through a range of research agendas linked to risk-hazard, political economy, and ecological resilience studies (Eakin and Luers 2006). And, it has produced methods and indicators for assessing vulnerability (Dessai and Hulme 2004, Downing *et al*. 2001), as well as strategies for stakeholder engagement (Downing and Ziervogel 2004). However, existing frameworks from the vulnerability assessment literature have ultimately reinforced a dichotomised understanding of vulnerability that preferences either biophysical "outcome vulnerability" or socio-political "contextual vulnerability" (O'Brien *et al*. 2007). And, efforts to develop integrated vulnerability assessments have been marred by burdensome complexities and resource requirements (Eakin and Luers 2006); an inability to incorporate and reconcile different and sometimes contradictory empirical and local knowledge (see UNEP 2013 on "knowledge elicitation"); and a failure to suggest practicable tools to make use of vulnerability and asset data for integrated adaptation solutions (see UNDP 2004 on "formulating an adaptation strategy").

Adaptation, power, and inequality

Furthermore, recent research from the political ecology tradition has provided valuable insights into how climate change adaptation interventions relate to power relations and inequality (see, for example, Fletcher 2010, Peet and Watts 1996, Rocheleau 1996, Taylor 2015). Drawing on the resources of neo-Marxian political economy and post-structuralist thought, this literature has shown that adaptation is a socio-political process all the way through, and that power is cemented and contested in the ways in which adaptation is framed and responses are considered (Eriksen *et al*. 2015). This research

also shows that power relations invariably influence adaptation outcomes, and that adaptation initiatives can reinforce power imbalances by strengthening the unequal relations that contribute to local vulnerability (Nagoda and Eriksen 2015). Some have noted that vulnerable populations and their knowledges are excluded from climate change policies and programmes, which favour hegemonic views of nature-culture relations and capitalist worldviews (Escobar 1995, Maldonado 2014). Others have argued that social complexities and politics have been ignored by technocratic interventions that are confined by dominant developmentalist codes, which cement the hegemony of "expertise" in adaptation, and reinforce power-laden yet seemingly apolitical subjectivities (Guthman 1997, Nightingale and Ojha 2013). They note that adaptation has established new subjecitivities that reproduce an unequal binary between who is allowed to develop interventions and who is disciplined to adopt them (Eriksen *et al*. 2015).[2]

Finally, political ecology research has started to conceptualise the ways in which adaptation might be repositioned within a broader project for the mobilisation of emancipatory subjectivities (Manuel-Navarrete 2010, Taylor 2015). This research asserts that developmentalist adaptation projects naturalise inequality and legitimise hegemonic political and economic constructs, which are themselves implicated in environmental destruction and climate change (O'Hara 2009, Rickards 2010). The adaptation-as-transformation approach is concerned with root causes of vulnerability and using adaptation to unsettle authoritative institutional forms and create hopeful alternatives (Nightingale and Ojha 2013). It seeks to radically transform prevailing relations of power through adaptation in order to create "fairer and less exploitative" social, political, economic, and environmental relations (Manuel-Navarrete 2010, p. 783, O'Brien 2012, Pelling 2011, Turhan 2014).

Paper overview

Therefore, in an era in which the commons are increasingly under "assault" through commodification and enclosure (Harvey 2011, Moore 2012), we suggest that community forestry stands as a key existing strategy of commoning that can facilitate integrated adaptation – particularly in rural communities in the global South with long engagement in the practice (RRI 2015, Wily 2011).[3] In this context we use "community forestry" to refer to the collective management of multi-sectoral forest landscapes by local user groups to allow for shared economic, social, political, and cultural benefits (Forsyth and Walker 2014). We recognise that community forestry is often flawed in practice, and that it can reduce people's access to forests and exclude marginalised populations from natural resource decision-making processes (Maryudi and Krott 2012, Nightingale 2002), impose colonial and post-colonial techno-bureaucratic regimes of truth (Movuh 2012), and even support neo-liberal decentralisation and the imposition of self-help subjectivities (McCarthy 2005, Rankin 2004). However, we also note, that when power and resources are fully and equitably devolved to the local level – with an emphasis on subverting prevailing power relations – community forestry can serve as a practical entry point for democratic governance, consensus building, and cross-sectoral decision-making.[4]

Still, several questions remain for grassroots adaptation facilitators – including natural resource management user groups and non-governmental organisations – in light of the integrated adaptation and political ecology literature outlined above. Not least, how is community forestry – specifically – an entry point for integrated adaptation at the local level (Freeman *et al*. 2015)? What existing tools can be drawn on in this process (Sayer *et al*. 2013)? And how can we ensure that this approach breaks free from dominant development discourse and practice, and provides emancipatory change regarding the reproduction of inequality (Robbins 2004, Walker 2005)? To address these questions, this paper will propose, and then critically evaluate, an experimental community forestry-based climate change adaptation (CF-CCA) framework. While the framework relies on the existing socio-political and institutional assets of community forestry to develop cross-sectoral interventions – namely, the institution of the Community Forestry User Group (CFUG) – it does not necessarily require interventions that draw on the biophysical resources of the community forest itself.

The CF-CCA framework is a guide for adaptation facilitators seeking to work with CFUG members to (i) assess cross-sectoral climate vulnerability, (ii) prioritise adaptation interventions, and (iii) implement integrated initiatives. It was conceived by a project team from The Center for People and Forests (RECOFTC) during a period of collaborative research, framework development, and implementation in Bishnupur village, Sarlahi district, within Nepal's southern plain, known as the Terai. Therefore, we will begin with a *Methods* section in which we discuss Nepal and Bishnupur,

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[2] In this paper we employ Nightingale and Ojha's (2013, p. 33) understanding of "subjectivity". They use the term to refer to the ways in which people come to be "disciplined by and identified with certain discourses and practices". They see subjectivities as embedded in historically contingent relations of power, and note that unequal subjectivities are the foundation for social hierarchies and inequalities (see, also, Butler 1997, Foucault 1990).

[3] We do not presume that there is a monolithic "global South" that requires the intervention of community forestry-based adaptation (see, for example, Escobar 1995). Rather, we argue that community forestry-based adaptation can serve as a form of strategic localism that builds on already-embedded local practices, knowledges, and institutional forms throughout the South (Gibson-Graham 2005, Ireland and McKinnon 2013).

[4] Of course, we recognise that to comprehensively address global poverty and climate change, we will also need political and economic solutions that address global regimes of injustice and unequal resource distribution (see, for example, Immerwahr 2015). This paper, however, is concerned with the very real and urgent need for emancipatory community-based climate change adaptation.

and the initial research methodologies the team employed prior to developing the framework. This will be followed by a *Results* section, in which we present the CF-CCA framework developed in Bishnupur – as an instructional guide for prospective users – and key information regarding its pilot implementation. Finally, in our *Discussion*, we will evaluate the framework, and discuss the key lessons gleaned from its implementation regarding community level data collection, building linkages with local government, and "scaling up" the framework in its current form. This evaluation will explicitly draw on the resources of political ecology and consider the framework's potential to facilitate emancipatory adaptation.

To conclude, we will suggest that the CF-CCA framework is a promising tool for integrated adaptation that requires further development to ensure that it can sufficiently engage with dynamic and contextually specific issues of power and inequality. Specifically, we argue that it must be further politicised – or attuned to the local and non-local relations of discursive and material power that influence adaptation and community forestry – in order to subvert prevailing inequalities and transgress established authorities (Manuel-Navarrete and Pelling 2015, McCarthy 2005).

METHODS

Nepal

As noted, the project team decided to develop and implement the CF-CCA framework in Bishnupur village, Sarlahi district, Nepal. Nepal is highly vulnerable to the impacts of climate change, as a country in which roughly a quarter of the population lives on less than $1.25USD per day (purchasing power parity) and 80% of the population relies on agriculture as a major source of income (Anderson *et al*. 2014, Manandhar *et al*. 2011). Furthermore, the biophysical impacts of climate change, including changes in temperature and rainfall intensity and patterns, are aggravated in Nepal by complex histories of social, political, and economic exclusion, and the current political turmoil following a decade-long civil war (Ojha *et al*. 2015).

Moreover, Nepal maintains numerous community forestry and devolved climate change institutions and policies, which made it an ideal context for developing and piloting the CF-CCA framework. These include:

1. A formal community forest management apparatus, stretching back to 1993 and the implementation of the Forest Act (Dahal and Chapagain 2008).
2. Over 18 900 formally recognised CFUGs (MFSC 2015).
3. A framework for Local Adaptation Plans of Action (LAPA), which focuses on Village Development Committee (VDC) driven and coordinated adaptation planning.
4. A National Adaptation Programme of Action (NAPA) which aims to direct 80% of all "available funds" to the local level.

Bishnupur, Sarlahi district

Bishnupur, too, provided a distinct context for community forestry-based integrated adaptation framework development and implementation. The majority of Bishnupur's 359 residents are upper caste migrants, or the descendants of migrants, that moved to the Terai from Nepal's mid-hill region.[5] In general, they are socially and politically well connected and rely on agriculture and livestock for their livelihoods. However, various forms of inequality persist within the community. Marginalised indigenous groups (Adivasi/Janajati) and Dalits (Nepal's most oppressed caste group) represent 22% and 2% of Bishnupur's population, respectively. And according to the Bisnupur CFUG's community well being ranking, 46% of the community is "rich", 28% is "medium", and 26% is "poor" (based on criteria provided by the Ministry of Forests and Soil Conservation in 2008). 70% of community members are literate, compared to the district average of 46% (CBS 2014), though the literacy rate among the community's Dalits is significantly lower than other demographic groups. Bishnupur's women are generally marginalised and work on average between 12 and 13 hours per day, whereas men work 8 hours (according to data collected in Bishnupur, see Table 1). Single women, widows, Dalit, and poor women are particularly burdened, and are often more reliant on commonly held community resources for their daily livelihoods than other community members.

In addition, the relative vulnerability of Bishnupur's women has engendered social alliances and shaped political institutions that respond to the intersecting impacts of social, economic and environmental injustice (Vaughn 2016, Butler 2015). This is perhaps most evident in the institution of community forestry. To respond to challenges related to the erosion of a nearby riverbank, natural disaster risk, declining forest cover, and various other forms of economic and environmental stress, several women took the lead in efforts to establish the Bishnupur Community Forest (DFO 2013). The community forest has a women-only management committee, and a CFUG comprised of women and men. The Operational Plan for the forest explicitly aims to improve the livelihood conditions of poor women and Dalits, through a collectively managed pro-poor livelihood development fund, proportional sub-committee representation requirements, and other means (described further in the *Discussion* section below).

Pre-intervention outline

Prior to beginning onsite research and project implementation in Bishnupur, the project team designed a rough outline of the integrated adaptation framework that would be piloted, with an understanding that it would be modified based on

[5] Hill-origin upper castes are traditionally the most powerful demographic group in the Nepali state.

interactions with CFUG members and other stakeholders. It was assumed that the framework would work closely with the CFUG and make use of the existing adaptation assets and knowledge linked to the institution of community forestry, while not necessarily drawing on the biophysical resources of the forest itself. The proposed framework was comprised of three major phases, with participatory monitoring and evaluation occurring in each phase. They included:

1. Vulnerability assessment, and adaptation topic identification;
2. Feasibility assessment of specific adaptation options; and
3. Intervention implementation.[6]

The proposed first phase involved the use of participatory approaches to identify different land use patterns across sectors (especially those closely related to community forestry), assess current and future climate trends, and evaluate community level institutional, social, and economic factors and their effect on adaptive capacity and livelihoods. The proposed second phase included the prioritisation of potential integrated adaptation options and financing opportunities, followed by the development of project proposals and partner institution engagement. The final stage was understood to include intervention implementation. In general, the research team aimed to develop a framework that would put marginalised populations, including the poor, disadvantaged ethnic groups/castes, and women, at the centre of all its activities.

TABLE 1 *Data collection tools*

Tool	Information sources (number of CFUG participants)	Results
Quantitative review and analysis	Karmaiya and Manusmara meteorological stations; Agriculture Development Office, Naktajhij, Janakpur; and the Ground Water Development Board, Jaleshwar	Precipitation and temperature data
Focus group discussion	CFUG members (49)	General community knowledge on the local impacts of climate change
District stakeholder workshop	District line agencies, civil society including the Federation of Community Forest Users, Nepal (FECOFUN), CFUG members (45)	General information on the local impacts of climate change
Transect walk	CFUG members (54)	Visible biophysical changes related to climate change
Women's mobility mapping	CFUG members (34)	Information on women's exposure/relation to climate change impacts
Household data collection	Operational Plan of the CFUG	Household level socioeconomic data
Well-being ranking	CFUG members (34)	Identification of climate vulnerable households
Seasonal calendar	CFUG members (23)	Information on recent changes in agricultural practices
Historical timeline	CFUG members (38)	Timeline of memorable climate-related events
Hazard mapping	CFUG members (28)	Identification of major climate-related hazards across sectors
Pairwise ranking	CFUG members (34)	Prioritisation of identified climate-related hazards
Social and power mapping	CFUG members (34)	Information on power relations among different demographic groups, with an explicit focus on women's vulnerabilities
Stakeholder mapping	CFUG members (34)	Identification of stakeholders in local climate change adaptation
Focus group discussion	CFUG members (49)	Identification of community activities supporting adaptation
Office visits	District and regional level line agencies and FECOFUN	Identification of available government- and civil society-provided adaptation services and procedures for obtaining support

[6] In this framework, adaptation response "topics" are general approaches to decrease climate vulnerability. Response "options" are specific strategies that can be implemented on the ground. We should also note here that the development of this proposed framework, and the CF-CCA framework more broadly, drew on work done by USAID Adapt Asia-Pacific, as well as CARE's Climate Vulnerability and Capacity Analysis, ICEM's Climate Change Adaptation and Mitigation Methodology, ICIMOD's Framework for Community Based Climate Vulnerability and Capacity Assessment in Mountain Areas, and DFID's Sustainable Livelihoods Approach.

It was assumed that the framework would address intra-community dynamics, with an understanding that these dynamics contain unequal relations and are not simply "power-neutral indicators" of "development" (Schild 2015).

Data collection in Bishnupur

After this pre-intervention outline was developed, the project team began collaborative onsite data collection in Bishnupur. A number of tools were employed during onsite research to inform the development of the integrated adaptation framework. Participants in this process included CFUG members and other land use and climate change stakeholders from government and civil society institutions. The table above outlines the tools employed during this process, the information sources that were drawn on, as well as the general results obtained.

This early research supported the project team's assumptions regarding the usefulness of community forestry – as an embedded form of commoning – for implementing integrated adaptation, and provided critical information for the development of the framework. Participant responses confirmed that a community forestry-based approach could provide strong socio-political support for adaptation, given that CFUGs in Nepal often maintain linkages with local government and civil society groups that provide adaptation services, such as the District Forest Office and the Federation of Community Forest Users, Nepal (FECOFUN). Furthermore, this research process illustrated that Bishnupur's CFUG could provide strong institutional support for adaptation and cross-sectoral community development activities – both related to the biophysical community forest and not – while emphasising equity and the rights of traditionally marginalised groups, such as women, Dalits, the poor, and ethnic minorities (as outlined in the CFUG's Operational Plan). And this research confirmed that the impacts of climate change in Bishnupur had complex, multi-sectoral implications, which the biophysical community forest could help address, given the range of benefits forests provide linked to agriculture, water management and irrigation, and natural disasters.

RESULT: THE CF-CCA FRAMEWORK

After developing a rough outline of the integrated adaptation framework, and conducting onsite research in Bisnupur, the project team developed and implemented the CF-CCA framework. This process began in June 2014, and intervention implementation is ongoing as of June 2016. In this section, we will present the CF-CCA framework as it was developed – i.e. as a prospective instructional guide for adaptation facilitators working with or in a CFUG – and illustrate how it has been implemented in Bishnupur for integrated adaptation to date.

The CF-CCA framework: phase 1

The framework begins – following a community level Free, Prior, and Informed Consent (FPIC) process – with a vulnerability assessment (VA). This consists of:

- The identification of climate change threats;
- The assessment of climate change impacts on livelihood assets across sectors;
- The identification of sector-specific climate vulnerabilities; and
- The identification of integrated adaptation topics to respond to these vulnerabilities.

To facilitate this process, a series of "matrices" were developed to help organise information and encourage cross-sectoral analysis.[7] To fill in each of these matrices, both primary and secondary data should be collected. Primary data collection should draw on common participatory action research tools, including those listed in Table 1. Secondary data should come from CFUG Operational Plans and annual reports, district level government offices, forest and land use research institutes, and other available sources. Portions of each matrix are included below, with a brief description of how they should be completed. It is important to note that they have been shortened significantly and only include a small sample of the data gathered in Bishnupur.

Using the matrices

Matrix 1 (Table 2) allows for the evaluation of "community knowledge" and "empirical data" regarding the impacts of various climate variables across sectors, in order to determine sector-specific "climate threats". Therefore, CFUG members and facilitators should begin by determining contextually significant climate variables (e.g. temperature, precipitation, etc.) as well as exposed sectors (e.g. agriculture, forestry, etc.).

Matrix 2 (Table 3) further assesses the sectoral climate change threats determined in Matrix 1, by looking at the threats' specific impacts on different livelihood assets (natural, social, financial, physical, and human capital) across each sector. The final column can be used to add relevant details regarding the climate impacts on exposed sectoral assets.

Matrix 3 (Table 4) allows CFUG members and facilitators to record and evaluate the adaptive capacities that exist to address the impacts of climate change threats on sector-specific assets. After completing this assessment, through Column D of the matrix, CFUG members and facilitators should develop a clear list of distinct sectoral climate vulnerabilities (Column E).

[7] During the project process different actors drafted slightly different versions of the CF-CCA matrices. Because of these discrepancies, some RECOFTC publications present matrices that differ slightly from those outlined below (e.g. they use the heading "community perceptions" in place of "local knowledge"). Nonetheless, the matrices below reflect the most commonly used headings and structures employed during the research process. Other differences between the various RECOFTC publications on the project are due to the fact that they were drafted at different points in the project process.

TABLE 2 *Matrix 1 (abridged): identifying climate threats across relevant sectors*

A	B	C	D
Climate variable	**Exposed sector**	**Impact assessment**	**Climate change (CC) threats**
Temperature	Agriculture	*Local knowledge:* • Increasing temperatures in hot season make it difficult to. . . • Etc.	• More intense/hotter dry seasons • Changing seasonality. . .
		Empirical data: • Meteorological records from 1984–2013 show that temperature in the months of December and January decreased by 0.62°. . . • Etc.	
	Forestry	*Local knowledge:* • Some indigenous and commercial tree species… • Etc.	• Etc.
		Empirical data: • Regular intense heat can cause damage to plants, increase evapotranspiration. . . • Etc.	

BOX 1 ***Locating climate data in Bishnupur***

In Bishnupur, the variables of temperature, precipitation, flooding, humidity, and wind were evaluated across the sectors of agriculture, forestry, livestock, and water. To collect this information, in addition to community-based tools, the project team consulted a number of external sources of climate change data. These included a report by the Climate and Development Knowledge Network (CDKN) for the Ministry of Science, Technology and Environment, and Nepal's National Adaptation Programme of Action (NAPA).

Furthermore, in order to get a closer look at climate trends in the study area, climate data on rainfall and temperature over the past 30 years was collected and analysed by the project team from the Karmaiya and Manusmara meteorological stations, located 5 km and 20 km from the study site, respectively. Ground water levels were assessed based on data from the Agriculture Development Office, Naktajhij, Janakpur, and the Ground Water Development Board, Jaleshwar. Notably, access to this data required institutional and personal connections, as well as financial resources.

TABLE 3 *Matrix 2 (abridged): assessing the impacts of climate threats on sectoral assets*

A	B	C	D	E	F
CC threats *(Matrix 1, Column D)*	**Exposed sector *(Matrix 1, Column B)***	**Livelihood assets**	**Asset description**	**Impacted? (yes or no)**	**Description of impacts on sectoral assets**
Temperature: • More intense/ hotter dry seasons • Changing seasonality. . .	Agriculture	Natural capital	Land, crops including local seed varieties, organic manure, water table. . .	Yes	• Natural capital: poor soil moisture retention due to factors including. . . • Etc.
		Social capital	Personal connections to. . .	Etc.	
		Financial capital	Crop yields, loans and available credit. . .	Etc.	
		Physical capital	Tube wells, connecting roads. . .	Etc.	
		Human capital	Agricultural wage labour, several highly educated community members. . .	Etc.	

TABLE 4 *Matrix 3 (abridged): identifying vulnerabilities*

A	B	C	D	E
CC threats ***(Matrix 2, Column A)***	**Exposed sector** ***(Matrix 2, Column B)***	**Impacts** ***(Matrix 2, Column F)***	**Existing adaptive capacities**	**Vulnerabilities**
• More intense/ hotter dry seasons • Changing seasonality. . .	Agriculture	Poor soil moisture retention due to factors including. . . Etc.	• Existing water sources • Knowledge of low/no till agricultural practices • Etc.	• Declining availability of irrigation water, limited forest-based forms of mulch • Etc.

BOX 2 ***Identifying adaptive capacities and vulnerabilities in Bishnupur***

The project team catalogued several cross-sectoral adaptive capacities in Bishnupur through the CF-CCA framework. These included:

- Experience in rotational agriculture, which leaves areas of farmland fallow periodically to maintain productivity;
- Experience in reforestation strategies to mitigate local flooding and riverbank erosion and to improve water quality and quantity;
- Connections to local government line agencies, and non-governmental natural resource service providers;
- Knowledge of water management infrastructures, practices, and institutions; and
- Experience in equitable and efficient information sharing techniques through the CFUG.

And, after assessing local climate threats, their impacts on sectors and assets, and local adaptive capacities, a number of specific vulnerabilities emerged in Bishnupur. These included:

- Low crop productivity due to declining soil fertility and moisture, changing rainfall patterns, and an increasing number of pests and weeds;
- Decreasing incomes due to low sugarcane productivity (the most common cash crop in Bishnupur) and prevailing power relations with local sugar mills;
- Decreasing availability of multipurpose tree species;
- Water scarcity and, therefore, increasing workloads for women, who are traditionally responsible for water collection; and
- Increasingly common flooding and low flood mitigation capacity.

Matrix 4 (Table 5) intends to provide CFUG members and facilitators the opportunity to rate local climate vulnerabilities, compare vulnerabilities across sectors, and to link these sectoral vulnerabilities to integrated adaptation response topics. Column B of Matrix 4 seeks to highlight the "frequency" of climate change threats, while Column D evaluates their "seriousness" according to CFUG members. A clear "vulnerability rating" should then be given to each threat. Then, broad adaptation response topics should be identified in Column F that crosscut the identified sectoral vulnerabilities.

The CF-CCA framework: phase 2

With an aim towards identifying specific, integrated intervention options, the CF-CCA framework also includes a "feasibility assessment" following the VA. This process constitutes the second phase of the framework, and proceeds in a stepwise fashion.

- *Step 1:* CFUG members and facilitators should review the intervention topics identified in Column F of

TABLE 5 *Matrix 4 (abridged): identifying response topics*

A	B	C	D	E	F
CC threats ***(Matrix 3, Column A)***	**Frequency of threats**	**Vulnerabilities** ***(Matrix 3, Column E)***	**Seriousness of impacts**	**Vulnerability rating**	**Possible broad response topics**
• More intense/ hotter dry seasons • Changing seasonality. . .	• Prolonged drought typically every 2–3 years. . . • Etc.	• Declining availability of irrigation water, limited forest-based forms of mulch. . . • Etc.	• More than 40% of the community hand pumps are now dry for 4 months of the year. . . • Etc.	• Medium • Etc.	• Development of riverbank. . . • Etc.

BOX 3 ***Response topics in Bishnupur***

The following intervention response topics were identified to address climate related vulnerabilities in Bishnupur.

1. *Agroforestry:* Agroforestry was understood as a potential tool to diversify land-use practices (and move away from a reliance on sugarcane cash cropping), increase the many positive cross-sectoral ecosystem benefits associated with forest cover, increase livestock fodder, and contribute to the growth of multipurpose tree species for income generation.
2. *Water management:* Improved water management was understood to address crop productivity and income generation, as well as the gendered impacts of water scarcity, given that women are primarily impacted by the burdens of water collection.
3. *Riverbank stabilisation:* Riverbank stabilisation was suggested to minimise soil erosion in general, maintain the integrity of the community forest and reduce the impacts of flash flooding on agriculture and infrastructure.

These intervention response topics were intended to address vulnerabilities across sectors. They were also identified via engagement with CFUG members, and are linked in some way or another to the commonly held community forest.

Matrix 4 in the VA. It is assumed that at least three intervention topics have been identified that can create positive cross-sectoral benefits.

- *Step 2:* The template below (Table 6) should be used to evaluate these adaptation topics. Within the template, sections 1 and 2 can be completed using information gathered during the VA. In contrast, most of the information needed for sections 3 and 4, on risks and potential impacts on different sectors and stakeholders, should be completed based on additional CFUG member inputs.

TABLE 6 *Template for evaluating selected adaptation topics (abridged)*

Topic: riverbank stabilisation
1. Describe how this topic responds directly to climate change vulnerabilities identified in the VA.
The VA phase identified a number of priority vulnerabilities in Bishnupur. This particular intervention topic responds to the identified flooding vulnerability. . .
2. How is this topic linked to community forestry (CF), broadly defined?
The Bishnupur CF was initiated as a direct adaptive response to river flooding. While upstream land management practices. . .
3. What are the existing assets and risks associated with the intervention topic?
Existing assets: • Strong community level motivation (a sub-committee has been formed for the purpose of implementing this activity). . . • Etc. *Risks:* • Financial resources for maintenance costs and technical knowledge may not be available. . . • Etc.
4. What are the potential impacts of the intervention topic on different sectors and stakeholders (either outside of the immediate "CF landscape" or within)?
Sectors: • Forest sector: CF land is being lost due to erosion, therefore. . . • Etc. *Stakeholders:* • Land owning community members, especially those in close proximity to the riverbank, would benefit. . . • Etc.
5. What technical expertise/technology is required for this topic? What are some of the potential government service providers, organisations, consultants, etc., that can offer relevant services?
Technical expertise required: • Engineering expertise specific to riverbank stabilisation. . . • Etc. *Government line agencies offering potentially relevant services:* • District Soil Conservation Office – planning and design of sub-watershed management. . . • Etc.
6. What are specific integrated adaptation options under this intervention topic that can create positive cross-sectoral benefits?
Specific intervention options include: • Loose stone check dam. . . • Etc.

- *Step 3:* Section 5 of the evaluation template (Table 6) facilitates the listing of potential resource people and the expertise required for the identified intervention topics. It should first be compiled collectively with inputs from CFUG members. Facilitators should then build upon the list identified, if necessary, while considering a broad range of sectoral stakeholders and service providers. Section 6, which entails the listing of specific response options under each topic, should be completed based on inputs from CFUG members. This section may also require information from the technical consultants and/or service providers identified in section 5.
- *Step 4:* After the above template is complete, CFUG members and facilitators should identify key criteria to assess the feasibility of each integrated adaptation option (Table 7). This should begin with a collective review of all of the suggested intervention options listed according to topic (Section 6, Table 6). The criteria that are decided will determine the columns of Table 7.
- *Step 5:* After deciding on a specific integrated adaptation option(s), CFUG members and facilitators should develop short "intervention work plans". Each work plan should describe in narrative form the specific steps to be undertaken for the intervention, the intervention timeline, and a monitoring and evaluation framework. The work plans should also include CFUG constructed maps of the intervention site(s). Finally, they should provide a description of the stakeholders and service providers relevant to each intervention, along with pertinent information on budgets and funding.

BOX 4 ***Feasibility assessment criteria in Bishnupur***

As noted, the CF-CCA framework suggests that the criteria to evaluate the response options identified in Table 6 be developed on a case-by-case basis and reflected in the columns of the final table. In Bishnupur, the table that was constructed (outlined below in Table 7) included sections on the effectiveness of the potential intervention to respond to specific identified vulnerabilities, and the projected cost of the intervention. In addition, a section on the technical/financial support that civil society and government stakeholders could provide for each option was included, which drew on inputs provided in section 5 of Table 6. The table also provided space for additional, uncategorised CFUG inputs.

In all cases, the final column in Table 7 should indicate whether or not the cross-sectoral intervention option will be undertaken, with a short explanation as to why or why not.

TABLE 7 *Sample response option feasibility assessment (abridged)*

Adaptation intervention option	Effectiveness in responding to identified vulnerabilities	Available technical/ financial support	Baseline cost	Feasibility	Additional CFUG inputs	Selection decision and rationale
Topic: riverbank stabilisation						
Loose stone check dam	The activity is not considered to be especially effective as the river. . .	The District Soil Conservation Office earlier surveyed this site and considered. . .	NRs. 395,000	Technically not feasible due to. . .	CFUG members consider that the loose stone option may. . .	No, because of the nature of the river flow. . .
Etc.	Etc.	Etc.		Etc.	Etc.	Etc.

BOX 5 ***Stabilising the riverbank in Bishnupur***

From the intervention topics identified in Bishnupur, CFUG members and the project team decided to first pursue an adaptation response related to riverbank stabilisation. Specifically, the project went forward with a bioengineering intervention that utilised gabion boxes, check dams, and bamboo planting. This intervention was selected in part because it was financially feasible and because governmental bodies including the District Forest Office, the District Soil Conservation Office, the District Development Committee and others could support it in the form of technical advice and subsidised materials.

Ideally, the gabion boxes will control riverbank erosion in the short-term, while the check dams, and additional supportive bamboo, will provide long-term reinforcement. Bamboo was selected with the understanding that it could potentially be harvested for income generation in the future.

As noted, this intervention aims to provide positive cross-sectoral benefits related to agriculture, community forestry, and infrastructure (see Box 3). In addition, the intervention draws on community forestry, broadly defined, for relevant experience, knowledge, governmental/civil society linkages, and construction material.

The CF-CCA framework: phase 3

Following this process, the CFUG and facilitators should implement the integrated adaptation response option(s) identified. Given the structure of the framework, these interventions should create positive cross-sectoral benefits and be linked to the commonly held community forest – given that they were developed by the CFUG – as an institutional, social, political and/or biophysical resource.

DISCUSSION: THE CF-CCA FRAMEWORK AND EMANCIPATORY ADAPTATION

Experiences in Bishnupur offered important insights regarding the strengths and weaknesses of using community forestry for integrated adaptation, and the project team's approach to framework development and implementation in Bishnupur. It also provided several more specific lessons regarding the framework's methods for local level data collection, building linkages with government, and the tenability of scaling up the framework in its current form. In order to address these issues, with an emphasis on power, inequality, and emancipatory adaptation, we will draw on a range of resources from the political ecology literature.

Community forestry and integrated adaptation

Based on our experiences in Bishnupur, community forestry, broadly defined, seems to be a useful entry point for integrated climate change adaptation. While bearing in mind that Nepal has robust experience with community forestry and that Bishnupur is distinct for many socio-political and environmental reasons, community forestry was found to be an embedded form of commoning that was well positioned to facilitate cross-sectoral adaptation initiatives. Through this process it became clear that community forestry has already provided cross-sectoral biophysical climate adaptation across Nepal related to local flood mitigation, the improvement of water quality and quantity within watershed areas, and improved grass cultivation in forest areas. In addition, community forestry proved to be uniquely positioned to provide pro-marginalised adaptation in Bishnupur in the form of land allocation for fodder collection in favor of the poor, and non-timber forest product distribution in favor of those most negatively impacted by increasing temperatures and changing rainfall patterns – which tends to be economically and socially marginalised populations. In fact, at least 35% of Bishnupur's CFUG funds are already reserved for pro-poor activities that benefit the community's most marginalised populations and facilitate climate change adaptation across sectors. And, the Bishnupur CFUG has supported relatively egalitarian climate-related deliberation and decision-making processes through its women-led management structure, and demographic representation requirements within its sub-committees.

In addition, the CF-CCA framework, specifically, proved to be a useful tool that encouraged CFUG members to discuss which climate impacts pose community level "threats", how these threats interact, and potential interventions that might be developed in response to address cross-sectoral challenges. In Bishnupur, it facilitated the comparison of different sources of climate change information, and allowed community members to gain a better understanding of the collective resources they have for adaptation, both within and outside of the demarcated community forest. Furthermore, the framework provided CFUG members the opportunity to systematically identify linkages with various sectoral service providers, as well as civil society groups that can contribute to the adaptation process. Such linkages with forestry-oriented civil society groups are especially important in Nepal, given the role these groups play across sectors in influencing policy, promoting democratic governance, and moving CFUGs away from a traditional patron-client relationship with the government (Ojha *et al*. 2009a).

CF-CCA development and implementation in Bishnupur

However, given the way in which the CF-CCA framework was developed and implemented in Bishnupur the approach was unable to transform prevailing power dynamics and mobilise emancipatory subjectivities. As is the norm in project based approaches to adaptation, the CF-CCA project team did not include Bishnupur CFUG members in the complete design or implementation of the project, and instead relied heavily on the inputs of external "experts" for the project's completion. In this sense, the project team's approach resembled dominant development practice, in which "experts" conduct interventions on behalf of the poor without fully collaborative processes (Escobar 1995). On the ground, this enabled a dubious form of environmental subject making, or environmentality, that promoted developmentalist logics and de-politicised the CFUG's relationship with their environment (Fletcher 2010, Foucault 1991, Mollett 2016). Further, this approach supported the professionalisation of local adaptation, which served to re-entrench an unequal binary between the "development expert" and the "vulnerable local community" (Nightingale 2005, Ojha *et al*. 2009b).

In addition, because the CF-CCA framework's development was largely driven by external "experts", it produced a relatively technocratic, convoluted, and time and resource intensive framework that was inaccessible for many forest users (particularly in its VA phase). The framework proved to be unwieldy, and its language was hard to employ and contextualise on the ground (for example, its distinction between adaptation "topics" and "options", and climate change "threats" and "impacts"). Therefore, community members with pressing livelihood concerns and minimal free time, such as poor women, Dalits, and marginalised ethnic minorities, were largely unable to participate in the collaborative activities that were undertaken under the framework in

Bishnupur.[8] Instead, the project team drew mostly on the inputs of elite community members that had more ample free time and were more fluent in developmentalist cultural codes. Further still, because of the technocratic nature of the project process, in some cases the project team was driven to unilaterally gather and analyse information without truly collaborative or participatory engagement (see Box 1).

Local data collection

The implementation of the CF-CCA framework in Bishnupur also provided both positive and negative lessons regarding the framework's approach to local data collection, specifically. Notably, the framework's emphasis on evaluating multiple information sources of climate change information was found to be particularly useful in Bishnupur. For example, members of the Bishnupur CFUG asserted that drought was the most significant climate threat they faced during the VA. However, available meteorological data pointed to an overall increase in the amount of precipitation in the region. By triangulating multiple information sources, it became clear that while precipitation has increased in recent years, the total number of rainy days has decreased, suggesting high levels of runoff and the limited ability of community members – and, most commonly, poor and socially marginalised members – to adequately capture and manage rainfall. This process of data triangulation, which is embedded in the VA through its emphasis on multi-sectoral information gathering and the comparison of climate change knowledge, helped to draw attention to the notion that relying on one information source can lead to a partial understanding of climate vulnerability and the implementation of poor adaptation strategies. And it illustrated that unequal socio-economic systems and local material constraints, in addition to biophysical changes, influence both people's access to resources, and their understandings of resource shortages (Mehta 2011).

However, the framework's approach to data collection also proved to be problematic in Bishnupur for several reasons. Most generally, the framework supported the notion that singular, "empirical" climate change threats and impacts should be the starting point for climate change adaptation data collection, and that adaptation interventions should emerge from those identified threats – as suggested in the format of Matrix 1, as well as column F of Matrix 4, section 1 of Table 6, and column 2 of Table 7. In doing so, the framework obscured the politicised nature of adaptation and the role of dynamic forms of social and economic hegemony in creating differentiated vulnerabilities. This implicitly confined the adaptation options that the framework identified to piecemeal, technocratic interventions. And, despite its partial effort to gather multiple forms of climate change knowledge – as outlined above – the framework employed a linguistic binary that restricted its ability to transcend developmentalist authorities. Specifically, the framework established a binary between "empirical data" and "local knowledge" that is embedded in a regime of truth in which the former subordinates the latter (Hubbard 2006, Said 1978).[9] Therefore, "local knowledge" in Bishnupur was never fully trusted, and was either corroborated or overruled by "empirical data". As such, the framework gave precedence to developmentalist notions of "rationality" and "objectivity" and failed to provide space for heterogeneous forms of socio-political knowledge outside of technocratic empiricism (Yapa 1996).

In addition, the framework's preference for "empiricism" in the data collection process also encouraged the construction of Bishnupur's CFUG members as rigid profit seeking economic subjects throughout the framework. This was especially clear in the framework's use of economic jargon, and attempts to strictly define CFUG livelihood "assets" and "capital" (see Matrix 2) and construct CFUG members as "sectoral stakeholders" (see Table 6). This language left little room for data regarding, for example, the community forest's importance as a multi-layered "sociopolitical arena" in which CFUG members "engage in cultural and political exchanges" and shape their collective identities (Ojha *et al*. 2009b, p. 22). And, the framework's attempt to neatly divide livelihood assets into various forms of "capital" failed to adequately recognise that these forms of capital are embedded in dynamic socio-economic systems, and that efforts to frame them in rigid technocratic terms glosses over the ways in which patterns of hegemony permeate each category (Fine 2001, Harriss 2001).[10] As such, the framework further encouraged the identification of adaptation options (see Box 5) constituted by developmentalist codes related to engineering and market chain development that are oblivious to local forms of power and the ways in which climate and society are fundamentally intertwined (McCarthy 2005, Moore 2012, Taylor 2015).

Building linkages with local government

The CF-CCA framework was successful, though, in facilitating linkages between local governmental bodies and the Bishnupur CFUG, in order to guarantee the selected intervention's long-term sustainability. This was enabled by the framework's feasibility assessment process, which encouraged the systematic identification of sub-national entities and the various forms of institutional, technical, and financial support they could offer in reference to each intervention

[8] Notably, participatory processes in Bishnupur strove to achieve general CFUG participation – as seen in Table 1's "information sources" category – but did not guarantee the participation of marginalised voices in these processes.

[9] As noted above (see footnote 7), at certain points within the project process this binary was articulated as "empirical data" vs. "community perceptions".

[10] The framework, in its preference for rigid empiricism, also proved to be relatively backward-looking; it provided no guidance for uncovering complex, forward-looking, and potentially non-linear, trends (O'Brien and Hochachka 2010).

topic. It bears noting, however, that this process also preferenced the participation of formally well-educated and well-connected CFUG members. And, that this sort of linkage is perhaps more possible in Nepal than other contexts, given the countries emphasis on decentralised governance. As noted, Nepal maintains a framework for Local Adaptation Plans of Action, and envisions 80% of available adaptation funds flowing to the local level through local institutions. Nonetheless, given that government/community coordination in adaptation has been largely unsuccessful in Nepal in the past, with donors and aid agencies often leap-frogging local government, the CF-CCA framework was successful in its linkage of the Bishnupur CFUG with the District Forest Office, the District Soil Conservation Office, and the District Development Committee (see Box 5) (Khatri *et al*. 2013, Paudel *et al*. 2013a).

Still, the framework employed in Bishnupur failed to provide a mechanism to fully consider whether such governmental linkages were in the interest of target community members.[11] The framework overlooked the notion that communities living in remote locales often maintain their remoteness as an expression of opposition, particularly to state power and developmentalist logics (Scott 2010, Shakya and Rankin 2006). For example, research from Nepal has noted the apprehension of communities to engage with government, given prevailing power differentials, and the government's preference for technocratic approaches to forest management (Ojha *et al*. 2009b). Further, a large body of literature on forms and practices of resistance to the state – especially from feminist political ecology (Rocheleau *et al*. 1996) and subaltern studies (Chaturvedi 2012) – has provided vivid examples of local level opposition to state engagement in other locales. As such, the CF-CCA framework proved to be limited in its uncritical assumption of the positive benefits of state partnership.

Scaling up

Finally, the implementation of the CF-CCA framework in Bishnupur illustrated that before the framework is scaled up, it requires revisions to account for intra-community heterogeneity, and the impact of macro-level politics on local vulnerability. Notably, the CF-CCA framework gives insufficient treatment to intra-community power dynamics, and the complexities of working with diverse populations and reaching consensus – perhaps because the framework's development and implementation largely engaged Bishnupur's elite community members. It does not provide systematic tools on collective decision-making processes or strategies to engage diverse community groups in participatory activities. In addition, the CF-CCA framework fails to account for the fact that different community members are affected differently by climate change, and often have different adaptation priorities and knowledge. The framework does not consider whose vulnerabilities, whose knowledge, whose assets, and whose adaptive capacities are in question (see, for example, Matrix 1, 2, and 3). In doing so, it supports the notion that communities are homogeneous, and without profound power differences (Agrawal and Gibson 1999).

While this does not entirely negate the relevance of the CF-CCA framework and its usefulness outside of (or within) Bishnupur in facilitating integrated adaptation, it recognises that local politics play a significant role in the outcomes of community adaptation initiatives (Nagoda 2015). It notes that the framework does not fully address the ways in which intra-community inequality, even in the context of a women-led CFUG, can lead to elite co-option and poor adaptation outcomes, despite the large body of literature on elite capture and exclusion in the context of community forestry in Nepal and beyond (Iversen *et al*. 2006, Larson and Ribot 2007). This is especially important considering that the framework attempts to address integrated, landscape level concerns, yet draws heavily on the inputs of the CFUG. In many contexts, CFUGs represent only a minority of the stakeholders engaged in landscape management and serve the interests of elites (Harper and Tarnowski 2007). Therefore, in its current form, the CF-CCA framework risks being another form of enclosure for those excluded from or unable to access the decision-making structures associated with community forestry (Graner 1997).

Furthermore, as it stands the CF-CCA framework does not explicitly provide tools to consider how specific communities are positioned in relation to larger political-economic contexts or how national or international factors contribute to local climate vulnerability. In doing so, it implicitly creates a subject ("the local community") whose vulnerability is inherent, and suggests that solutions can be found in simple technocratic fixes such as bioengineering or market integration (Ferguson 1994). However, in Bishnupur and beyond macro-level factors are clearly relevant to community forestry and climate vulnerability. Sarlahi, for example, has experienced increasing deforestation over the past several years due to macro-drivers related to tenure, poverty and food scarcity, as well as government-led resettlement campaigns and a paucity of arable land in the hills (Paudel *et al*. 2013b). And, the Terai region in general is a hotbed of post-civil war socio-political unrest, in which forests play a key role in the articulation of political affiliation and intersectional subjectivities related to caste, gender, and ethnicity (Human Rights Watch 2015, Nightingale 2009, Nightingale and Ojha 2013). It is unlikely that such a framework will be able to recognise local drivers of poverty and climate vulnerability when scaled up, let alone provide transformative adaptation that addresses deep-rooted and multi-scalar forms of hegemony (Ferguson 1994, Leach *et al*. 2010, Tanner and Allouche 2011).

[11] Further, the framework failed to explicitly provide space to consider whether local forest users might be against linkages with civil society groups and other "adaptation service providers" (see section 5 of Table 6).

CONCLUSION

Though significantly more research in diverse contexts is needed, community forestry, as an embedded form of commoning, seems to offer a useful entry point for integrated adaptation – particularly in rural communities in the global South with long histories of engagement with the practice. Furthermore, the CF-CCA framework could be a systematic tool for grassroots adaptation actors to consider adaptation priorities and implement interventions for positive benefits across sectors. However, a critical evaluation of the framework's implementation in Bishnupur reveals that it requires further development by practitioners and scholars, especially related to its data collection methods – which preference technocratic empiricism and employ dubious discursive constructs – and its assumptions regarding the benefits of linkages with local government. In addition, before the framework is scaled up it must provide tools that more explicitly recognise intra-community heterogeneity and power relations, and account for the influence of macro-level factors on local vulnerability.

Notably, each of these concerns relates to the framework's failure to recognise community forestry-based adaptation as taking place in a power-laden terrain of struggle. Therefore, it will be necessary to further politicise the CF-CCA framework, so that it can engage with, and transform, dynamic issues of power and inequality (Clement 2009, Vinthagen and Johansson 2013). Such a politicised framework will recognise that community forestry-based adaptation is embedded in local and non-local relations of power that are both discursive and material, and work to provide a strategy for truly deliberative and democratic decision-making. In doing so, the framework will expand how it conceptualises "community adaptation", so as to examine broader notions of social and economic hegemony, and reconsider the scale at which "local" adaptation interventions take place. Such an approach will do away with piecemeal, technocratic solutions and strive to use community forestry-based adaptation to mobilise emancipatory subjectivities outside of dominant development discourse and practice.

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Environmental concerns in political bioeconomy discourses

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SUMMARY

The term bioeconomy has been generated as a new discourse in the environmental policy arena. This paper raises three questions: (i) are environmental concerns integrated in the political discourses of bioeconomy and, if so, to what extent?, (ii) in which way is the environment framed in the political discourses of bioeconomy?, and (iii) are environmental concerns considered in the political discourses on forest-based bioeconomy? The theoretical framework of this paper builds on the cognitive approach of policy integration and on frame analysis. The empirical research design is a comparative qualitative analysis of five different political bioeconomy discourses in the EU and four different EU member states – Germany, Finland, France and the Netherlands – in general and in the forestry sector specifically. Results show a weak and mainly rhetorical integration of environmental concerns in political bioeconomy discourses. Three major environmental frames are identified: (i) The dominant frame of 'Environment benefitting from economic growth', (ii) the 'Environment as a challenge' and (iii) the less visible 'Environment as a standard' frame. In general, these frames address the environment mainly as a challenge or something that needs to be safeguarded with the help of the bioeconomy. With the exception of Finland, amongst the countries studied, forests plays only a minor role in bioeconomy discourses while environmental concerns in this strand of discussion are mainly focused on sustainability arguments in general.

Keywords: bioeconomy; environmental policy integration; sustainable development; forest sector

La place des enjeux environnementaux dans les discours sur la bioéconomie

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Dans le domaine des politiques environnementales le terme de bioéconomie est associé à une nouvelle forme de discours. Ce papier soulève trois question en lien avec ce phénomène: (i) Les enjeux environnementaux sont-ils intégrés aux discours politique sur la bioéconomie, et si oui, dans quelle mesure? (ii) De quelle façon la problématique environnementale est-elle posée dans ces discours politiques sur la bioéconomie?, et (iii) les enjeux environnementaux sont-ils pris en compte dans les discours politiques sur la bioéconomie forestière? Le cadre théorique de ce papier repose sur une approche cognitive de l'intégration politique et sur l'analyse des formes de cadrage. Le travail empirique s'appuit sur une étude qualitative et comparative des différents discours politique sur la biéoconomie, de manière générale et en particuliers dans le secteur forestier, au niveau de l'UE et dans quatre pays membres (Allemagne, Finlande, France et Pays-Bas). Les résultats montrent que l'intégration des enjeux environnementaux dans ces discours est faible et essentiellement rhétoriques. Trois principales formes de cadrage ont été identifiés: (i) le cadrage dominant qui présente «la croissance économique au bénéfice de l'environnement», (ii) celui qui présente «l'environnement comme un défi à relever», et (iii) le moins visible où «l'environnement est un standard». De manière générale, ces formes de cadrage traitent de l'environnement essentiellement comme un enjeu ou comme quelque chose qui doit être préservé grâce à la bioéconomie. A l'exception de la Finlande, dans les pays étudiés les forêts occupent une place marginale dans les discours sur la bioéconomie et les enjeux environnement associés sont principalement renvoyés à la question de la durabilité.

Preocupaciones ambientales en el discurso político sobre bioeconomía

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El término bioeconomía ha aparecido como un nuevo discurso en el ámbito de la política ambiental. Este artículo plantea tres preguntas: (i) ¿están integradas las preocupaciones ambientales en el discurso político sobre bioeconomía y, en caso afirmativo, en qué medida? (ii) ¿cómo se enmarcan los aspectos medioambientales en el discurso político sobre bioeconomía?, y (iii) ¿se tienen en cuenta las preocupaciones medioambientales en el discurso político sobre bioeconomía forestal? El marco teórico de este trabajo está basado en el enfoque cognitivo de

la integración de políticas y en el análisis de marcos teóricos. El diseño de la investigación empírica es un análisis cualitativo comparativo de cinco discursos políticos diferentes sobre bioeconomía en la UE y de cuatro estados miembros de la UE (Alemania, Finlandia, Francia y los Países Bajos), tanto en general como específicamente para el sector forestal. Los resultados muestran una integración débil, y en gran medida retórica, de las preocupaciones ambientales en el discurso político sobre bioeconomía. Se identificaron tres marcos medioambientales principales: i) el marco predominante de «el medio ambiente se beneficia del crecimiento económico»; ii) el «medio ambiente como un reto»; y iii) el marco menos aparente del «medio ambiente como un estándar». En general, estos marcos abordan el medio ambiente como un desafío, o como algo que necesita ser salvaguardado con la ayuda de la bioeconomía. A excepción de Finlandia, entre los países estudiados los bosques tan sólo desempeñan un papel menor en el discurso político sobre bioeconomía, mientras que las preocupaciones medioambientales en este hilo argumental se centran principalmente en los aspectos de sostenibilidad en general.

INTRODUCTION AND OBJECTIVES

Bioeconomy has been identified as a new discourse (Pülzl *et al.* 2014) supported by different organisations and at different political levels, e.g. by the Organisation for Economic Co-operation and Development (OECD), the European Union (EU), and also by numerous countries worldwide (Bioökonomierat 2015). Arguments for a bioeconomy make use of the assumption that fossil-based resources are limited and highlight the relevance of biotechnology (Pülzl *et al.* 2014) in addition to naming sustainable development (SD) as the overarching goal. In fact, the emphasis of the bioeconomy discourse on SD goes partly so far as to rename bioeconomy as "sustainable economy" (BMBF 2014). The bioeconomy promises to address major societal and economic challenges and at the same time to create a more favourable environment.

Findings of recent research studies have highlighted that the bioeconomy cannot be considered as self-evidently sustainable and that visions about the relationship between bioeconomy and sustainability differ substantially (Pfau *et al*. 2014). Instead, studies criticise the prevalent economic dimension and, as an alternative, suggest safeguarding the balance of environmental and social concerns (Ramicilovic-Suominen and Pülzl 2017, Kröger and Raitio 2017). While the linkage between SD and bioeconomy has been discussed in these earlier studies, a focus on the environmental perspective in the bioeconomy is missing. Hence, this paper amplifies the existing research in assuming that Environmental Policy Integration (EPI) – which in general refers to the inclusion of environmental concerns in decision-making processes, outputs and implementation of public policymaking (e.g. Hertin and Berkhout 2003) – is essential for achieving the goal of a sustainable bioeconomy.

EPI has been acknowledged already for three decades in international political discourses. Already in the Amsterdam Treaty (1997), the EU and then European Community made significant commitments to EPI. In the EU as well as in many of its member states (MS), EPI is perceived as essential for achieving SD (Jordan 2008). Nevertheless, studies confronting the ambitious and normative goals of EPI with empirical reality have revealed that environmental concerns are integrated only in an incomplete and unsatisfactory way into policies and related instruments in general (Jordan and Lenschow 2010). Additionally, studies on EPI have identified that the manner in which environmental concerns are taken up differs between political levels of the EU and that of its MS (Jordan and Lenschow 2010).

By emphasising the relevance of renewable biomaterials for replacing fossil-based materials, bioeconomy offers a particular chance to understand whether and how environmental concerns are taken into account in the political discourse of the EU. This paper not only analyses the political discourse of the EU but also, for comparative reasons, the political discourses of four MS. It therefore aims to fill the gap of country-based comparative research in studies on EPI as well as on bioeconomy policy.

In the following, more information about the theoretical background of EPI is provided and frame analysis is introduced, serving as the basis for the three research questions guiding this paper. Based on the concepts and forms of analysis, an analytical frame is then devised before empirical results from four country studies and the EU are presented and analysed. The last section is devoted to comparing and discussing the empirical results in order to address the main aim of this paper.

THEORETICAL BACKGROUND

In the EU, EPI has been respected, emphasised and, since the beginning of the 1990s, institutionalised through the fifth Environmental Action Programme (CEC 1992) as a policy that promotes the integration of environmental objectives, particularly in the following sectors: agriculture, energy, industry, transport and tourism. Since 1997, the EC Treaty Article 6 (now Article 11 in the Consolidated Treaty on the Functioning of the European Union) states that "environmental protection requirements must be integrated into the definition and implementation of the Community policies in particular with a view to promoting sustainable development" (European Commission 2012a:53). However, despite meaningful beginnings, ambitions towards achieving EPI have somewhat faded away in the European Union (Jordan and Lenschow 2010). In fact, the European Commission has acknowledged that many of its sectoral policies fundamentally undermine EPI (Jordan *et al.* 2008). Sectors are considered rather slow in accepting ownership of environmental problems and often develop practical interpretations of EPI and sustainability that are inconsistent with the preferred EU interpretation (ibid.).

In general, the EPI academic scholarship is, on the one side, devoted to clarification of the normative understanding of EPI (how EPI should be and its positive meaning) and, on

the other side, to its empirical-analytical nature (how EPI is conceptualised) (Hogl *et al.* 2016). The nature of EPI has been a key topic of research focusing on both the normative and empirical-analytical aspects of this concept. In the normative understanding, EPI has often been characterised as an act of "incorporation of environmental objectives into all stages of policymaking in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy" (Lafferty and Hovden 2003: 9). These authors also place an emphasis on the vertical and horizontal integration of EPI. The integration of environmental as well as ecological concerns into other policies is regarded as fundamental to making EPI a success. Following Lafferty and colleagues, Lenschow (2002) argues that the intention of EPI is not to find consensus in discussions regarding trade-offs between economic and environmental objectives of sector policies but rather to prioritise environmental objectives from a normative point of view (ibid).

In a positive understanding, scholars analytically distinguish between *weak* and *strong* EPI (Jordan and Schout 2006). *Weak* EPI is said to occur when the environment is considered in sectoral policymaking on equal footing with other issues, such as economic growth. In this situation, the core of sectoral policies would remain though new routines might be added. *Strong* EPI is said to occur when environmental concerns are prioritised over other issues. Söderberg (2011), drawing on Baker (2007), adds that strong EPI is supported by an eco-centric worldview while weak EPI is mainly consistent with an anthropocentric worldview and the goal of ecological modernisation. Furthermore, in addition to weak and strong EPI, Söderberg (ibid.) added a further classification of the concept into 'real' EPI, rhetorical EPI, instrumental learning and absent EPI. As Söderberg focused on EPI as a process of learning, not all of these categories were relevant for the present paper on bioeconomy. However, the differentiation between "real EPI" and "rhetorical EPI" is relevant as it allows one to study at which level the integration of environmental concerns is discussed. While real EPI foresees a consideration in policy goals and strategies, rhetorical EPI does not necessarily imply the integration of environmental considerations into policy practices. Based on these ideas, in this paper we follow the positive meaning in the first research question: *Are environmental concerns integrated into the political discourses of bioeconomy? And if so, whether they suggest a weak or strong EPI, a "real EPI" or a rhetorical EPI?*

Going beyond the pure assessment of weak and strong EPI, this study builds on a cognitive perspective of policy integration, based on the assumption that the position towards environmental concerns rests on the specific environmental frames used in bioeconomy discourses. These frames are defined by Schön and Rein as a set of "underlying structures of belief, perception, and appreciation" (1995: 23). Frames can be regarded as narratives that determine what counts as fact and what arguments are taken to be relevant and compelling (Schön and Rein, 1995). Frames are important as they function as road maps and limit choices by ignoring some options. Though interests and frames are two independent concepts, "[F]frames are not free-floating but grounded in the institutions that sponsor them" (ibid, page 29). What is perceived as a political problem or solution depends on the frames used in the discourse (Hajer 1993). Discourses are understood as "an ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities" (ibid.). Many studies exist that are concerned with the analysis of discourses on EPI (e.g. Nilsson and Eckerberg 2007, Nilsson 2005a, Nilsson and Persson 2003, Söderberg 2011, Sjöstedt and Kleinschmit 2016).

During the last few years, bioeconomy has been increasingly analysed using discourse analysis (e.g. Pülzl *et al.* 2014). New policies, such as bioeconomy, do not appear on the political agenda as they would on a blank paper, but rather are constrained by the context of the already existing political discourse (ibid.) Building on the concept of Schön and Rein (1995), the second research question of this paper asks *how the environment is framed in the political discourses of bioeconomy?*

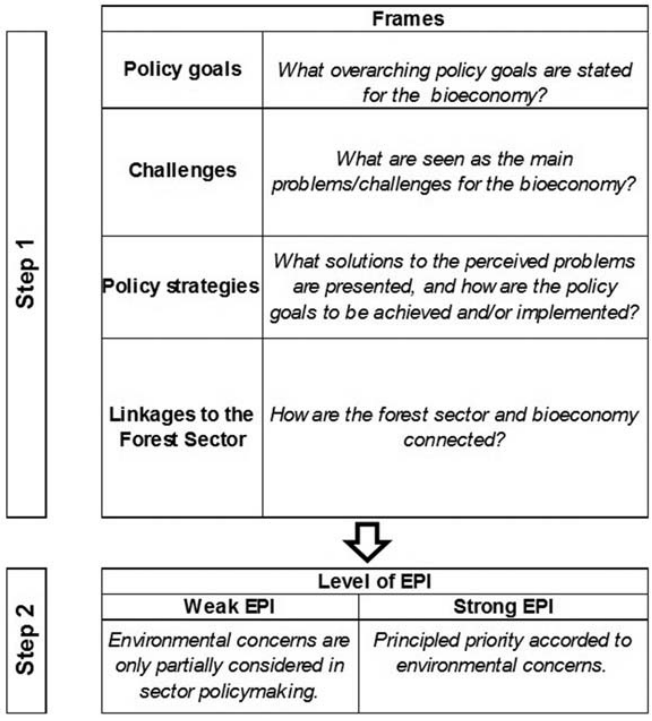
Following the assumption that EPI means assessing the impact of sectoral policies on the "long-term carrying capacities of nature" (Lafferty and Hovden 2003), this paper additionally assesses how environmental concerns are integrated into the bioeconomy discourses with reference to a specific sector. The forest sector has been selected for this exploratory research for two different reasons: (i) the forest sector pays particular attention to bioeconomy (Kleinschmit *et al.* 2014, Pülzl *et al.* 2014), and (ii) former studies on forest policy which identified a lack of EPI, did not take into account the new discourse on bioeconomy (Winkel and Sotirov 2014) or identify the pathways to sustainability in a forest-based bioeconomy that does not focus on EPI (Kröger and Raitio 2017). Therefore the third research question of this paper asks *how environmental concerns are considered in the political discourses on forest-based bioeconomy?*

EPI can be studied as a process, an end-state or an outcome (Nilsson and Persson 2003). Research on the EPI process dimension concentrates on different phases in the policy process and actors' involvement. The communication and integration of different political levels can also be analysed. Research on the EPI end-state is mainly concerned with the quality of policy integration (weak or strong). Finally, research about EPI outcomes focuses on questions of effectiveness. A more recent state of the art assessment (Runhaar *et al.* 2014) seeks a comparative account in order to analyse factors that make EPI successful. Since the present paper aims to empirically assess the nature of EPI, it concentrates on the "end-state", analysing the current political discourses on bioeconomy with a focus on its objectives, strategies, actions and advocated policy instruments from a comparative point of view.

RESEARCH DESIGN

In order to identify frames and to explore the role of the environment in the political bioeconomy discourses, this paper

FIGURE 1 *Study framework design* (adapted from Söderberg 2011 and Nilsson 2005b)



applies a two-step approach (Figure 1). It departs methodologically from the assumption that policies are a discursive practice giving meaning to and shaping problems they intend to address; hence they are both an expression of and a prerequisite for social interaction (Holmgren 2015). Therefore, the political bioeconomy discourses firstly needed to be reconstructed for each case study by analysing bioeconomy programmes and strategies as well as forest programmes and strategies with reference to bioeconomy in the EU and at national levels.

The literature search therefore included terms such as "bioeconomy", "bio-economy" or "bio-based economy" and focused specifically on EU and national MS policy documents and strategies (from Germany, France, the Netherlands and Finland) dating from 2009 to 2014 (the time period within which the first national and EU bioeconomy strategies emerged). Additionally, the recently released bioeconomy strategy from France in 2017 was added as this is an important document and appeared during the process of revising this paper. Particular emphasis was placed on documents dating from this period that specifically and unambiguously refer to and/or mention bioeconomy. A total of 45 bioeconomy-related policy documents and strategies were included in this document analysis (ANNEX 1).

In this regard, a qualitatively focused coding of elements of all bioeconomy discourses was undertaken to structure and group statements relating to the four following themes and questions relevant to understanding policy frames, as adapted from Söderberg (2011) and Nilsson (2005b):

- **Policy goals:** What overarching policy goals related to the bioeconomy exist? Here "policy goal" refers to any vision, objective, target, or intention for policy action clearly and unambiguously mentioned and/or described in the analysed policy document.
- **Perceived problems:** What are seen as the main problems for the bioeconomy? Here "problem" is understood as any question, doubt, uncertainty, or difficulty relating to the realisation of bioeconomy that suggests the need for policy intervention.
- **Policy strategies:** What solutions to the perceived problems are presented, and how are the policy goals to be achieved? Here "policy strategies" may refer to any solution or discussion proposed for solving the identified problems (previously mentioned). "Strategy" may be understood as the value-based, long-term approach to realising policy goals in broad terms.
- **Linkages between forest-based bioeconomy and the political bioeconomy discourse:** How are the forest sector and bioeconomy connected? Here the focus is on how policy documents frame the role of the forest sector in the bioeconomy as well as how forests are connected regarding their meaning/importance for the bioeconomy.

This categorisation of the varying discourses allows for a cross-comparison among case studies. It allows for an assessment of whether environmental concerns have been integrated in political bioeconomy discourses and, if so, to what extent. The quality of the integration is evaluated in two ways: (i) whether environmental concerns are prioritised (strong EPI) or considered amongst others (weak EPI) and (ii) the integration in goals, strategies and instruments to foster environmental considerations in policy practices (real EPI) or a limited integration only in policy goals without specifying the implementation (rhetorical EPI).

In a second step, and in order to trace environmental integration within bioeconomy discourses, a textual analysis was conducted. Based on those elements addressing environmental issues that were identified during the first round of analysis, major environmental frames used were differentiated and used as categories in a second round of qualitative document analysis in order to validate and illustrate their (different) use in the bioeconomy discourses.

The empirical study is based on a comparative approach in order to understand the meaning of EPI in the political bioeconomy discourse of the EU and four of its MS (Finland, the Netherlands, Germany and France). Criteria for the selection of national studies included: a) the existence of a policy discourse debate on bioeconomy at the national level and b) the aim to identify distinctive forest policies by including countries with a range of key objectives and aims (Winkel *et al.* 2009). These criteria are fulfilled in the sense that the bioeconomy debate is present in all selected countries and that their forest policies differ considerably. Moreover, they are located in northern, southern and central Europe. Finland represents a country with a strong forest sector, whereas the Netherlands is acknowledged as a country with a weak forest

sector that is integrated into nature conservation via political institutions. Germany is selected as representing an "in between" nation that has a vibrant forest sector and, over recent decades, strong ambitions concerning environmental policies (Wurzel 2008). Finally, France is selected to represent a country that is concerned with both environmental protection and the development of the forest sector. In order to avoid mixing and perhaps clouding the empirical results with differences in policies resulting from still ongoing economic transitions, the study does not take into account "new" Eastern European countries.

BACKGROUND OF THE BIOECONOMY POLICY IN THE EU AND FOUR MS

This section provides a brief overview of the state of bioeconomy policy in the EU and four of its MS. This will provide the basis for the more specific analysis of the bioeconomy discourses in the following section.

European Union

There has been a political debate about bioeconomy at the EU level since the beginning of the 2000s. Already during 2002, a biotechnology strategy was published to achieve the Lisbon objectives in becoming one of the leading, then so-called "knowledge-based" economies (European Commission 2002). Soon the term "biotechnology" became displaced by the new concept of a "knowledge-based bioeconomy" (KBBE) (European Commission 2004). An online consultation in 2011 and a number of conferences and workshops were held to inform the strategy process that preceded the development of the actual EU bioeconomy strategy. In 2012, the European Commission published the bioeconomy strategy and action plan entitled "Innovating for Sustainable Growth: a Bioeconomy for Europe" (European Commission 2012b) and a related but more detailed Commission staff working document (European Commission 2012c).

Germany

In Germany's case, the EU Cologne Declaration "En route to the Knowledge-Based Bio-Economy" developed under the German Presidency in 2007 can be regarded as having set the scene for the German political discourse on bioeconomy (EU 2007). Soon after, in 2009, Germany established an independent government advisory board on bioeconomy (Bioökonomierat) to discuss bioeconomy-related matters and provide scientific information to political decision makers. The Bioökonomierat has since published a number of recommendations for actions (BÖR 2012, 2010), which were mainstreamed into the national research strategy of 2011: "National Research Strategy Bioeconomy 2030: Our Route Towards a Biobased Economy" (BMBF 2011). In 2014, the Federal Ministry of Food and Agriculture published a complementary document to the aforementioned strategy, namely the "National Policy Strategy on Bioeconomy: Renewable resources and biotechnological processes as a basis for food, industry and energy" (BMBF 2014).

Finland

Finland was among the first Scandinavian countries to pick up on the political discourse on bioeconomy. The Finnish bioeconomy strategy was drafted in a project set up by the Ministry of Employment and the Economy with input from other ministries, researchers and multiple stakeholders. Between 2009 and 2011, a number of documents were published that prepared the ground for the subsequent strategy (e.g., Gustafsson *et al.* 2011, Luoma *et al.* 2011, SITRA 2009). The final version of "the Finnish bioeconomy strategy: sustainable growth from bioeconomy" was published in 2014. Despite the current more critical discourses (e.g. Kröger and Raitio 2017), Finland's forest-based bioeconomy in particular is seen as the new path towards a sustainable green economy (MEE 2014). The rush to support bioeconomy growth and innovations in Finland is hardly questioned in the political discourses although the Finnish Bioeconomy Strategy promotes interactions between citizens, bioeconomy operators and decision makers both in relation to policy processes as well as in regard to management and use of natural resources (MEE 2014).

France

In 2015, the French government published the national strategy of ecological transition towards SD (SNTEDD) 2015–2020 (Prime minister 2015) where the term "bioeconomy" appears for the first time in a French national political strategy. However, bioeconomy is not a key concept of the national SD strategy, and the report remains rather vague on this subject (ibid., 2015). At the same time, the Ministry of Agriculture in close collaboration with others ministries (economy, environment and research) launched a consultation on bioeconomy and published its national strategy in January 2017 (Ministère de l'Agriculture, 2017). In 2018, a working plan and a strategic council dedicated to the implementation of the national strategy will be established. The bioeconomy is presented as the photosynthesis economy which encompasses all biomass production and processing activities. In this context, the introduction of the bioeconomy concept is directly related to the forest matter and the forest sector is identified as a key actor already engaged in innovative approaches.

Netherlands

The latest Dutch government policy vision on the bioeconomy was published in 2012 (Ministerie van Economische Zaken 2012). It builds on an earlier governmental policy document (Minister van Landbouw, Natuur en Voedselkwaliteit 2007) and on a number of advisory reports (Commissie Duurzaamheidsvraagstukken Biomassa 2013, Probos 2009, Projectgroep Duurzame Productie van Biomassa 2006, Sociaaleconomische Raad 2010, Wetenschappelijke en Technologische

Commissie voor de Bio-based Economy 2011). The current policy vision sketches the mid-term perspective of the government on 'the transition towards the bio-based economy', as it is called in Dutch jargon, while taking into account the European and international context. Based on an analysis of the entire chain from biomass production to bio-based applications, the policy vision identifies policy strategies both for the state and for a range of stakeholders to stimulate the bio-based economy in a sustainable way.

BIOECONOMY IN EUROPE – DO ENVIRONMENTAL CONCERNS MATTER?

The following sections summarise the general policy goals of the bioeconomy, the major problems perceived, and the solutions and strategies presented to solve these problems as indicated in the EU and different national bioeconomy strategies in order to identify how the environment is framed. The role of forests and the forest sector in the bioeconomy discourses is also analysed. A summary of the results from the cross-country analysis is presented in Table 1 at the beginning of the next section.

Policy goals

The current EU bioeconomy strategy envisages a shift towards a full bioeconomy to be achieved by 2020. At the same time, it addresses major societal and economic challenges and creates a better set-up for the realisation of related objectives. Multiple goals can be identified in the political discourses on bioeconomy. However, central in the political discourses of the EU and the four studied MS is bioeconomy as a path for shifting from an economy largely based on fossil fuels to an economy based on renewable resources. One of the main motivations behind this shift is to tackle climate change and ensure emissions reduction, i.e.: ". . . reducing the heavy dependency on fossil resources, mitigating climate change and moving Europe towards a post-petroleum society" (European Commission 2012:4). A second major endeavour emphasised in all strategies is growing and strengthening the economy. The EU and the four MS strategies all emphasise this aspect repeatedly, i.e. in the political discourse of the EU it is stated that, "establishing a bioeconomy in Europe holds a great potential: it can maintain and create economic growth*"* (European Commission 2012:2). In the German and Dutch political discourses, the desire to maintain and enhance their international competitiveness is stressed, i.e. to "(. . .) accelerate the growth of bio based products, energy, processes, and services, and to strengthen the competitiveness of German industry on a global scale" (BMBF 2011:2). Food security is another goal prominently acknowledged in the bioeconomy strategies of the EU (European Commission 2012: 3–4) and MS. This refers mainly to food security in countries of the global south and the trade-off that might appear when bioresources are used for commodities other than food and fodder.

Apart from these main goals, the various political discourses also referred to diverse indirect or subordinated goals that are essential to achieving the overarching objective of bioeconomy. For example, means of securing and creating employment are directly related to bioeconomy. The employment issue has been addressed in the EU political discourse as well as in those of various MS. The EU strategy states that "the Bioeconomy Strategy under Horizon 2020 could generate about 130 000 jobs and € 45 billion in value added in bioeconomy sectors by 2025" (European Commission 2012:5). In the Finnish political discourse, the expected positive effect on the economy is directly linked to the welfare of the Finnish society: "the bioeconomy will boost the national economy and employment in Finland and enhance the well-being of the Finnish people" (MEE 2014: 3). Securing and enhancing the long-term supply of renewable resources, whether from domestic resources (Finland), from international imports (The Netherlands, Germany), or from both if necessary (France), is another subordinated goal. Together with the emphasised need for improved resource efficiency is the goal of ensuring the sustainable use of biomass. In some national strategies this goal has been specified in relation to biodiversity and soil fertility (France, Germany).

Another goal present in all strategies that is not so much 'subordinated' but rather accompanies the main goal is the "knowledge-based bioeconomy". For example, the EU strategy states in this regard that the "Bioeconomy Strategy aims to improve the knowledge base and foster innovation to achieve productivity" (European Commission 2012: 4). Also in Finland, in addition to the possibilities for business development in the bioeconomy, deepening cooperation with universities and research institutes is taken into account in relation to innovation development and research activities (MEE 2014:28). The Dutch government considers research, knowledge production and technology development as crucial for the bio-based economy, and fosters interdisciplinary research that is required to connect with European initiatives: "The cabinet aims at more focus on technology, research, cooperation among stakeholders and translation to tangible business cases" (Ministerie van Economische Zaken 2012: 4). It addresses the central role of pioneering research and development as well as the need for technological innovation.

Perceived problems and challenges

There are a number of challenges addressed in the political discourses of the EU and the different MS that are directly interrelated with the abovementioned goals, i.e. food security, unsustainable management of natural recourses, dependence on fossil resources, climate change and unemployment. Regulatory failures, market failures and fragmented policies are seen as the main obstacles to an efficient development of the bioeconomy. Finally, poor coherence between decision makers and stakeholders is perceived to be "at the origin of regulatory failures" as is a compartmentalisation of research and innovation funding (European Commission 2012b:25).

Climate and environmental challenges are acknowledged in all strategies. Connected to these challenges are concerns related to the conservation of biological diversity (Germany)

or the limits to ecosystem productivity (France): "Bioresources result from complex living processes [. . .] it is essential to ensure that these cycles are respected and completed [. . .] in order to ensure the sustainability of the activities of the bioeconomy" (Ministère de l'Agriculture, 2017:22). Policy documents also express concerns related to unsustainable practices (The Netherlands, Germany): "It is important that sufficient biomass production will be realized without compromising ecosystems and biodiversity" (Ministerie van Economische Zaken, 2012:6). In fact, almost all strategies express concerns around the sustainability of biomass production and consumption. Finally, strategies mention different conflicts that arise from competing uses of biomass or land use (France, Germany), as well as conflicts between different goals (Germany) and interests (Finland), or specifically between economic and local interests (France). Some strategies even express the concern that requirements of environmental and nature protection can impose limitations on agricultural and forest production (Germany, France).

Most national strategies call for a more holistic approach to solutions for enabling bioeconomy and mention challenges such as inconsistent incentives (France and Germany), fragmented or incoherent policies (the Netherlands, France, Germany) and fragmented research (Germany), that are suspected to affect the multiplicity of heterogeneous actors involved in the transition towards bioeconomy. "The Dutch government follows an integral and coherent policy with regard to the bio-based economy and its adjacent policy fields (. . .); use of biomass in the economy asks for smart solutions in a strongly integrated chain to realize public goods" (Ministerie van Economische Zaken, 2012:4). The knowledge-based bioeconomy is expected to thrive on the creation of new technologies and some national strategies express concerns related to the diffusion of bio-based innovation and new technology transfer (Germany) while other strategies mention challenges related to technological constraints and the financial feasibility of new technologies (the Netherlands), or even lack of adequate strategies for enabling these technologies (France).

Adequate financing is a challenge expressed in all national strategies. Strategies often mention inadequate sources of financing with low expenditure on research and development (Germany), or a lack of direct investment (France, the Netherlands). The Dutch policy acknowledges that: "Innovations for the bio-based economy are not always financially sound for the private sector" (Ministerie van Economische Zaken, 2012:3). In addition to this, the shift towards bioeconomy is often seen as being faced with challenges such as path dependency and resistance to change by some sectors (Germany, France). The lack of well-trained specialist personnel is another challenge mentioned at the national level (Germany, France, and Finland).

Policy strategies

In order to tackle the abovementioned challenges by 2020, the EU bioeconomy strategy and its Action Plan are based on three pillars: (1) investments in research, innovation and skills, (2) enhancement of markets and competiveness, and (3) policy coordination and stakeholder engagement. The idea of engaging citizens and end-users to reduce the gap between science and society is being promoted. A more informed dialogue, in particular on the role of scientific advancement, and improved interaction between existing bioeconomy-supporting policies at EU and MS level is also envisaged so that more research, infrastructure and knowledge transfer networks can be developed (European Commission 2012b).

Along the same lines, the different national strategies adopt a variety of measures and strategies to tackle the abovementioned challenges. All strategies pledge to promote innovation, research and skills creation. This is to be achieved by investing in innovation and development of new products and technologies, and by funding different projects, i.e. in the Netherlands, a National Innovation Contract between government, industry and knowledge institutions was agreed (Innovatiecontract Biobased Economy 2012). This contract is intended to lead to maximum added value for and sustainability of the Dutch economy and was agreed upon in the context of the so-called National Top Sector Policy. Although the bio-based economy in itself was not identified as a top sector, it is now positioned as a cross-cutting theme for the energy, chemicals, agro-food, horticulture and water sectors. Funding of up to around 500 million EUR (provided jointly by government and industry) over the next four years has been pledged for innovation. Capacity building is another proposed means of promoting innovation. For example in Finland, universities have written their own bioeconomy strategic agendas to assist in better integrating bioeconomy research and teaching in their strategic planning and funding strategies.

Investments are aimed both at the supply and demand side. On the supply side, strategies mention actions such as ensuring the sustainable flow of renewable resources, promoting and encouraging biomass mobilisation (Germany, France, Finland) and applying the cascading use principle (Germany). On the demand side, policy strategies mention different initiatives such as information and social dialogue, targeted information and participative dialogue between stakeholders (Germany). Other strategies aimed to create observatories for biomass (France) and public procurement incentives (Finland) as well as to support biomass certification of consumer products (France, Germany, the Netherlands). Investments in markets and competitiveness are central strategies envisioned in all policy documents. Incentives are aimed at stimulating market demand for eco-products or eco-services (Germany, France, Finland), or at adapting the public procurement code (France).

The strategies also include informative instruments, e.g. incorporating the bioeconomy in the "country image" (Finland). Policy coordination is presented in the strategies as an important instrument for addressing policy coherence, in particular through increased efforts towards achieving transparent, knowledge-based communication between politics, business, science and civil society (Germany, France, the Netherlands).

Linkages between forests and bioeconomy

Forests are generally understood as an important natural resource for the bioeconomy as well as a biodiversity conserver that needs to be managed sustainably. However, the EU bioeconomy strategy builds only tenuous linkages to forests and forestry. While forestry is acknowledged as an important sector for the bioeconomy (European Commission, 2012b:3), a need for improved efficiency of resource use is immediately postulated given that forestry also needs resources to produce biomass. In this regard, the use of forestry residues for reaching the goal of becoming a low carbon society and mitigating climate change is emphasised (European Commission, 2012b:4). In addition, it is argued that new skilled jobs and training within the sector will have to be developed (European Commission 2012b: 5). In this regard, new infrastructure, particularly biorefineries, is expected to create new income and jobs (European Commission 2012b:7).

Although all national strategies acknowledge the significance of forests and the forest-based sector in the shift towards bioeconomy, the degree of importance that they attribute to this sector differs. For example, in the Finnish political bioeconomy discourse, the forest sector plays a highly prominent role and is seen as the main enabler of a bioeconomy. The forest sector also plays a role in the other national strategies. However, forest is less prominent in other strategies and often associated with, or categorised as part of, the agricultural sector.

Furthermore, within a bioeconomy the forest sector is expected to provide sustainable biomass for both domestic uses and export. Whereas the Finnish strategy presents a perspective of unlimited forest resources capable of providing for both the domestic and international market, other countries acknowledge their dependency on imports from abroad (Germany, France, the Netherlands). With the exception of the Netherlands, the forest sector is identified as a strategic industrial sector in all national strategies. In this context, assuring that forests are managed sustainably both nationally and internationally is highlighted in all national strategies. In some cases, internationally accepted sustainability standards and certification of sustainable forest management and biomass are called for (Germany, the Netherlands).

Finally, the role of the forest sector in climate change mitigation is repeatedly highlighted. All strategies highlight the role of forests in CO2 storage and reduction. Accordingly, the Finnish, German and French strategies encourage the increased use of wood motivated by the positive climate protection effects of using this resource. This is associated with a win-win solution where an increased use of wood is expected to have positive impacts on the climate and where wood can be used to replace non-renewable materials. For example in Finland, the political as well as public discourse via social media in bioeconomy portals emphasise that, despite growing stocks of wood, these resources are underutilised. As such, they highlight the need for innovative means of utilising unlimited forest resources under the forest-based bioeconomy.

ENVIRONMENTAL FRAMES

The major elements of the political bioeconomy discourses of the EU and the different MS are summarised in Table 1. Main elements identified – such as "strengthen growth and the economy", "create employment", "market failures", "inadequate sources of financing", "enhancement of markets and competiveness", "stimulate market demands" etc. – reflect an economic perspective. Environmental considerations or "the environment" are addressed only to a minor extent. Nevertheless, they are named in almost all analysed bioeconomy policy documents culminating in three major frames: (i) Environment challenged, (ii) Environment as a standard, and (iii) Environment benefitting from economic growth. Apart from the general demand for sustainable forest management, environmental concerns have only rarely been taken up.

(i) *Environment challenged*— almost all analysed policy documents and national strategies view environmental considerations as major challenges for a bioeconomy rather than as goals in themselves, i.e.: ". . . climate- and environmental protection. . . are some of the major challenges facing this country at the beginning of this century." (BMBF 2011:2). The EU differs a little since it understands "natural resource scarcity, fossil resource dependence and climate change" as "inter-connected societal challenges" (European Commission 2012b: 3) and not simply environmental ones. Throughout the EU strategy, the need to limit negative impacts on the environment is repeatedly highlighted: "In order to cope with an increasing global population, rapid depletion of many resources, increasing environmental pressures and climate change, Europe needs to radically change its approach to production, consumption, processing, storage, recycling and disposal of biological resources" (EC, 2012: 2). Environmental challenges, particularly when linked to climate change, are regarded as issues that require immediate attention. In some cases, environmental considerations are seen as imposing certain limitations on intensified biomass production (Germany, France).

(ii) *Environment as a standard*— national strategies often respond to the environmental challenge with environmental standards that should be respected both within national borders but also at EU and international levels (Germany, France, the Netherlands). The German strategy, for example, highlights increasing environmental requirements from society in terms of the way in which goods are produced: ". . .it is important that bioeconomic activities and investments correspond to high environmental standards. . ." (BMBF 2014:70). Similarly, French and Dutch policy documents often frame environmental issues from an operative viewpoint and advocate for the certification of internationally accepted environmental standards. However, this frame is used less often than the other two.

(iii) *Environment benefitting from economic growth*— environmental considerations are quite often framed as an

TABLE 1 *Elements of the political bioeconomy discourses of the EU and four MS*

EU and MS	Main Findings	
All	Address major societal, economic and environmental challenges	Policy Goals
All	Shift from fossil-based economy to an economy based on renewables	
All	Strengthen growth and the economy	
All	Maintain and increase competitiveness	
All	Strengthen R&D	
All	Build capacity, secure and create employment	
All	Reduce emissions (CO2)	
All	Resource efficiency/increased use/sustainable use of biomass	
DE, EU, NL	Food security	
EU, DE, FR	Regulatory failures	Problems and Challenges
EU, DE, FR, NL	Market failures/Access to markets	
EU,DE, FR, NL	Fragmentation: research, incentives, policies	
DE, FR	Poor coherence	
DE, FR, NL	Diffusion of innovation, new technology transfer, technological constraints	
FR, NL	Inadequate sources of financing	
DE, FR	Path dependency and resistance to change	
DE, FR, FI	Lack of trained specialists/need for bioeconomy training	
All	Climate and environmental challenges: limits to growth, biodiversity, unsustainable production	
DE, FR, NL	Conflicting interests: uses of biomass, land use, interests, ecological and economic interests	
All	Investments in research, innovation and skills	Policy Strategies
All	Funding projects	
All	Enhancement of markets and competiveness	
EU, FI, DE	Stimulation of market demand for eco-products or eco-services	
EU,DE, NL	Policy coordination and stakeholder engagement	
FR, DE, NL	Information and social dialogue, targeted information and participative dialogue between stakeholders	
All	Promotion of biomass utilisation and mobilisation	
DE,FI	Public procurement initiatives	
FR, NL, DE	Support for biomass certification	
All	Important natural resource for the bioeconomy	forests and the bioeconomy
EU	Efficiency of forest resource use, mitigating climate change and creation of new jobs	
FI, DE, FR	Provision of sustainable biomass for both domestic uses and export	
DE, FR	Sustainable forestry/forest management	
FI, DE, FR	Strategic industrial sector	
DE, FR	Protection of biodiversity	
All	Important role in CO2 storage	

additional benefit resulting from the pursuit of other goals, i.e.: *"*cost-effectiveness and environmental benefits from efficient biomass utilisation*"* (MEE 2014:15). For example, the German, French and Finnish strategies identify expected environmental benefits as a direct result of the shift towards the bioeconomy. In this sense, the shift towards bioeconomy is understood as firstly boosting the economy and secondly benefiting the environment. The bioeconomy discourses of MS present the idea that economic growth and development can be in line with environmental protection, exploring attempts to respond to negative environmental impacts of modernisation without necessarily rejecting progress based on economic growth: "the knowledge-based bioeconomy can thus combine economic prosperity with environmental compatibility*"* (BMBF 2011: 11). This frame supports the win-win ideal of the bioeconomy.

SUMMARISING DISCUSSION

The empirical results provide insights into predominant goals, perceived challenges and supported strategies in the political bioeconomy discourses at the EU level and in the four MS: Germany, Finland, France and the Netherlands. This analysis allowed for an understanding of whether these strategies present a weak or strong form of EPI and identified underlying environmental frames. Furthermore, the results show how environmental concerns have been integrated in forest-focused arguments in the political bioeconomy discourses.

The empirical results show that environmental concerns are raised in the political bioeconomy discourses, though they are not prioritised in the analysed discourses in comparison to other goals, particularly economic goals. Therefore, interpreting the results according to Söderberg's (2011) classification (based on Baker (2006)), only weak EPI is suggested in the political bioeconomy discourses. This means that the environment is considered but not specifically prioritised. In this sense, the strategies start from an anthropocentric perspective that sees "growth as part of the solution to environmental problems, not as part of the problem" (Baker 2006, p. 138).

This result does not come as a surprise given that studies on the bioeconomy-sustainability nexus have shown that bioeconomy is not self-evidently sustainable (Pfau *et al.* 2014) and argue that the economic dimension prevails (Ramicilovic-Suominen and Pülzl, 2017). Though Pfau *et al.* identified a significant attention to sustainability in the scientific bioeconomy debate, the visions in the research debate differ considerably. On the one hand, the research literature on bioeconomy provides an optimistic perspective assuming that sustainability is "an inherent characteristic of the bioeconomy" while on the other hand a more pessimistic view expects a negative impact on sustainability (ibid., p. 1242). While the former position is dominated by a technical focus, the latter refers mainly to negative impacts on the natural environment, naming amongst others the competition for land and resources, uncertainties regarding invasive species and the unrealisable expectations of emissions reduction (ibid.). The authors suggest that environmental and social concerns will be taken up while ensuring economic growth if sustainability is considered a central goal of bioeconomy. Ramicilovic-Suominen and Pülzl (2017) are even more critical regarding the options for sustainability in the bioeconomy. They argue that the EU already uses "the 'brand' of sustainable development as a 'selling point' for promoting its bioeconomy strategy" (ibid, p. 9) while focusing on a rather narrow "conservationist, utilitarian and instrumental" (ibid., p.9) understanding of SD. Hence, SD is argued to be a rhetorical concept that promotes technical solutions and economic efficiencies.

The results of this paper support the latter finding by showing that EPI stays mainly on a level of environmental rhetoric. In contrast to promoting a "real EPI", environmental concerns are mainly addressed in rhetorical terms within policy goals (=rhetorical EPI) but not in policy practice, meaning strategies and instruments that aim to foster the implementation of environmental goals. However, variations between the political bioeconomy discourses can be identified. In general, strategies and instruments dominating the bioeconomy address investment in R&D or dialogue and information processes. These might, in a second step, lead to strengthening the inclusion of environmental considerations but do not provide rules for ensuring this in the first place. In Germany, but also in France and the Netherlands, bioeconomy instruments and strategies hint towards the option of biomass certification to ensure the sustainable production of biomass. Furthermore, the transformation from environmental rhetoric to an EPI implemented in practice might be supported indirectly by the linkage between the bioeconomy strategy and the SD strategy as observed in Germany and the Netherlands. An assessment of how far these strategies ensure the implementation was not within the scope of this paper and deserves further analysis. In the EU strategy, linkages to other former strategies are also available. However, the political discourses on bioeconomy in the EU and Finland do not include direct strategies or instruments to support EPI, hence EPI remains rhetoric. Responding to the first research question of this paper it can be concluded that environmental concerns are considered in the political discourses on bioeconomy but strategies supporting the move from rhetoric to practical change are mostly neglected. Therefore, EPI remains shallow in most of the political bioeconomy discourses.

Responding to the second research question of the paper goes beyond the mere assessment of the positive understanding of EPI. Conducting a frame analysis yields the identification of three major environmental frames in the political discourses on bioeconomy: (i) Environment benefitting from economic growth, (ii) Environment as a challenge, and (iii) Environment as a standard. These frames address the environmental dimension mainly as a challenge or something that needs to be safeguarded with the help of the bioeconomy.

'Environment benefitting from economic growth' is the dominant frame across all political bioeconomy discourses. It matches the arguments of the ecological modernisation discourse, where a combination of technological progress, markets and growth can be aligned with environmental goals (Arts *et al.* 2010). In this frame, nature and the environment are understood as resource providers and thus the consideration of environmental benefits focuses on climate change mitigation. Therefore, this frame provides a non-conflicting vision of bioeconomy suggesting a win-win situation between economic growth and environmental protection. This frame also indicates a strong role for the private sector, not only for technology but also for innovation. Lafferty and Knudsen (2007) criticise the discourse of ecological modernisation when stating that EPI should not mean merely the search for synergy effects and 'win-win' solutions in making sectoral policy choices. Linking this frame to earlier findings of literature on EPI suggests that it might be a general trend in Europe that the emphasis of meanings has changed over time from SD – which is perceived as a broader concept – to EPI and more recently back to SD (Adger and Jordan, 2009). It furthermore supports the European Council's (2006) earlier claim with respect to the Lisbon treaty that SD is an "overarching objective" and the "motor of a more dynamic economy". Environmental policy integration plays only a backseat

role in this context or as Pallemaerts states: "[t]he recent overriding concern for growth and jobs has been used to call into question the very legitimacy of [EU] regulatory action in many fields, including the environment" (Pallemaerts *et al.* 2006:ii).

The 'Environment as a challenge' frame is prominent in most of the political bioeconomy discourses, which perceive the environment as being threatened and vulnerable. It refers to an environment that faces general challenges rather than being challenged specifically by the bioeconomy. The political discourses on bioeconomy highlight in particular the problem of climate change, thereby arguing that bioeconomy contributes to mitigation by replacing fossil-based resourced with renewables. Hence, climate concerns have become fully integrated in policy objectives and are assumed to benefit from the overall bioeconomy strategies. Other environmental challenges such as biodiversity and (un)sustainable use are less visible. Nilsson (2005b) found a similar result in his study on EPI in Swedish energy policy: "(. . .) the integration of 'climate' seems to have crowded out other [environmental] issues from the agenda, and concrete policy initiatives are mostly lacking for these issues" (Nilsson 2005b, p.219). The way in which the 'Environment as a challenge' frame problematises the environment does not provide a general conflict with the dominant frame of 'Environment benefitting from economic growth'. Even in those discourses where a certain risk for the environment presented by a shift towards bioeconomy is perceived, e.g. through an increased demand for biomass (e.g. the Netherlands and Germany), the win-win solution of economic growth and advantages for the environment remains uncontested. Instead, another frame remedies the possible mismatch between both frames.

The frame 'Environment as a standard' is less prominent in the political bioeconomy discourses. It addresses mainly a general strategy opting for environmental standards to ensure the sustainable use of biomass in a bioeconomy. To a minor extent, institutionalised standards as certification for biomass are discussed – not demanded – in political bioeconomy discourses, e.g. in Germany and the Netherlands. So far there are no standards that apply to biomass used for the production of bio-based products and bio-chemicals, though there are a multitude of certification schemes as well as voluntary and public standards addressing sustainability in the use of biomass for specific supply changes, e.g. in the EU directives "The Renewable Energy Directive" (RED) or "Fuel Quality Directive" (FQD) (European Commission, 2015). Knudsen *et al.* (2015) conclude from a survey of eleven countries that there are only a few (amongst them Finland) who do not support the idea of having more standardised sustainability criteria in the bioeconomy. Expectations regarding these discussed standards go beyond safeguarding sustainability and assume an increase in public acceptance and the creation of new market opportunities (Scarlat *et al*. 2015). The discussion of (harmonised) standards might become more prominent in future political bioeconomy discourses. It might also, as Lafferty and Knudsen (2007, p. 25) assume, support EPI in ensuring the assessment of impacts of policies on life—i.e., sustaining capacities will support the prioritisation of the environment.

Though environmental concerns are only of secondary importance in the analysed political bioeconomy discourses, integration and coordination are revealed as being of major importance for a successful bioeconomy. Particularly the EU, the Netherlands and Germany make explicit reference to other policies and substantiate the need for integration by proposing specific actions, e.g. the inter-ministerial bioeconomy group in Germany and in France. The particular focus of calls for coordination is on research, e.g. the EU highlights the relevance of coherence between research and innovation activities. In Finland, coordination specifically with forest policy can be observed with the same actors supporting the bioeconomy implementation programmes. These interactions are less about supporting the integration of environmental concerns and more about reflecting specific influential vested interests fuelled by discourse coalitions with a shared economic framing.

The prominent role of forests and the forestry sector in the political bioeconomy discourse in Finland differs from the attention paid to forests in the other countries and the EU. The wood-based industry in Finland is more important than in any other country in Europe. As such, the current discourse in Finland presents a perspective of unlimited forest resources and the assumption that (bio)technology can foster sustainable economic growth. Whether and how environmental concerns are integrated is not explicit or is supposed to become self-fulfilling with the increased institutional freedom in Finnish forest policy and the new Forest Law. The other countries acknowledge forests only as one of a diverse set of resources for biomass. In the Netherlands and Germany, the dependency on importing bio-based resources from other countries is presented as a challenge. SD is presented as an integral part of forest policies institutionalised as sustainable forest management. In France as well as in other countries, EPI is regarded as something that already occurred in the last decade, e.g. through the Natura 2000 framework, implementation of certification schemes or like in France through the "Grenelle" forum (Sergent 2013, 2014). However, this EPI mainstreamed in sustainable forest management is criticised elsewhere as a strategy to limit the influence of environmental actors (Winkel and Sotirov 2014).

CONCLUSION

To sum up the empirical results, this paper supports findings of earlier papers in concluding that the bioeconomy discourse is dominated by economic goals (Ramicilovic-Suominen and Pülzl 2017). In contrast, environmental concerns are only considered to a limited extent in the political bioeconomy discourses of the EU and the four observed MS. This result is complemented with more detail in this paper through the finding that EPI it is not only weak but additionally and mainly rhetorical and that it depicts the environment as a problem rather than a goal—even less prominent is the goal of addressing EPI directly in strategies and instruments. A

major exception is the issue of climate change which is prominently raised in the bioeconomy discourses and is assumed to be solved through the bioeconomy. To ascertain whether this focus is the main reason for the exclusion of other environmental issues would need further research, complementing the document analysis with expert interviews.

Three major environmental frames were identified in the empirical work of this paper: (i) The dominant frame of 'Environment benefitting from economic growth' matching the discourse of ecological modernisation, (ii) the 'Environment as a challenge' mainly addressing general challenges like climate change instead of challenges resulting from a bioeconomy, and (iii) the less visible "Environment as a standard" frame that might become more prominent in the future. In general, these frames address the environment mainly as a challenge or something that needs to be safeguarded with the help of the bioeconomy.

Environmental concerns are addressed only to a limited extent in the discourses on forest-based bioeconomy. This results not least from the restricted acknowledgement of forest resources in the bioeconomy discourses. Forest resources only play an essential role in the Finnish bioeconomy discourse where forest resources are perceived as unlimited. Countries with fewer forest resources are more hesitant in thinking that a shift towards bioeconomy can be achieved without importing bio-resources, e.g. Germany and the Netherlands.

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ANNEX 1: LIST OF ANALYSED DOCUMENTS

EU

1. European Commission 2012 Innovating for Sustainable Growth: A Bioeconomy for Europe SWD(2012) 11 final
2. European Commission 2012 Accompanying document Communication on Innovating for Sustainable Growth: A Bioeconomy for Europe
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Germany

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6. Federal Ministry of Economics and Technology (BMWi) 2010 Energy Concept for an Environmentally Sound, Reliable and Affordable Energy Supply
7. Federal Ministry of Economics and Technology (BMWi) 2010 Raw materials strategy: Safeguarding a sustainable supply of non-energy mineral resources for Germany
8. Federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) 2012 German Resource Efficiency Programme
9. Bundesregierung/ The Federal Government 2012 Biorefineries Roadmap

France

1. Dominique JUILLOT 2003 The French wood based sector – competitiveness as the sustainable development issue
2. Thierry CHAMBOLLE 2006 Action plan to promote investment and entrepreneurship in the field of Eco-Technologies
3. Ségolène HALLEY DES FONTAINES 2008 Grenelle Environment and forest conference, Forestry Action Plan
4. Economic Council for Sustainable Development 2009 Green growth
5. General Commission for Sustainable Development (Ministry of ecology) 2010 Strategic green industrial sectors

6. Ministry of Agriculture, Ministry of ecology, Ministry of industry 2010 The non-food uses of biomass
7. Prime minister 2010 National Strategy for Sustainable Development (2010–2013)
8. Etude PIPAME 2012 Actual trends in new wood based product market to 2020
9. Jean Yves CAULLET 2013 Wood and Forests of France
10. Christophe ATTALI 2013 Towards an integrated forest and wood based industry
11. National Industry Council 2014 The contract for wood industry
12. Law for Agriculture, Food and Forestry 2014
13. CGAAER (General Council of Food, Agriculture and rural areas) 2014 Possible contributions of Agriculture and Forestry to climate change mitigation
14. Prime minister 2015 National Strategy for Ecological Transition toward Sustainable Development (2015–2020)
15. Ministère de l'Agriculture 2017 Une stratégie bioéconomie pour la France. Enjeux et visions

Finland

16. Ministry of Employment and Economy of Finland 2014 Finnish Bioeconomy strategy
17. Finnish Government 2014 Finnish Forest Law
18. Ministry of Agriculture and Forestry Ministry/Finnish Government 2008 Finnish National Forest Programme 2015
19. Ministry of Agriculture and Forestry Ministry/Finnish Government 2008 METSO programme

The Netherlands

20. Minister van Landbouw, Natuur en Voedselkwaliteit 2007 OVERHEIDSVISIE OP DE
21. BIO-BASED ECONOMY IN DE ENERGIETRANSITIE
22. Dutch government long-term vision on the biobased economy 2012 Hoofdlijnennotitie Biobased Economy
23. SER
24. Probos
25. Commission Cramer
26. Commission Corbey

REDD+ and Green Growth: synergies or discord in Vietnam and Indonesia

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SUMMARY

Green Growth (GG) has emerged as a global narrative, replacing to some extent and integrating earlier sustainable development narratives, while Reducing Emissions through avoiding Deforestation and forest Degradation (REDD+) has developed as major item in climate change negotiations. GG and REDD+ are both considered important strategies and are often seen as synergistic in achieving major changes in economic, regulatory and governance frameworks. Of concern, however, is that GG is sometimes seen as greenwashing of economic activities (which could include forest conversion to other land uses) by an oversimplified presentation of win-win solutions without challenging the actual root causes of unsustainable growth. How GG and REDD+ can contribute to transformational change in policy and practice depends on the relationship between these narratives, especially whether their adoption in national level policies manifests synergies or discord. In this paper, we will answer this question through analysing: (1) how the two narratives have unfolded in Vietnam and Indonesia and to what extent REDD+ and GG rhetoric include concrete policy objectives; (2) what issues policy actors perceive as challenges for their implementation. A comparative, mixed methods approach was employed to analyze how REDD+ and GG are framed in national policy documents. This analysis was supported by data from interviews with policy actors in both countries in two points of time, 2011/12 and 2015/16. The findings highlight the challenges for implementation of both REDD+ and GG as individual policy programmes, and the dilution of the REDD+ agenda and decision makers' confusion about a GG strategy when these narratives are joined and translated by decision makers. Actors still perceive development and environmental objectives as a zero-sum struggle, favouring a development narrative that might lead to neither REDD+ nor green policy action. We conclude that REDD+ and GG can go hand in hand, if there is action to tackle deforestation and degradation.

Keywords: Vietnam, Indonesia, Green Growth, green economy, REDD+

La REDD+ et la Croissance Verte: synérgie ou discorde au Vietnam et en Indonésie

T.T. PHAM, M. MOELIONO, M. BROCKHAUS, N.D. LE et P. KATILA

La Croissance Verte ou 'Green Growth' (GG) émerge dorénavant comme un narratif global, remplaçant, et d'une certaine mesure intégrant des narratifs plus anciens de développement durable, alors que la Réduction de émissions en évitant la déforestation et la dégradation forestière (REDD+) est devenue un article majeur dans les négotiations de changement climatique. La GG et la REDD+ sont considérées toutes deux comme des stratégies importantes et sont souvent perçues comme étant synérgiques dans leur succès à opérer des changements majeurs dans les cadres économique, régulatoire et de gestion. Cependant, la GG est parfois percue comme un vague voile vert tiré sur les activités économiques (lesquelles pourraient inclure la conversion de la forêt à d'autres utilisations de la terre), du fait d'une présentation trop simplifiée de solutions tous avantages, sans faire face aux réelles cause profondes d'une croissance non durable. Le potentiel que la GG et la REDD+ récellent pour contribuer à une profonde transformation de la politique et de la pratique dépend de la relation entre ces narratifs, particulièrement si leur adoption dans les politiques au niveau national manifeste soit synérgie; soit discorde. Nous allons répondre à cette question dans ce papier, en analysant: (1) comment les deux narratifs se sont épanouis au Vietnam et en Indonésie, et à quel degré les rhétoriques GG et REDD+ incluent des objectifs politiques concrets; (2) quelles sont les questions que les acteurs de politique considèrent comme rendant leur mise en pratique ardue. Une approche comparative à méthode mixte a été employée pour analyser combien la REDD+ et la GG sont prises en compte dans les documents de politique nationale. Cette analyse est soutenue par des données résultant d'interviews avec des acteurs politiques dans les deux pays pendant deux périodes: 2011/12 et 2015/16. Les résultats mettent en lumière les défis rencontrés par la GG et la REDD+ dans leur application en programme de politique individuelle, ainsi que la dilution de l'agenda de la REDD+ et la confusion des preneurs de décision quant à une stratégie de la GG, quand ces narratifs sont joints et interprétés par les preneurs de décision. Les acteurs perçoivent encore le développement et les objectifs environnementaux comme une bataille sans résultat, favorisant par conséquent un narratif de développement qui pourrait conduire à une absence d'action de la REDD+ ou d'une politique verte. Nous concluons que la REDD+ et la GG peuvent progresser de concert si action est prise de faire face à la dégradation et à la déforestation.

REDD+ y el Crecimiento Verde: sinergias o discordia en Vietnam e Indonesia

T.T. PHAM, M. MOELIONO, M. BROCKHAUS, N.D. LE y P. KATILA

El Crecimiento Verde o 'Green Growth' (GG) ha surgido como una narrativa global que reemplaza en cierta medida, e integra, las narrativas anteriores sobre desarrollo sostenible, en paralelo al desarrollo de la Reducción de las Emisiones de la Deforestación y la Degradación de Bosques (REDD+) como uno de los temas principales en las negociaciones sobre cambio climático. GG y REDD+ son consideradas como estrategias importantes que a menudo son vistas como sinérgicas para el logro de cambios importantes en los marcos económicos, regulatorios y de gobernanza. Sin embargo, es preocupante que a veces se considere el GG como un lavado verde de las actividades económicas (que podrían incluir la conversión de bosques para otros usos del suelo) mediante una presentación simplista de soluciones ganadoras sin cuestionar las verdaderas causas del crecimiento no sostenible. La manera en que el GG y REDD+ pueden contribuir a un cambio transformacional en la política y la práctica depende de la relación entre estas narrativas, especialmente si su adopción en políticas a nivel nacional genera sinergias o discordia. En este artículo se responde a esta cuestión mediante el análisis de: (1) cómo se desarrollaron las dos narrativas en Vietnam e Indonesia, y en qué medida la retórica sobre REDD+ y GG incluye objetivos políticos concretos; (2) las cuestiones que los actores políticos perciben como desafíos para su implementación. Para analizar cómo se enmarcan REDD+ y el GG en los documentos de políticas nacionales se utilizó un enfoque comparativo de métodos mixtos. El análisis se apoyó en datos de entrevistas a actores políticos en ambos países en dos momentos: 2011/12 y 2015/16. Los resultados ponen de relieve tanto los desafíos para la implementación de REDD+ y del GG como programas políticos individuales, como el debilitamiento de la agenda de REDD+ y la confusión de quienes toman las decisiones sobre una estrategia de GG cuando estas narrativas van unidas y son traducidas por quienes toman las decisiones. Los actores todavía perciben los objetivos de desarrollo y medioambientales como un conflicto de 'suma cero', que favorece una narrativa de desarrollo que puede que no conduzca ni a REDD+ ni a acciones de políticas verdes. Se concluye que REDD+ y el GG pueden avanzar a la par, a condición de que haya acciones para combatir la deforestación y la degradación.

INTRODUCTION

Green Growth (GG) has emerged as global narrative, replacing and integrating earlier sustainable development narratives. Many scholars have pointed out that GG is not new but developed from the 'sustainable development' narrative that emerged from the 1987 Brundtland Report and 1992 Rio Earth Summit (Jacob *et al*. 2013) where issues of limits to growth, climate change, environmental impacts and dwindling natural resources took center stage. There are also various definitions of GG, as discussed in the next section, but in general it can be seen as a strategy for building a green economy (GE) in the context of sustainable development and poverty reduction. While there is no internationally agreed definition of GE, an often-cited definition is that of UNEP (2011), which defines a green economy as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities". Globally GG gained momentum during the global financial crisis and became a mainstream development approach with commitments from the World Bank, Organisation for Economic Co-operation and Development (OECD) and the United Nations Environment Programme (UNEP). As broader policy objectives, they have also become dominant global narratives and have been translated to varying extents in different national policy arenas. For example, in Vietnam, GG is adopted as national strategy, and in Indonesia it is currently being integrated in national planning documents.

Reducing Emissions from Deforestation and Degradation (REDD+) is often considered to be an important component of a GG in tropical countries due to its contribution to a country's mitigation potential and as a particular form of 'environmental governance' (Anderson *et al.* 2015). REDD+ is expected to promote economic growth and reduce poverty as part of a GG policies and to contribute to a 'virtuous cycle' of investments in natural and human capitals that are catalysts for green development (UN-REDD 2014, UNEP 2014). These stances have been taken by both Vietnam and Indonesia.

However, what are the implications for REDD+ when merging REDD+ and GG narratives ? Could linking REDD+ and GG as strategies towards a green economy lead to a more effective implementation of both, as argued for example by organisations such as UNEP (2014)? Or, when taking into account the political economy of deforestation and forest degradation and its underlying causes and agents, would linking GG and REDD+ simply lead to an inflated green rhetoric without implementation, because powerful economic interests benefit from the status quo and have little interest in major changes?

One the one hand, REDD+ is built on a results-based payment idea (i.e. effective payments for performance require measurable carbon and non-carbon outcomes), but in most countries measurable results are not yet a reality (Korhonen-Kurki *et al*. 2014, Brockhaus *et al.* 2015). On the other hand, GG remains a rather vague concept and it has been heavily criticized for often unclear or even distorted meanings, and a rhetoric that presents current market structures, growth models and consumption patterns as a solution rather than questions their role as a possible root cause of current environmental problems (Bluehdorn 2011).

To investigate the possible implications for an effective policy implementation of both GG and REDD+ we investigate (1) how the GG and REDD+ narratives have unfolded in Vietnam and Indonesia and (2) what concrete policy objectives are included in these narratives, (2) what issues policy actors perceive as challenges for the implementation of GG and REDD+. We then finally question if these concurrent

narratives will lead to higher ambition to reconcile environmental and economic goals, or just to higher ambiguity, and to a loss of the few more clearly defined objectives and their operationalization in REDD+. Vietnam and Indonesia are selected as they are the pioneer countries in both REDD+ and GG in Southeast Asia.

Our paper focuses on comparing how REDD+ and GG are framed in various policy documents and how sustainable development is framed within REDD+ policy documents, and in conventional agriculture and forestry based development policy documents. The paper then identifies potential mismatches. In addition, policy document review, stakeholders' statements and perceptions of GG, REDD+ and sustainable development are analysed. Following this, the paper identifies potential conflicting objectives or ways of implementation and suggests ways to overcome them.

The paper is structured in 7 sections. The concepts of REDD+ and GG are presented in the next section followed by the description of the methods used. The results of the policy document analysis and the findings from the analysis of actors's understandings and position statements with regard to challenges for implementing REDD+ and a green economy are then presented in sections 4 and 5. A discussion of the findings and a conclusion are presented in sections 6 and 7.

REDD+ AND GG: CONCEPTS AND DEFINITIONS

Green growth

Sustainable development was a political strategy for global environmental and resource management, ecological modernization and an attempt to reconcile environmental problems with development (Brand 2012, Jacob *et al*. 2013). GG takes it a step further, claiming that protecting the environment can yield better growth. The concept of sustainable development emerged from the environmental movement, where the ideological argument about the 'limits to growth' was widespread, while GG emerged from the more mainstream and pragmatic community of environmental economic policy makers (Jacob *et al*. 2013). Although the issue of growth is being debated, the concepts and models of growth remain within a traditional growth paradigm (Schulz and Bailey 2014) and the focus on economic growth gives GG much greater purchase on mainstream economic policy making (OECD 2012, World Bank 2012). Indeed, GG narratives have no uniform interpretation (Table 1).

What these definitions have in common is the underlying concern that the necessary level of environmental protection is not met through the 'business-as-usual' patterns of growth (Jacob *et al*. 2013). GG is thus an attempt to merge the pillars of sustainable development into a single policy planning process that aims to provide enabling economies to maintain growth in the long-term (GGGI 2013, Samans 2013). However, different discourse on GG adopted throughout the world reveals an economisation and polarisation of discourses, the persisting weak interpretation of sustainable development, and a tension between the fixing or shifting of dominant socioeconomic paradigms that underpin its conceptualisation (Bina 2013). Kenis and Lievens (2015) also asserted that GG discourse is an attempt to re-invent capitalism.

Like sustainable development, GG might be difficult to put into practice. The rhetoric without any policy action may lead to what Bluehdorn (2011) calls "the politics of unsustainability", where the interest of entrenched political and power positions become portrayed as the solution rather than being

TABLE 1 *Various interpretations of GG narratives*

GG narratives	Authors
GG aims to include environmental factors into economic decision-making and policies by introducing: resource efficiency, transforming energy systems, valuing natural capital in the economic calculus, and pricing of environmental externalities	Jouvet and De Perthuis 2013 *in* Scott *et al*. 2013
GG is a way to address GHG emissions and environmental degradation that growth has brought	Jupesta *et al*. 2011
Growth that emphasizes environmentally sustainable economic progress to foster low-carbon, socially inclusive development	UNESCAP
Fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.	OECD
Growth that is efficient in its use of natural resources, clean i.e. it minimizes pollution and environmental impacts, and resilient i.e. it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters	World Bank
GG is a revolutionary development paradigm that sustains economic growth while ensuring climatic and environmental sustainability. It focuses on addressing the root causes of these challenges while ensuring the creation of the necessary channels for resource distribution and access to basic commodities for the impoverishe	GGGI
GG is: 'a regional strategy for achieving sustainable development. . .GG advocates growth in GDP that maintains or restores environmental quality and ecological integrity, while meeting the needs of all people with the lowest possible environmental impacts. It is a strategy that seeks to maximise economic output while minimising the ecological burdens. . .'	UN

considered the root cause of environmental policy problems – resulting in no shifts in the economic, regulatory or social frameworks. Yet, or maybe because of this, the narratives of GG seem to be adopted globally and are promoted as the new answer to global development. For developing countries, the main aim is to foster economic growth (UN and ADB 2012). Natural assets are to be 'used' sustainably and continue to provide the resources and environmental services upon which growth and well-being rely (OECD 2012). At the same time, this acceptance of 'growth' as a taken-for-granted paradigm might be one of the biggest obstacles towards 'green' development (Schulz and Bailey 2014).

REDD+

REDD+ was originally conceived as a straightforward programme to finance the protection of tropical forests through the sale of carbon offsets or from donor funding. What started as a simple concept with the main objective of reducing emissions globally to mitigate climate change has become a complex scheme expected to fulfill multiple expectations to a range of stakeholders, from local farmers to global climate negotiators (Angelsen and McNeil 2012). After decades of evolution and years of difficult negotiations, REDD+ is formally recognized in the United Nations Climate Change Framework in Paragraph 2:

> *"Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches."*

In line with the various definitions that emphasize climate issues, REDD+ has been positioned as a way of achieving GG. REDD+ implementation requires a mix of policy instruments, which must be informed by sound planning and active support from different actor groups (Brockhaus *et al*. 2014, UNEP 2014, Di Gregorio *et al*. 2015). The same REDD+ actors, institutions, networks and institutions will be engaged in a potential GG transition (Watson *et al*. 2013).

METHODS

Narrative policy analysis is used as the general framework for this study. Narratives are referred as "a way of structuring and communicating our understanding of the world" (Shannan *et al.* 2011). In the context of policy processes and policy development, narratives center on the diverse understandings of the issues at hand, their causes and possible solutions, and related implications and opportunities (Shannan *et al.* 2011). This relates narratives to the frames different stakeholders use to understand and explain the world, but also to promote a particular problem definition. Framing can be understood as a particular way of interpreting and representing the social and physical world. For political purposes, framing often presents facts in such a way that implicates a problem that needs a clear guide for action (Entman 1993).

A range of methods (literature, legal reviews, in-depth interviews, text analysis) was used to address the above research questions. First, a historical perspective and review how the GG narrative developed in Vietnam and Indonesia was applied. A review was also conducted on past and existing climate change related documents including Intended Nationally Determined Contributions (INDC), forest, REDD+, sustainable development, and GG policies, to see how the Government of Vietnam and Indonesia have interpreted, adopted and adapted a GG strategy, and how REDD+ was expected to play a role in support of this.

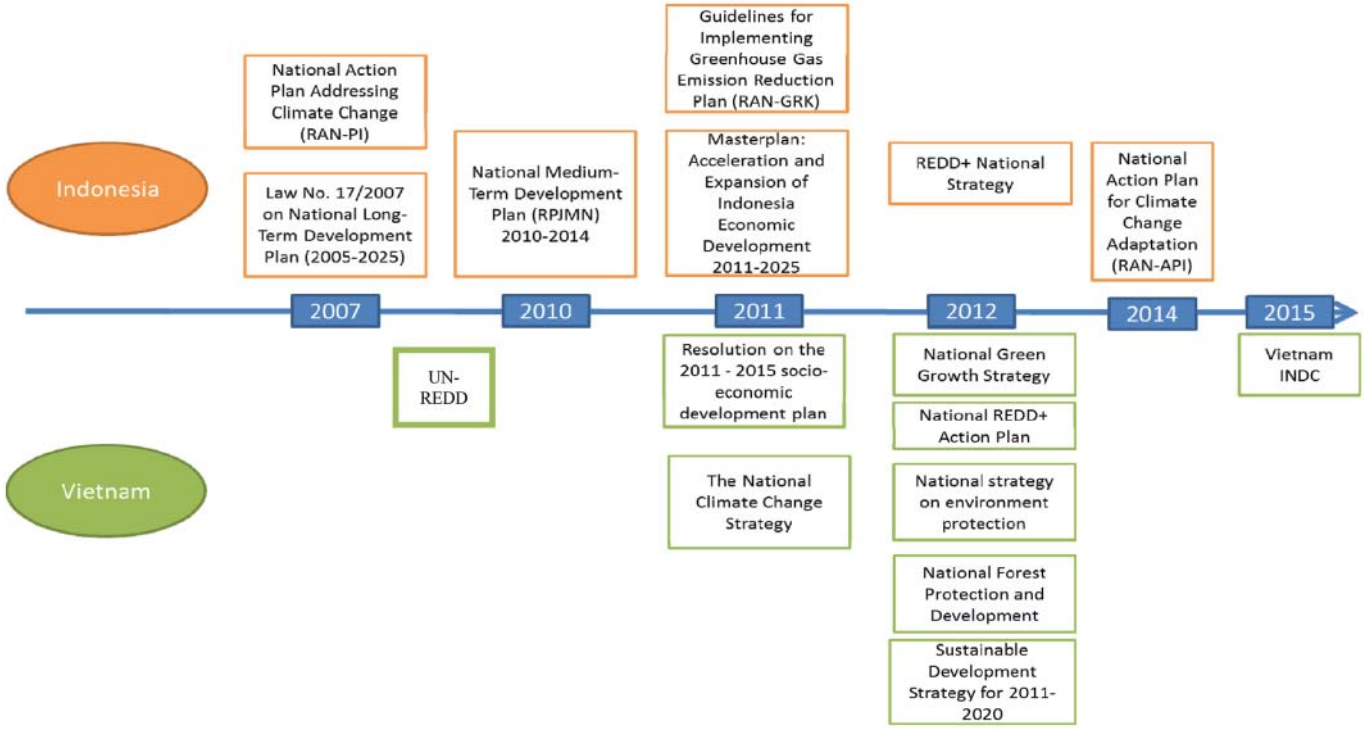
Interviews were then conducted with representatives of 52 organisations that are important to REDD+ in Vietnam and 63 in Indonesia during 2011–2015. The interviews sought to uncover the respondents' framing of REDD+ and GG by focusing on their understandings, opinions and views on REDD+ and GG, and what are seen as the opportunities and constraints for implementation of these strategies separately as well as jointly in both policy design and policy implementation. We also recognize two major limitations of our methods. First, our interviews can only capture a one-time snapshot while stakeholders' perceptions might be subjective and therefore change over time according to circumstance. Secondly, our interviewees, although assigned by their organisations as formal representatives and spokesmen, might not be directly involved in the development of REDD+ and GG strategy.

REDD+ AND GREEN GROWTH IN VIETNAM AND INDONESIA: DEVELOPMENT OF A NARRATIVE

In Southeast Asia, only Vietnam and Indonesia have launched dedicated national GG strategies (Jacob *et al*. 2013) and national REDD+ strategies (GoV 2012, GoI 2012, Figure 1). Subsequently, the two countries have adopted GG terminology in the policy discourse and as part of different policy documents, driven by a variety of different motivations such as export opportunities; the need to create fiscal revenues; concerns about climate change; and international climate policies and related funding opportunities (Jacob *et al*. 2013).

In both countries, reducing GHG emissions is an important component of the GG programmes. Both countries have included elements relevant to REDD+ as part of the GG strategies, including: a strong focus on 'restoring forest', increasing forest cover further (47%) by 2020, a focus on rehabilitating degraded lands and promoting market-based instruments (post-2020) (VNFOREST 2013, BAPPENAS 2015). The GG and REDD+ agendas, however, are linked in different ways in the two countries.

FIGURE 1 *Evolution of sustainable development, green growth and REDD+ in Vietnam and Indonesia*



Apart from the potential of REDD+ to contribute to emission reduction targets in both countries, and in the case of Vietnam the formal integration of REDD+ in a national GG strategy, there are further connections between the two. In Indonesia, GG is promoted primarily by Ministry of National Development Planning supported by the Global Green Growth Institute (GGGI) of which the Government of Indonesia is a co-founder. In April, 2013, a Memorandum of Understanding with GGGI was signed to collaborate on the joint GoI-GGGI Green Growth Program (GGP). In the resulting framework the role of REDD+ in GG is explained as 'to support the development of a funding mechanism that disburses REDD+ finance to catalyze GG'. Indeed, phase I of the Program (2013–2015) besides mainstreaming GG in development also focused on building local capacity for reducing GHG emissions from deforestation and forest degradation (REDD+) within a GG framework (GoI and GGGI 2013). In addition, as a number of different actors in both countries highlighted in recent interviews, REDD+ is seen as a key component to ensure the success of the GG strategy (Interview #7, #74 in Vietnam, 2015) as it promotes forest sector reform and sustainable forest management (Slunge *et al.* 2011). The following sections will provide a detailed analysis on how REDD+ and GG unfold in each country.

Vietnam

According to all interviewees, both REDD+ and GG emerged in Vietnam due to concern about the serious impact of climate change on agricultural production and the national economy. The latest INDC highlights the importance of both REDD+ and GG in reducing emission (Table 2). Key REDD+ and GG policies also emphasise the need for a close linkage between the two concepts. The National REDD+ program was approved in 2012 and was revised in 2016. REDD+ is currently managed by Ministry of Agriculture and Rural Development (MARD). The Vietnam Green Growth Strategy (VGGS) was also approved by the prime minister in 2012 and is managed by Ministry of Planning and Investment. VGGS shows strong government commitment in addressing the environmental and socioeconomic challenges (Interviews # 36, #20, #16, 2015). The VGGS also addresses the process of economic restructuring towards more sustainable use of natural resources and with it the reduction of GHG emissions by 8% by 2030 compared to the business-as-usual scenario or up to 25% with international support (GoV 2015). In a GG strategy, forestry activities are also expected to contribute to a reduction of about 19 million tons CO2 from 2012–2020, and REDD+ is seen as a possible link to offset mechanisms and carbon taxes (VNFOREST 2013), as an element in the GG toolbox, and a link that provides access to funding. REDD+ is also seen as an important component of Vietnam's climate change mitigation efforts and is central to both the National Climate Change Strategy and Vietnam Green Growth Strategy (Table 2).

Policy makers interviewed also asserted that GG and REDD+ are portrayed as complementary policy tools and approaches to secure funding from both domestic and international actors for the implementation of national climate change adaptation and mitigation strategies. Political debates focus on how REDD+ can play a part in this road map. Interviews with government actors highlighted how uncertainty of

TABLE 2 *National REDD+ program and National Green Growth Strategy in Vietnam*

Policy document/Year	Lead agency	Objective/Viewpoints	Target actions
Vietnam National Green Growth Strategy/2012	Ministry of Planning and Investment	Green growth, as a means to achieve a low carbon economy and to enrich natural capital, will become the principal direction in sustainable economic development; reduction of greenhouse gas emissions and increased capability to absorb greenhouse gas are gradually becoming compulsory and important indicators in socio-economic development	Implement programs to reduce greenhouse gas emissions through efforts in REDD+, sustainable forest management in combination with diversifying livelihoods of rural people
Vietnam National REDD+ program/2012	Ministry of Agriculture and Rural Development (MARD)	To reduce net GHG emissions, to contribute to sustainable forest management, biodiversity conservation, and successful implementation of the National Strategy on Climate Change, poverty alleviation and sustainable development	Integration of REDD+ implementation into the National Program on Climate Change, the Green Growth Strategy, the Forest Protection and Development Plan 2011–2020, the wise agricultural initiatives toward response on climate change, the policies on payment for forest environmental services (PFES), agriculture-forestry extension service and poverty reduction as well as other relevant programs and projects to enhance its effectiveness and sustainability
Vietnam INDC/2015	Government office	Responding to climate change must be associated with a transition towards a low-carbon economy	Integrate and effectively use domestic and international resources for implementation of programmes and projects related to forest management and development, livelihoods and biodiversity conservation such as REDD+, the policy of payment for forest environmental services (PFES)

Sources: GoV(2012); GoV (2015)

REDD+ global negotiations and markets has weakened the interest of government in REDD+. The government is now more interested in GG whereby REDD+ is a tool to obtain more funding to support national GG strategy. Yet, several donors have been skeptical about this political interest as "it remains unclear if the government really understands what is GG and what green entails or if it is simply a slogan to attract donor funding' (Interview #18, 2015). At the same time, according to several interviewees representing donors and MARD leaders, having REDD+ as key component of GG ensures the success of GG strategy as it is unlikely that the energy sector can reduce its emissions while forestry emissions reduction is already seen as a pre-condition for success.

Despite of the political commitment and interest in joining REDD+ and GG, our analysis shows major challenges in both implementing each individual concept as well as combining them together.

First, a factor that was pointed out as a challenge for linking REDD+ to GG by the government interviewees is the different level of government ownership of these programmes. All interviewees claimed that the REDD+ program is donor driven, resulting in a lack of ownership from government and national stakeholders. In contrast, GG, although also in receipt of international support, according to most interviewees, is driven by government interest and ownership built upon its socio-economic development strategy. As a result, although GG and REDD+ are seen as complementary and interlinked, sectoral policies are still treating them as separate. For example, while GG is mainstreamed in numerous key environmental policies, they currently overlook REDD+ (Table 3). According to government interviewees, the exclusion of REDD+ in those strategies means a lack of political will and budget allocated to implementation of REDD+. Similarly, major forest policies such as the Forest Protection and Development Plan 2020 do not include GG but it is included in Vietnam INDC and Vietnam Green Growth Strategy.

Secondly, according to government interviewees GG is primarily developed within the country's Socio- economic Development Plan which refers to economic growth as one of the prime developmental objectives for Vietnam. In fact, the government also specified a development goal of increasing the economy's growth rate by 20% and reducing the poverty rate by 20% by 2020 (GoV 2012). All socioeconomic development strategies since the 1990s have targeted significant GDP growth. However, the second (2001–2010) and third

TABLE 3 *Integration of GG and REDD+ in environmental and development policies in Vietnam*

Name of document/Year	Lead institution	Objectives/viewpoint	Reference to REDD+	Reference to GG
The National Climate Change Strategy/2012	Ministry of Natural Resources and Environment (MONRE)	Target: To turn low-carbon economy and green growth into main orientations for sustainable development; lower emission and higher absorption of greenhouse gases to become compulsory indicators of socio-economic development, and to increase competitiveness and strengthen the national position, and carry out adaptation and mitigation efforts in parallel.	None	Yes
National Strategy on Environment Protection to 2020 With Visions to 2030/2012	MONRE	Visions to 2030: To prevent and push back environment pollution, resource deterioration and biodiversity degradation; to improve quality of the habitat; to actively respond to climate change; to create fundamental conditions for a green economy, with low waste and low carbon, for country's prosperity and sustainable development	None	Yes
National Forest Protection and Development Plan/2012	Ministry of Agriculture and Rural Development (MARD)	None	Brief reference on existing program	None

(2011–2020) Socio-Economic Development Strategy (SEDS) framed economic growth in a context of establishing a socialist-orientated market economy and in laying the foundation for a modern, industrialized country by 2020 with sustainable development, environmental protection and economic growth. The SEDS was developed before approval of VGGS and therefore the term GG was not explicitly expressed in these documents. However, the earlier SEDS already emphasised that growth needs to be coupled with environmental sustainability. Therefore, according to the government agencies interviewed, SEDS is already aligned with GG. REDD+, however, is not referred to in those key economic development policies (Table 4).

Thirdly, according to Vietnam's INDC, the legal framework for integrating climate change issues into national Socio-Economic Development Plans is still limited and there is ineffective coordination between line ministries, sectors and provinces to address multi-sectoral and inter-regional issues. All interviewees claimed that GG is seen as the Ministry of Planning and Investment's (MPI) territory and REDD+ is MARD's territory with no interlinkages. At the macro level, the MPI coordinates and allocates the budget and prepares national sectoral plans and leads the design and implementation of GG. MPI also sees GG as a way to strengthen the country's image in the global policy arena and as a way to strengthen its political status. Ministry of Finance (MoFi) establishes financial norms related to any transactions. Technical ministries provide technical guidelines for each sector (e.g. MARD for REDD+, Ministry of Industry and Trade for energy) but are supervised by MPI and MoFi. However, all the stakeholders interviewed claimed that MPI and MoFi were not part of any REDD+ policy discussion. MARD, the civil society organization (CSOs) and NGOs have limited involvement in GG strategies development. Only 30% of total REDD+ policy actors participated in Green Growth policy decision making and only 20% of those actors showed high interest in Green Growth. Interestingly, interviewees from MARD who are responsible for REDD+ showed relatively low interest in GG. "GG is a pie of MPI that will not be shared with other ministries. We just submitted our sectoral proposal as part of GG but funding to our sector from GG will be very limited", an interviewee stated. Furthermore, while MPI and MoFI chose to exclude themselves in most REDD+ policy events, MARD interviewees have no influence over GG

TABLE 4 *Economic Development Policies in Vietnam*

Name of document/Year	Lead institution	Reference to GG	Reference to REDD+
Resolution on the 2011–2015 socio-economic development plan/2011	Government office	None	None
Sustainable development strategy 2011–2020/2012	Government office	None	None
Master plan on economic restructuring in association with conversion of the growth model towards improving quality, efficiency and competitiveness during the 2013–2020 period	None	None	None

outcomes (Pham *et al*. 2014). Similarly, 90% of REDD+ actors also claimed that they only participated in consultative workshops on GG policy but were not be able to make any influence on GG outcomes. Furthermore, although there were many legal documents and policies that require integration of GG and REDD+ (Tables 2, 3), interviewed stakeholders did not elaborate these two concepts in practice.

Indonesia

'Sustainable development' has been a buzzword in Indonesia since the Conference in Rio in 1992 and has made its way into almost all development planning documents (Table 5). In 2004, the President, Susilo Bambang Yudhoyono, began to promote the need to address climate change through GG. During his government, in 2006, Indonesia adopted the energy mix policy aimed mainly at reducing oil consumption by partially shifting to renewable energy sources (Jupesta *et al*. 2011). After 2007, when Indonesia was host to the 13th COP of the UNFCCC, climate change became even more prominent in the national policy agenda (Jacob *et al*. 2013). In 2009, the President announced plans to reduce GHG emissions by 26% from business-as-usual, with a further 15% with adequate international support (Jupesta *et al*. 2011, BAPPENAS 2015).

TABLE 5 *Government documents framing sustainable/green development in Indonesia*

Name of document		Description	Target
Long Term National Development Plan (RPNJP) 2005-2025 formalized in Law 17/2007	Government of Indonesia/ Parliament/	Provides the basic framework and direction for development in Indonesia to be elaborated in four 5-year medium term plans (RPJM). The framework applies concept built around sustainable development based on three pillars: competitiveness, inclusiveness and sustainability.	Realize a self-reliant, inclusive and prosperous Indonesia
National medium-term development plan (Rencana Pembangunan Jangka Menengah Nasional, RPJM) 2015-2019	National Planning Agency	Third phase of the long term national plan identifying green economy as the foundation of the country's development programme, with emphasis on "inclusive and sustainable growth, increasing value added of natural resources with the sustainable approach, increasing quality of environment, disaster mitigation and tackling climate change".	Targets annual economic growth of 8% in 2019, lower poverty levels to between 7-8% by 2019,
Master plan: Acceleration and Expansion of Indonesia Economic Development 2011-2025 (MP3EI)	Coordinating Ministry of Economic Affairs	The MP3EI is intended to complement and become part of the RPJPN and RPJMN, to accelerate and disseminate development efforts more equitable throughout the nation using a not business-as-usual approach. It intends to integrate 3 elements: develop economic potential in 6 economic corridors; improve connectivity and strengthen human resources and technology	By 2025, per capita income of USD 14.250 – USD 15.500 with a total GDP of USD 4,0 – 4,5 trillion.
Master plan: Acceleration and Expansion of Poverty Reduction		Additional document providing guidance to reduce poverty	Reduce poverty from 12% to 4%
A series of Ministerial Decrees since 2010 promoting renewable energy and energy conservation	Ministry of Energy and Mineral Resources	Provides guidelines for investment and funding; incentives; energy pricing; human resource development; information dissemination; standardisation and certification; promotion of research and development; and institutionalisation of renewable energy.	
Law 32/2009 Environmental Protection and Management	Parliament/ Ministry of Environment and Forestry	This law seeks to ensure that development is underpinned with the principle of sustainably and environmentally sound development principles.	

The Indonesia Climate Change Sectoral Roadmap was drafted in 2009 and the *National Action Plan (RAN-GRK)* in 2011 (OECD 2014, Anderson *et al*. 2015). Subsequently, in June 2013, the Global Green Growth Institute (GGGI) launched a countrywide Green Growth Program, confirming and reinforcing the government's intention to stimulate low-carbon investments (Anderson *et al*. 2015). By 2012, GG had become fully accepted as a development strategy even though not explicitly mentioned by the current national midterm development plan (2015–2019) developed by the National Planning Agency (BAPPENAS).

Meanwhile, realising that GHG emissions in Indonesia mostly come from peat fires and land-use change (Jupesta *et al*. 2011, see also Table 6), Indonesia had also become a strong proponent for REDD+. A national strategy on REDD+ was produced in 2012 and was widely considered as an example of collaborative policy making. However, it was general and since it was issued by an agency outside the bureaucracy was not considered legally binding and thus largely sidelined (Indrarto *et al*. 2012).

In 2014, the government changed, bringing a new agenda (Table 6). President Joko Widodo disbanded the national climate change council (DNPI) and the REDD+ agency merging them in a new ministry of Environment and Forestry. This coincided with international shifts in discourse that, in Indonesia, also led to a waning of interest in REDD+ in favor of GG. REDD+, which had been developing to improve forest governance whereby non-carbon benefits became more and more important, was thereby reduced to one tool to achieve green development and sustainable forest management objectives (Interviews #74, 101 and 104, 2015).

The new government also made it clear that it was not willing to forego economic development. The Government of Indonesia aspires to become, and is perceived as potentially one of the top ten largest economies in the world (PWC, 2015, Nikkei Asian Review, June 25, 2015). The GG thus prioritizes a 4-track development strategy, i.e. pro-growth, pro-job, pro-poor, and only lastly pro-environment, to be achieved through a Low Carbon Development path (Masripatin 2010, OECD 2014, GoI and GGGI 2013).

In 2014, the Ministry of Finance through its center for climate change and multilateral finance policy (PKPPIM), issued a strategy for Green development which was updated in 2015. This strategy includes recommendations for policy change (Table 7).

The GG narrative is still unfolding. As in the early years of REDD+, numerous workshops, meetings and consultations were held to define what GG is within the context of Indonesia and BAPPENAS; to 'green' development plans; and to develop environmental standards and indicators (Interview #74, 2015).

Meanwhile, the private sector also adopted GG with pledges for zero deforestation and commitments to forest restoration. As one respondent said: "in response to demands

TABLE 6 *Government documents related to climate change and REDD+ in Indonesia*

Name of documents	Leading agency	Description
National Action Plan for Reducing Greenhouse Gas Emissions (RAN-GRK) as follow up of Presidential Regulation No 61/2011 on The National Action Plan for Greenhouse Gas Emission Reduction	Coordinating Ministry of Economic Affairs	Framework document to plan Nationally Appropriate Management Activities (NAMAs). Provides the basis for relevant agencies, ministries and institutions, as well as regional governments (RAD-GRK) and civil society to implement activities that will directly and indirectly reduce the greenhouse gas (GHG) emissions.
National Action Plan for Climate Change Adaptation (RAN-API) 2014	Ministry of National Development Planning	Mainstreaming Adaptation into National Development Planning, The plan identifies 15 vulnerable areas and includes how adaptation measures can be integrated into development policies, and how monitoring and evaluation can be initiated.
Indonesia Climate Change Sectoral Roadmap (ICCSR) Synthesis Report 2010	Ministry of National Development Planning	Government plan
Forestry Law No. 41 /1999 (including explanations on the law)	Ministry of Forestry	General framework for the governance of forest lands in Indonesia
Series of National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC)	Ministry of Environment	Provides updates on Indonesia's efforts to follow the UNFCC
REDD+ National Strategy 2012	Indonesian REDD+ Task Force	National REDD+ implementation guideline
Indonesia INDC	Office of the president; special envoy for climate change	Outlines transition to low carbon future by describing needed actions and necessary enabling factors. Includes guidelines for mitigation and adaptation

TABLE 7 *Green growth policy documents in Indonesia*

Name of document	Leading agency	Description
Delivering Green Growth for a Prosperous Indonesia A Roadmap for Policy, Planning, and Investment	GoI and GGGI	This Strategy is designed to achieve the objectives of mainstreaming policy and adjusting government priorities to pursue the longer-term benefits of green and more sustainable development.
Strategy for Planning and Budgeting of Green Development for Sustainable Development in Indonesia 2015–2019	Center for climate change and multilateral finance, Ministry of Finance (PKPPIM)	Outlines a green economy approach to achieving SDGs in order to maintain economic growth, environmental and sustainable development

by investors, a 'green image' emerged" (Interview #58, 2015). Companies adopted sustainability programmes projecting an image of social and environmentally responsible enterprises. This green image has been shaped by and disseminated through the Indonesia Business Council for Sustainable Development, which was established in 2011.

In Indonesia, the way the government is structured and operates in accordance to a particular tupoksi (the terms of reference/mandate of each organization) challenges the development of a coherent policy framework. The GG policy framework, for example, is designed by the National Planning Agency (BAPPENAS), but the Coordinating Ministry for Economic Affairs and the Ministry of Finance have both independently drafted strategies for GG without attempts at consolidation. In addition, the decentralized nature of development planning and implementation allows full autonomy at district and province level. Despite good intentions, synergies and coordination both horizontally and vertically remain elusive.

STAKEHOLDERS STANCES ON REDD+ AND GREEN GROWTH

Policy actors interviewed in 2012 and 2015 in both countries pointed out that environmental degradation has continued as economic growth remains dependent on the extraction of natural resources and forest conversion for agricultural expansion. Policy makers are unlikely to change their political and financial interests in the short term and GG policies will be implemented in parallel with economic development programmes. In Vietnam, the export of rice, coffee, and rubber has become the most important source of revenue (Pham *et al*. 2012). The leading sectors in the economy continue to put great pressure on forest land. The policy of trade liberalization has created greater incentives for foreign and domestic companies to expand their operations inside and outside the country, including in areas related to forest products. To reduce costs and increase profits, firms seek a local input source – which often leads to deforestation (Pham *et al*. 2012). A similar trajectory is seen in Indonesia in the oil palm sector, where, probably under pressure from the private sector, agricultural policies on oil palm are contradictory to forestry policies to conserve forests, and energy generation is dependent on coal burning. The National Development plan remains focused on achieving economic growth and does not even mention REDD+ or GG, (RPJM I, BAPPENAS, 2014) instead focusses on sustainable (economic) development (RPJM II, Bappenans, 2014). The private sector, meanwhile, has started to adopt GG strategies such as zero-deforestation pledges and conservation/high carbon value forests as part of their sustainability plans. Rather than supporting this initiative, the government has officially rejected this commitment as it will also constrain smallholder development.

In Vietnam, key informants interviewed expressed their skepticism towards both GG and REDD+ and the difficulties in joining these two narratives. An interviewee stated, "REDD+ is already confusing and we already have had difficulties in interpreting and implementing them at provincial level and now we have to work with GG which is also very confusing."

In Indonesia there is a similar skepticism with little synergistic linkages between GG and REDD+. Both GG and REDD+ are perceived to be unclear and drifting from the original intentions of reducing deforestation and forest degradation and low carbon development (interviews #8, 2015). In addition, the GG strategy appears to have developed in parallel to the REDD+ strategy, involving the same agencies though not necessarily the same individuals, notably BAPPENAS. BAPPENAS is in charge of drafting the national development plan (RPJMN) but, as stated earlier, this document does not mention REDD+ nor GG. GG is developed in a separate document (BAPPENAS and GGGI, 2015). Coordination between these three parallel processes (RPJMN, REDD+ and GG) is minimal even though several informants insist that REDD+ is an important component of GG (interviews # 16, 74, 2015). Yet while doubting its implementation, Indonesian key informants tend to follow official policy (at least in a formal manner) and the BAPPENAS has clearly indicated that REDD+ is one approach under the GG strategy (interviews #16, #74; GoI and GGGI, 2015).

DISCUSSION

Transformational changes or business as usual

GG and REDD+ terminology have become part of the policy and planning documents in both Vietnam and Indonesia,

characterized by a reconciliation of environmental with development objectives as a new form of transformational change. Transformational change is defined by Brockhaus *et al.* (2015) as "a shift in discourse, attitudes, power relations, and deliberate policy and protest action that leads policy formulation and implementation away from business as usual policy approaches that directly or indirectly support deforestation and forest degradation." However, our findings indicate that the underlying driver for this transformational change is a common interest which is rooted in national economic development. Though in Indonesia, political change played a role in re-directing priorities towards improving economic development. In both Vietnam and Indonesia, uncertainty over REDD+ global negotiations and markets have further weakened interest in REDD+ and strengthened interest in GG whereby REDD+ is seen as a tool to obtain more funding to support the national GG strategy. Moreover, GG and REDD+ are seen by government informants as a way to improve a country's position and image in the international policy arena and as a new way to tap into international funding and investment.

In Vietnam, GG is the umbrella term under which REDD+ is placed. In Indonesia, the two concepts emerged somewhat in parallel, and while linkages among them are being discussed, they are not yet formalized in a coherent policy framework. In Indonesia, however, REDD+ is considered a tool to achieve GG at a larger scale. During the preparatory phase of REDD+ in Indonesia, it was realized that REDD+ could not be achieved without some basic changes in the business as usual development. This is even more important in the larger GG frame where even more stakeholders in Indonesia are involved. In the Indonesian National Plan, the need for improving governance to realize GG is highlighted in a separate chapter (RPJM 2014-2019 book II). Yet this chapter stands alone and is not integrated in the overall picture.

Moreover, the contradiction between the rhetoric of GG, including REDD+, and the perception of conflicting objectives, and the power struggles we observed in the REDD+ policy arena between the diverse actors and their interests, indicate that there is resistance within the REDD+ policy arena and very little transformational change has been achieved. Business as usual remains firmly in place in both countries.

The dominant pathways of economic development and related macro-level indicators in both Indonesia and Vietnam do not suggest that a transition to a GE is taking shape (Jacob *et al*. 2013). Thus, while in both countries, the GG discourse is being mainstreamed, it remains in a rhetorical space and is not in an action arena where policy decisions are made, implemented and enforced. In Vietnam, GG remains unclear in terms of targets, measures and performance outcomes and is not related to agricultural development aimed at increasing revenue. In Indonesia, GG is promoted by BAPPENAS with support of GGGI, UNDP and others but is separated from national development plans as well as from sectoral policies.

Conciling green growth and REDD+ or dilution of REDD+ agenda

This paper highlights the mismatch between and amongst sectoral policies in both countries. For example, the policies on reducing oil consumption by partially shifting to renewable energy sources vs. the plan of establishing large coal-based power plants in Indonesia, and policies to increase forest cover vs. increase GDP through the expansion of coffee and rubber area in Vietnam (Pham *et al*. 2012). In the two countries studied, national strategies emphasize the role of GG and REDD+ in all sectoral policies but sectoral policies ignore both GG and REDD+. There is also a lack of ownership as REDD+ is seen in Vietnam across all interviewees as a donor project while GG is seen as being nationally driven. In both countries, policies, guidance and measures to implement both GG and REDD+ are unclear.

While we see some more policy action in the REDD+ policy arenas in Indonesia and Vietnam (Brockhaus *et al*. 2015), backlashes in the design and implementation of REDD+ are also numerous. With GG narratives still merely remaining at a rhetorical level and REDD+ facing strong implementation challenges, linking the two does not help progress towards a transition into a GE. In Indonesia, the disjunct between rhetoric of GG and actions focusing more on growth and less on green may set the performance standards even lower, and REDD+ policy-making will become as opaque as the definition of what is 'green' in a GE. In addition, shifting the policy discourse from REDD+ which aims to address drivers of deforestation and degradation to green growth which primarily aims to create incentives to attract domestic and foreign investment and to mobilise the private sector to participate in climate change adaptation in the case of Vietnam will further dilute the REDD+ concept and weaken policy in addressing the environmental problem. This is referred by Bluehdorn (2011) as "the politics of unsustainability and crisis".

The reconciliation of economic development with environmental protection requires innovative institutional frameworks with responsible and responsive governments in order to protect the interests of current and future generations. However, our findings lead to question the willingness to reform. Policy actors in Vietnamese and Indonesian policy arenas are not yet convinced that economic growth objectives and intentions to avoid deforestation and forest degradation can be synergetic. All interviewees in both countries take the stance that the main challenge for REDD+ implementation is to effectively address the main drivers of deforestation without compromising development objectives, reflecting the perception that REDD+ and GG for a Green Economy is more of a zero–sum struggle than a win–win possibility.

CONCLUSIONS

While GG discourses and policies have been widely articulated in both Vietnam and Indonesia in recent years, stakeholders still have vague and different interpretations of GG.

While REDD+ seems to have a more explicit objective, namely avoiding deforestation and forest degradation, and more clarity over modalities, including commitments to performance, we found little evidence for transformational change within the two countries REDD+ policy arena. The perception of forest protection as compromising development is clearly a counter-narrative to what is promoted as an element in GG and as REDD+, namely the opportunity of realizing environmental and economic objectives. In addition, enabling conditions for both REDD+ and GG seem to be absent in the two countries. Specifically, the inability to reconcile development and environmental interests, are perceived by most actors in both countries as major barriers to implementing REDD+ and hence for changing the economic and regulatory frameworks and realizing a shift away from business as usual, central to the definitions of GG and a GE. In both countries, the state is unwilling or not capable to negotiate with and regulate in order to negotiate with powerful special interests behind the main drivers of deforestation, which suggests that there will be no transformative change.

Despite the global promotion of and the interest of the Indonesian and Vietnamese Goverments in the concepts of GG and REDD+, it seems that merging these two narratives might result into an even stronger discourse of vague, unfulfilled promises and expectations, and inaction. It can also dilute REDD+ objectives. To counteract this development, countries will need to tackle the root causes of unsustainable development, e.g. the root causes of deforestation, which will require more than just rhetoric and technical responses.

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REDD+ politics in the media: a case study from Vietnam

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SUMMARY

Reducing emissions from deforestation and degradation (REDD+) is an international effort to create financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from land uses. Vietnam is engaged in the international REDD+ debate and is a partner to numerous multi- and bilateral agreements. Different actors have diverse interests in the REDD+ agenda, and in Vietnam, even though an authoritarian state, different views exist on what REDD+ should achieve. Through the analysis of media articles this study intends to understand how public debates on REDD+ are framed in the Vietnamese policy domain and how actors use the media to promote their interests. Reporting about a diversity of actors and interests, in particular related to expressions of equity concerns in media frames could reflect a growing inclusive political space. Our findings show that while state actors dominate REDD+ media frames, some limited space is present for non-state actors' interests, but equity issue discussed still reflect predominantly state mediated concerns. However, caution is still required due to the limitations these findings come with.

Keywords: media analysis, PFES, REDD+, Vietnam, media frame, policy analysis, discourse

Politiques de la REDD+ dans les médias: une étude-cas du Vietnam

T.T. PHAM, M. DI GREGORIO et M. BROCKHAUS

La réduction des émissions provenant de la déforestation et de la dégradation forestière (REDD+) est un effort international visant à créer une valeur financière provenant du carbone emmagasiné dans les forêts, et qui offre des stimulants aux pays en voie de développement pour essayer de réduire les émissions provenant de l'utilisation des terres. Le Vietnam s'est engagé dans le débat international sur la REDD+ et est partenaire de nombreux accords multi et bi-latéraux. Différents acteurs ont des intérêts divers dans l'agenda de la REDD+, et au Vietnam, des points de vue différents existent quant aux résultats que cette dernière devrait obtenir, malgré le fait que le pays est sous un régime autoritaire. Analysant des articles dans les médias, cette étude entend comprendre comment les débats publics sur la REDD+ sont pris en compte dans le domaine politique au Vietnam et combien les acteurs utilisent ce moyen pour promouvoir leurs intérêts. Dresser un rapport sur les divers acteurs et intérêts, particulièrement en ce qui concerne les expressions d'un souci d'équitabilité dans les médias, pourrait indiquer qu'un espace politique inclusif est en croissance. Nos résultats mettent en lumière qu'un espace limité est présent pour les intérêts d'acteurs non-étatiques, bien que les acteurs nationaux dominent les cadres médiatiques de la REDD+. Toutefois, ces deux découvertes-clé pourraient indiquer qu'il y a espoir d'une inclusion d'acteurs non étatiques, comprenant des commerces domestiques et des organisations internationales dans l'expérience REDD+ vietnamienne et par conséquent d'une libération des médias entièrement contrôlés par l'état. Il est cependant nécessaire de procéder avec caution, du fait des limites que ces découvertes ont mises en lumière.

Política de REDD+ en los medios de comunicación: un estudio de caso de Vietnam

T.T. PHAM, M. DI GREGORIO y M. BROCKHAUS

La Reducción de Emisiones por Deforestación y Degradación Forestal (REDD+) es un esfuerzo internacional para crear valor financiero para el carbono almacenado en los bosques, que ofrece incentivos para que los países en desarrollo reduzcan las emisiones procedentes del uso del suelo. Vietnam participa en el debate internacional sobre REDD+ y es una de las contrapartes de numerosos acuerdos multilaterales y bilaterales. En Vietnam, son varios los actores que tienen intereses diversos en la agenda de REDD+ y, a pesar de ser un estado autoritario, existen diferentes puntos de vista sobre lo que REDD+ debe lograr. Mediante un análisis de artículos de los medios de comunicación, este estudio busca entender cómo se enmarcan los debates públicos sobre REDD+ en el ámbito de la política vietnamita y cómo los actores utilizan los medios de comunicación para promover sus intereses. La presentación de informes sobre una diversidad de actores e intereses, relacionados en particular con expresiones de preocupación por temas de equidad dentro de los marcos de los medios de comunicación, podría reflejar un espacio político cada vez más inclusivo. Nuestros hallazgos muestran que, mientras que los actores estatales dominan los marcos mediáticos

de REDD+, existe un cierto espacio para los intereses de los actores no estatales, aunque la cuestión ya mencionada de la equidad aun refleja predominantemente preocupaciones influidas por el estado. Sin embargo, estos dos hallazgos clave podrían indicar la existencia de posibilidades para la aceptación de actores no estatales, incluyendo empresas nacionales y organizaciones internacionales, en el experimento vietnamita de REDD+ y una separación de unos medios de comunicación completamente controlados por el estado, aunque se requiere precaución en la interpretación debido a las limitaciones que conllevan estos resultados.

INTRODUCTION

Climate change has significant implications for society, environment and economies, and as such is a key concern for scientists, an increasing area of policy debate, and a subject of media interest. Among others, forest-based approaches to mitigation received considerable attention over the past decade. One possible contribution of developing countries to mitigate greenhouse gas emissions is through a mechanism called REDD+, Reducing Emissions from Deforestation and forest Degradation, aimed at avoiding deforestation and including conservation, sustainable management and enhancement of forest carbon stocks (Angelsen *et al.* 2012). In Vietnam, for example, a series of new domestic policies and initiatives related to REDD+ have been developed over the last five years (Pham *et al.* 2014), such as Decree 99 on Payments for Forest Environmental Services (PFES), which was approved in 2010 and Decision 799 on the National REDD+ Action Plan (2011–2020), which was approved in 2012. In 2015, the government also explicitly included REDD+ in its Intended Nationally Determined Contributions (INDCs).

An increasing number of studies focused on national-level REDD+ policy frameworks and the way REDD+ is shaped in developing countries (e.g. Minang *et al.* 2014, Di Gregorio *et al.* 2013, Korhonen-Kurki *et al.* 2015, Brockhaus *et al.* 2016). A number of studies have examined public discourses on REDD+ through the analysis of media frames – the conceptual lenses used by the media to focus attention on certain realities, while shadowing out other realities (Pan and Kosicki 1993, Carvalho 2007, Boykoff and Boykoff 2007, Di Gregorio *et al.* 2015). Discourses can be understood as "specific ensembles of ideas, concepts and categorization that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities" (Hajer 1995: 44). In many contexts, mass media can substantially influence decisions. In the case of Vietnam, as in many authoritarian political systems, the media are likely to reveal and express government moderated views, particularly those that it wants the public to embrace (Vaagan 2011, Eek and Ellström 2007, McKinley 2007). In this paper, we investigate the extent to which a diversity of stakeholders' interest and their position are expressed in the media. A media-based discourse lens can provide us with insights on what the main public debates on REDD+ are and how they reflect ongoing policy processes in Vietnam.

Using Vietnam as a case study, we will analyse media articles related to REDD+ between 2007 when REDD+ was first reported in the media till 2013, and investigate the following set of research questions:

(1) How are REDD+ debates framed in the media?
(2) Who is represented in the media discussing REDD+ and what concerns and claims do they express?

These will provide an understanding of the diversity in media-based discourses and the extent to which media represents a variety of actors' voices. Taking into account the Vietnamese authoritarian context and the preferences for particular aspects of REDD+ related policies or programs among the actors expressed in the media, the paper then draw implications on:

(3) What space is given in the media to the interests of non-state actors on REDD+?

The paper is structured in five main parts. After this introduction, section 2 and 3 provide a brief insight in the theoretical and methodological underpinnings of this study. This is followed by a presentation of the results in Section 4, the discussion and conclusion are presented in Section 5.

CONCEPTUAL FRAMEWORK

Different social actors negotiate environmental policy decisions, including those on REDD+. These actors often have competing interests and aim to influence the direction that REDD+ takes in terms of policy priorities through discussions and competing argumentations on how environmental problems are defined and how they should be solved (Di Gregorio *et al.* 2013, Boykoff and Boykoff 2007). Media is often used to frame these positions, and depending on the political system might represent the diverse positions of multiple state and non-state actors or emphasise those of more powerful state actors. A media frame brings certain aspects of reality into sharper focus, putting forward a particular interpretation of reality while emphasising particular aspects (Entman 1993, Ardèvol-Abreu 2015). Frames define problems, diagnose causes of problems, make moral judgements, give voice to specific actors while ignoring others or confront actors' with different positions. In this process, frames define who or what is responsible for causing and for solving problems (Benford and Snow 2000, Di Gregorio *et al.* 2015). Policy actors also use the media to signal their positions to policy opponents as well as to potential allies, to build coalitions and impact policy decisions (Andsager 2000).

Examining how REDD+ is framed and whose voices are represented in the media reveals the different understandings of social actors on REDD+ that can lead to distinct policy proposals and possible policy outcomes (Streck 2010, Gupta 2012, Di Gregorio *et al.* 2015).

Where freedom of the press is limited, the role of the media can be considered as prescriptive, the main function being to cater to the interests of the state, a ruling party, or the authority in place. In other words, under authoritarian regimes the media is much less an independent policy actor, compared to democratic ones (Silverbatt and Zlobin 2004, Djankov *et al.* 2003). In Vietnam media is state-controlled and its role is to spread propaganda about state politics and policies, to promote patriotism and socialist ideology well as to encourage people to follow and support government policies (Eek and Ellström 2007, McKinley 2007, Vaagan 2011). For example, article 88 of the criminal code bans the distribution of 'anti-government propaganda.' Decree No 02/2011/ND-CP – on the "Handling of Administrative Violations in Press and Publishing Activities" – penalizes journalists who refuse to reveal their sources. Moreover, the state may censor content which it deems illegal, immoral or unfavourable to the government and likewise regulates any programming related to the media (Price *et al.* 2002). As the result, all foreign news and information TV programs have to be translated into Vietnamese and are subject to government censorship. The Vietnamese government also requires all journalists to become members or be affiliated with the ruling party. Newspaper, television and radio editors are required to be high ranking parliament members and are appointed by the Communist Party. All editors must attend regular meetings with the Communist Party Information Committee in order to receive guidance on which specific topics and debates can be discussed.

Yet, within this state-controlled media, a central question is whether government (and media) gives any, even limited, space for a diversity of voices and allows media to perform its role as mediator among scientists, policy actors and the public? Pham *et al.* (2014) and Wells-Dang (2010) found that although state actors remain the most powerful actor in REDD+ decision making in Vietnam, the governance structure, its institutions, actors and their relations to each others, provide some political space for non-state actors. Media-based discourse analysis provides insights into the REDD+ policy process and the policy proposals put forward, and allows for a discussion and critical reflection of what this could mean in terms of possible REDD+ policy outcomes and participation within.

Building on this we argue that an analysis of the coverage of REDD+ compared to other issues in the media, the way REDD+ is framed with regard to REDD+ themes discussed and the attention given to particular level of governance, will help us to generate an overall understanding of the perception of REDD+ in the public domain in Vietnam. Investigating our next set of research questions, namely which actors are given voice or not, and the diversity of interests presented in the media, will help us understand to which degree the media in Vietnam facilitates inclusiveness in REDD+ debates. Di Gregorio *et al.* (2013, 2015) studied REDD+ frames in 7 countries, including Vietnam, and found that state actors often focus on effectiveness of REDD+, while civil society actors often focus on equity issues. Our findings on actors' positions on equity support the argument that, even in an authoritarian and state controlled media, some non-state actors behind these interests have been successful in putting them forward to the public and consequently might have the opportunity to influence future policies to some extent. Hence, investigating to which degree the focus is on effectiveness, efficiency, or equity in the media can tell us about the quality of the participation. Together, all these questions will provide insights to which degree REDD+ coverage in the media in Vietnam is more than just a government playing field.

METHODS

The analysis focuses on printed news articles from three national Vietnamese newspapers between December 2005 and December 2013. The selected newspapers have the highest national circulation and reflect a broad spectrum of political positions in Vietnam. They are *Nhan Dan*, *Tuoi Tre*, and *Nong Nghiep Vietnam*, and their daily circulation is 220 000, 420 000, and 70 000 copies respectively. *Tuoi Tre*'s mandate is to focus on new and general topics. In contrast, *Nhan Dan* has a specific mandate to undertake propaganda for general government policies such as national security, political and economic development, and foreign affairs. All policy makers in Vietnam receive a copy of *Nhan Dan* and are expected to read it every day. *Nong Nghiep Vietnam*, specialises on disseminating information related to government policy on agricultural and rural development.

Article selection was based on nine key phrases in Vietnamese (derived from six key phrases in English): 'climate change', 'climate change and forests', 'reducing emissions from deforestation and forest degradation', and its acronym, 'REDD', 'payments for environmental services', and its acronym, 'PES', and 'payments for forest environmental services' and its acronym 'PFES'. We consider articles that discuss REDD+, i.e. those resulting from the 'REDD' or 'reduced emissions from deforestation and forest degradation' or 'avoided deforestation' (in total 41 articles), or PES and PFES keyword searches (64). These totaled 95 articles (as 4 articles mention both PES and PFES, and 8 articles mention both PFES and REDD+). Among these, 14 mentioned REDD+ without any further elaboration, which left 81 selected to be fully coded.

The content of the selected 81 articles was analyzed using content analysis based on a predefined codebook that utilizes different levels of analysis (Di Gregorio *et al.* 2012). Level 1 captured descriptive variables of the article as a whole, including date and author, the length of the article.

The second level of coding characterizes the media frames. The concept of frame has been widely discussed in the field of political studies (Entman 1993). McCombs (2006: 173) sees a frame as "a very special case of attributes" that "forms a dominant point of view on an object, influencing the public

TABLE 1 *Themes of the Media Frames*

Theme	Explanation
Ecology of REDD+	Frames referring to ecological aspects of REDD+ such as deforestation, carbon sinks, impacts on biodiversity etc.
Economics and markets	Frames discussing REDD+ as a market mechanism or with reference to economic benefits or impacts
Politics and policy making	Frames discussing REDD+ policy formulation, implementation, or claims of political actors
Civil society	Frames discussing the rights, campaigns, or other actions of civil society
Governance	Frames discussing the REDD+ institutional architecture, including enforcement, monitoring, reporting and verification (MRV), transparency and corruption etc.
Science	Frames discussing new scientific knowledge about REDD+, scientific reports etc.
Culture	Frames discussing REDD+ issues related to lifestyles of individuals or communities

perception of this object and the understanding of the social world in general" (Ardèvol-Abreu 2015: 436). Bennett (2002: 42) defined frame as "a broad organising theme for selecting, emphasising, and linking the elements of a story such as the scenes, the characters, their actions, and supporting documentation". Following Boykoff and Mansfield (2008) we identified the frames in each article based on the salience of the main elements discussed, the key messages contained and whose opinions were included. This level of coding identified a number of characteristics of up to two frames in each articles: a primary frame, which provides the dominant way in which REDD+ was portrayed, and where applicable, a secondary frame. The primary frame is almost always found in the most prominent elements of a text: headline, subheading and lead paragraph. While many articles provide a single frame – or interpretation of a central REDD+ issue – longer articles might have two or more frames (Boykoff and Mansfield 2008), which then were analysed separately. Identifying more than one frame, where appropriate, provided a more detailed representation of how REDD+ is understood. In the 81 articles, 105 media frames (81 primary and 24 secondary frames) were identified and analysed. The analysis presented in this paper focuses on two characteristics of the media frames that were coded. The first characteristic of the frame is the main theme, which refers to the main way in which REDD+ is discussed and understood (Table 1).

The second characteristic of the frame to be assessed was the governance level at which the REDD+ was discussed (issues related to the 'international' REDD+ framework, such as global debates on REDD+ between developed and developing countries or UNFCCC COP meetings; 'national' level REDD+ issues, or 'provincial' and 'local' level issues). The coders also identified any mention of REDD+ policy events, which can also be classified by level of governance. A policy event was defined as 'a critical, temporally located decision point in a collective decision-making sequence that must occur in order for a policy option to be finally selected' (Laumann and Knoke 1987: 251).

Level 3 coding identified policy actors whose opinions about REDD+ were reported in the media frames. This included quotes, paraphrases or reference to opinions on REDD+ attributed to specific, named, policy actors. We coded the opinion statements and assessed three variables. The type of policy actor, which included national level state or bureaucratic actors, intergovernmental organizations, international NGOs, foreign governments (donor organizations), domestic businesses and business associations, domestic research centre/academic institutions, and some individuals for which no institutional affiliation was mentioned or known. The second characteristic coded referred to the outlook that policy actors held towards REDD+. We coded whether policy actors had an 'optimistic' outlook towards REDD+ and portrayed REDD+ policies and schemes as positive and useful, or had a 'pessimistic' outlook and were sceptical about REDD+ or underlined possible negative implications. Mixed outlooks, were coded as 'neutral' and where actors were not explicit about their outlook the statements were labelled as 'no outlook'. The last characteristic of policy actors opinions that was coded referred to whether policy actors were primarily concerned with REDD+ 'effectiveness'– the reduction of carbon emissions –, or 'efficiency'– low cost REDD+ solutions – or 'equity' – referring to the distribution of carbon or other co-benefits, poverty reduction, protection of rights, and distribution of possible costs across social groups. Three coders were trained to code the articles using the code book.

To complement the coding process, semi-structured interviews were conducted with nine selected journalists that had reported about REDD+. The criteria for selection were: having an interest in environmental issues and REDD+; having written articles on REDD+; work in different geographical areas of Vietnam; work for the most popular newspaper in Vietnam. Since television and radio are important tool of communications to the public in Vietnam, we interviewed also two national television and radio journalists. Two of the journalists also worked for international news and one was a member of local NGOs. The aim of these interviews was to understand operational principles of the media in Vietnam, discuss the actors that influence REDD+ media debates and the sources of information that journalists used. The analysis of these interviews is presented along that of the media coding and is used to support the interpretation of coding. The interviews were conducted between 2010–2014.

FINDINGS

Media coverage on REDD+

According to all interviewees, for the Vietnamese government REDD+ remains of margin interest compared to the broader theme of climate change. This is also quite well reflected in the media analysis. The keyword 'climate change' was found in 1606 articles (Table 2), less than 15% of which (n = 244) resulted from the 'climate change and forest' search. Much less attention was given to PES (Payments for Environmental Services) and REDD+. A search for 'PFES (Payments for Forest Environmental Services)' resulted in 56 articles, 7 times higher than the more general term 'PES' and only 41 articles referred to REDD+. REDD+ started to be reported in *Tuoi Tre* in 2007 in *Nhan Dan* in 2008 and in *Nong Nghiep Vietnam* in 2009. According to an interviewee from *Tuoi Tre*, when REDD+ first appeared in the paper, the text was written by a foreign expert who is working for UNDP and the UN-REDD Programme who wanted to publicise REDD+. The article was in a side section called 'Reader's Voice', where letter from readers are published.

Interviewees from *Nhan Dan* also claimed that since the newspaper was a government instrument, it only publishes articles showing the positive impact of government policies and programmes. Thus, until a policy like REDD+ has been successful according to the government or confirmed to be moving in 'the right direction', the newspaper will not discuss it. Similarly, the interviewee from *Nong Nghiep Vietnam* asserted that although the newspaper represents the agriculture and forestry sector it was late in covering REDD+ because its management agency, the Ministry of Agriculture and Rural Development (MARD), was only assigned as a focal point for REDD+ in 2009. REDD+ started to be discussed in newspapers only after the government introduced PFES and referred to REDD+ as a type of environmental service. The interviewed journalists suggested that the government sees PFES as the breakthrough forestry policy and newspapers are required to provide propaganda on the achievements of this policy.

The position of the government on REDD+ has gradually changed since 2005. During 2005–2010, the majority of the articles discussed sea-level rise, flood and storm control, and new agricultural crop species that can adapt to climate change. During the period of 2011–2013, these topics were still covered, but articles also included reporting on deforestation and degradation of forests due to construction of large-scale hydropower plants and made a few references to insecure land tenure and land-use conflicts in the forestry sector. By 2010, REDD+ appeared in all three newspapers. Coverage of 'REDD+', 'PES', and 'PFES' although low, increased over time from 2005–2010. In *Nhan Dan* and *Tuoi Tre*, articles on PFES increased significantly during 2011–2013, while there was a drop in featuring this topic in *Tuoi Tre* newspaper (Figure 1). After the government introduced PFES in 2008, the number of articles containing the keyword increased rapidly, and the term remained more frequently used than PES. Interviewees explained the increase in references to REDD+ during 2005–2011 partly as the result of an increased understanding amongst journalists and partly as results of the government being active in several international initiatives related to climate change. The number of articles featuring REDD+ dropped in 2011–2013 in all three newspapers. Most of the interviewees highlighted that the uncertainty around the international agreement on REDD+ and carbon markets led to a decrease in interest on the part of the government and consequently on the part of the newspapers to feature REDD+. Moreover, all interviewed journalists also said that the limited number of articles on REDD+ was also due to the fact that their main information sources on REDD+ were government agencies, but they had difficulties in arranging meetings with policy makers in charge of national REDD+ programmes.

Main REDD+ themes in the Vietnamese media

The most prominent REDD+ themes in the media frames were politics and policy-making issues (82 out of 105 frames – Table 3). These related to the international discussions on the importance of REDD+ to reduce emissions and conserve natural forests, and national themes on effective implementation and enforcement national forestry policies such as Decision 380/Decree 99 on national PES program. There was a peak in 2013 with 37 total frames of which 35 are on politics and policy making. This increase is due to the approval of National REDD+ action plan and the National Climate Change and Vietnam Green Growth strategy in 2012 and the acceleration of national payment for forest environmental

TABLE 2 *Number of articles from the keyword search about climate change and forests from 2005–2013*

Keywords	*Tuoi Tre*	*Nhan Dan*	*Nong Nghiep Vietnam*	Total
Climate change	716	645	245	1606
Climate change and forest	108	81	55	244
PES	3	3	2	8
PFES	10	22	24	56
REDD, 'reducing emissions from deforestation and 'forest degradation', 'avoided deforestation'	16	11	14	41

FIGURE 1 *Frequency of articles referring to 'REDD+', 'PES', or 'PFES' by year, 2005–2013*

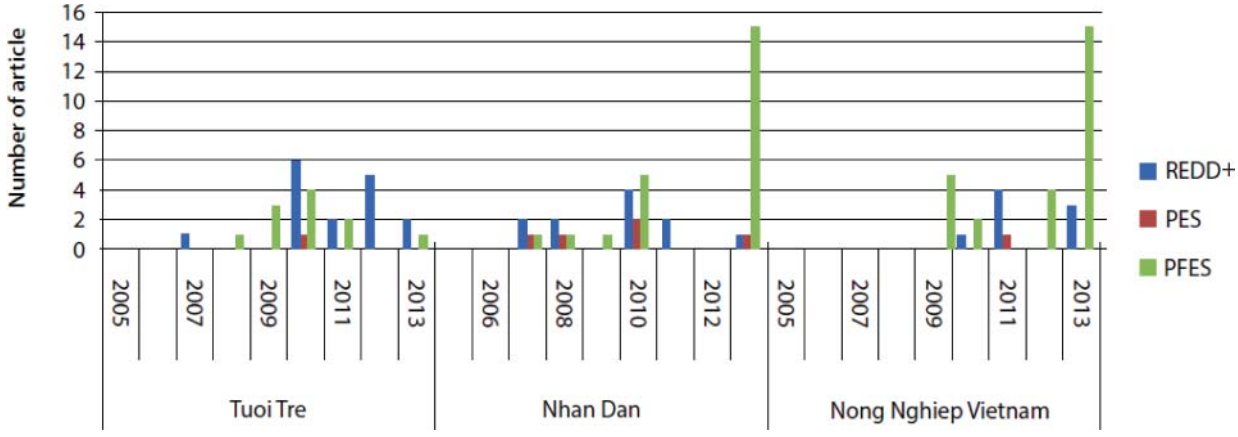


TABLE 3 *Themes of REDD+ media frames*

Time	Ecology	Economics and markets	Politics and policymaking	Governance context	Science	Culture	Other	Total
2007		1						1
2008			2					2
2009	1	1	8				1	11
2010	1	6	17				2	26
2011	2	1	10	2	2			17
2012	1		10					11
2013			35	2				37
Grand Total	**5**	**9**	**82**	**4**	**2**	**0**	**3**	**105**

services implementation throughout the country. According to a journalist interviewed "Decree 99 was first implemented in 2009 and 2012 is a good time for highlighting its impacts. The new policy such as national REDD+ program should also be received public support through our propaganda".

Over a third of 82 politics and policy making frames urged for better implementation of payments for forest protection and discussed the challenges in scaling-up PFES and REDD+ across the country. Nine frames related to economics and markets and discussed potential funding for forest protection from various international sources and the impact of PFES/REDD+ on business operations, particularly hydropower plants in Vietnam. Economic concerns were more prominent in 2010 than in earlier years and referred to PES and REDD+ providing payments as potential pathways to address poverty reduction and improve the livelihoods of local people.

Only 5 frames related to ecology. In 2009 and 2010, these frames discussed deforestation, the definition of 'poor' and 'rich' forest, the importance of conserving biodiversity in Vietnam and the ecological definition of environmental services. In 2011 and 2012, the discussion shifted towards the negative impacts that can be caused by large-scale hydropower plant construction across the country on ecological systems, ecological services and biodiversity.

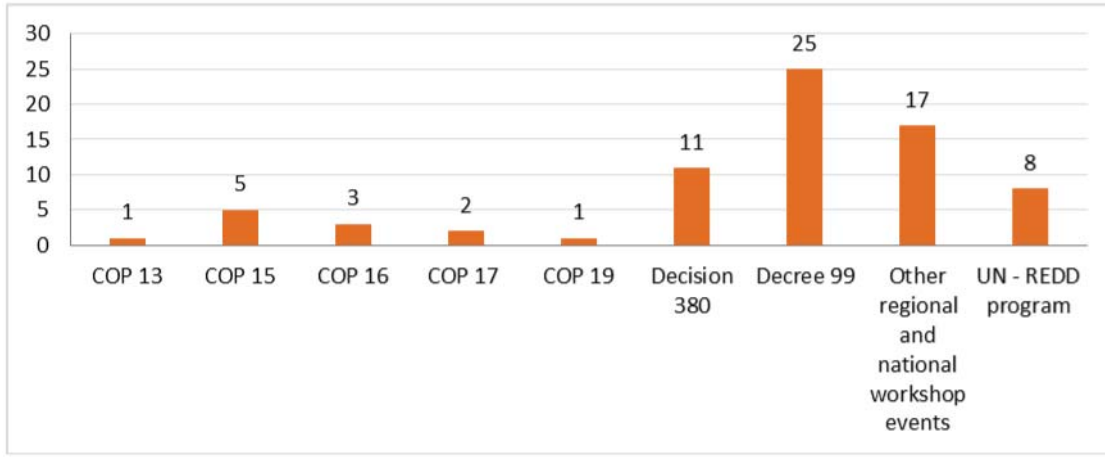
The governance level of REDD+ coverage

Our analysis of the governance level of REDD+ media frames, whether international, national or provincial, provided insights into the importance of international news in national REDD+ debates versus national REDD+ issues. The majority of REDD+ frames addressed national level REDD+ issues, followed by provincial and international issues. Local REDD+ issues were not discussed at all in the media. The focus shifted over time, from an exclusively international focus in 2007 to a more extensive and diversified range of domestic coverage since 2009.

The dominant focus at the domestic level was confirmed by the number of policy events coded that related to REDD+. The majority of policy events referred to were linked to Decree 99 (25 mentions), Decision 380 (11), the UN-REDD Programme in Vietnam (8), and in second instance to international policy events such as annual COP meetings (12). Decree 99 on national PFES program and the importance to enforce this decree was by far the most salient newsworthy event discussed between 2010 and 2013 (Figure 2).

The absence of any mention of other REDD+ policy events is also worth noting. For example, although the

FIGURE 2 *Number of REDD+ events mentioned*



government put significant effort into revising the Readiness Plan Idea Note (R-PIN) and The Readiness Preparation Proposal (*R-PP*) for submission to the Forest Carbon Partnership Facility in 2009 and 2010, neither document (nor its process of formulation and design) was mentioned in the media during this period. The launch of the National REDD+ Program was also considered a key event in 2012, but the media coverage did not refer to it.

Opinions of policy actors on REDD+

As we would expect in a country with state controlled media the vast majority of policy actors' opinions reported in the media are those of national-level state actors (74 out of 112). Yet, around 34% of policy actors' views are attributed to non-state or foreign actors. Intergovernmental organisations' views were represented in 12% of references (13 out of 112). This was followed by domestic business statements, foreign government organizations and international NGOs and domestic research institutes (Table 4).

Most of the actors expressed optimistic views about the future of REDD+ (57 out of 112). National level state actors and intergovernmental actors were most optimistic about the future of REDD+ (Table 4). Interviews with journalists indicated that common reasons for their optimistic view towards REDD+ were a belief that REDD+ could improve the environment, reduce the burden of the forestry sector on the state, and improve local livelihoods. However, despite the optimistic views, some state actors also expressed their concern about the slow progress of REDD+ at the international level and whether REDD+ will bring actual benefits for local people. Four out of nine journalists interviewed claimed that these concerns were raised and used by state actors as a strong justification for moving away from international policy events to focus on, and strengthen, domestic policies, which are considered to be more stable and controllable. Most intergovernmental organizations (8 out of 13) also expressed their optimistic views about the future of REDD+. These actors expressed that REDD+ will help to improve forest governance and benefit generated from REDD+ can improve local livelihoods. Yet, a small number of intergovernmental organizations also expressed their pessimistic view towards REDD+, mainly due to the potential negative impact REDD+ could also bring to local communities such as land grabbing.

The view of domestic businesses was reported in only five articles, yet it appeared that the private sector's response

TABLE 4 *Policy actors' outlook on future of REDD+*

Actor type	Optimistic	Pessimistic	Neutral	No outlook	Total
National level state and bureaucratic actors	37	7	11	19	74
Intergovernmental Organizations	8	2	1	2	13
Domestic business	7	0	2	0	9
Foreign government and bureaucratic actors	3	1	0	0	4
International NGOs	0	3	0	0	3
National research centre/think tank/ educational institution	0	0	0	3	3
Individual	2	0	1	3	6
Total	57	13	15	27	112

toward the PES policy has also changed over time. During 2008–2010, hydropower plants and the state-run company Electricity Vietnam expressed concerns about the impact that Decision 380 and Decree 99 would have on their interests. They suggested that as they already pay a tax on natural resource use, additional payments for PFES would present an excessive burden. In 2011–2013, these companies recognized their role and responsibility in environmental and forest protection and promised to comply with the national law, although other state agencies and local communities complained about the slow progress with actual payments. No domestic civil society organisation was represented in REDD+ media coverage.

During 2007–2010, no frames were associated with national research institutions. During 2011–2013, the opinion of national research institutes and academia was reported on three times. In particular, scientists and academia (e.g. Can Tho University) led the discussion on drivers of deforestation and degradation and ecological loss in forests due to massive infrastructure development (especially hydropower development) and poor water resource management. However, these actors did not provide any specific outlook on REDD+ in their discussion.

Policy actors' concerns with effectiveness, efficiency and equity of REDD+

With respect to the three potential aims of REDD+ to deliver emissions reduction (effectiveness), to do it in the most cost effective way (efficiency) and to ensure justice outcomes (equity), the dominant concern of policy actors was with effectiveness (66%), followed by concerns over equity (21%) (Table 5).

Actors' concern on REDD+s' effectiveness referred to how effectively Decree 99 and REDD+ can address deforestation, illegal logging and poverty reduction and, at the international level, how REDD+ policies can potentially save remaining forests and reduce emissions. Actors' concern over equity had both international (payments from developed to developing countries) and national dimensions (payments to the poor). National state actors expressed concern about the responsibilities of hydropower plants, water supply companies, and tourist companies to pay upland people who protect the forests while international NGOs and government agencies discussed the beneficiaries of REDD+ payments and the need for equitable benefit-sharing from PES and REDD+ to reward local people. Both state and international NGO actors emphasized that PES could contribute to REDD+, but warned that scaling up implementation of both PFES and REDD+ to the national level will be difficult because the benefit-sharing mechanism is unclear and potential negative impacts such as land use conflicts and unclear tenure rights may result. These actors also discussed the possible contribution of REDD+ and PFES in poverty reduction as expected by the government through the National REDD+ Program and PFES policy.

Issues related to other co-benefits such as biodiversity and (cost) efficiency emerged less frequently (efficiency, 3.6%; other co-benefits, 7.2%), and were the main concern of national research institutes and academia. These actors were concerned about biodiversity loss caused by massive infrastructure development and also the high operational costs anticipated for REDD+ and PFES payment distribution.

DISCUSSION

We draw some conclusions on what the results tell us about how REDD+ is framed and whose political agenda is represented in the media, and finally, what the potential consequences for policy processes and outcomes for non-state actors' interests in the REDD+ are in Vietnam.

REDD+ for poverty reduction

First, our study shows that limited coverage of REDD+ exists in the main print media in Vietnam, which indicates that REDD+ is not at the centre of public debates on climate change. Pham *et al.* (2014) found that climate change policies

TABLE 5 *Policy actors' concerns with REDD+ effectiveness, efficiency and equity*

	Effectiveness	Efficiency	Equity	Other co-benefits	Others	Total
National level state and bureaucratic actors	52	2	13	3	0	70
Intergovernmental Organization and Bodies	7	0	1	3	0	11
International NGOs	2	0	8	0	0	10
Domestic business	4	0	2	0	0	6
Business association	2	0	1	1	0	4
Foreign government and bureaucratic actors	2	2	0	0	0	4
National research centre/think tank/ educational institution	1	0		0	2	3
Individual	4	0	0	1	0	5
Total	74	4	24	8	2	112

in Vietnam focus primarily on adaptation as opposed to mitigation and are mainly associated with rising sea levels and overlook forests related climate change issues. Yet, the increase in the number of articles and range of REDD+-related issues covered over time shows that policy makers and the media have paid increasing attention to REDD+ and have explored different topics related to REDD+ from a variety of perspectives.

What has not been reported about REDD+ in Vietnam in the media is also interesting. The print media focuses on major domestic policy events, especially those deemed important by the Vietnam's government. They did not, however, report on policy developments related to the fulfilment of international requirements to access REDD+ funding, such as the submission of R-PIN and R-PP to the FCPF or to the formulation of the National REDD+ Program.

This suggests that the government's efforts have been primarily to use the print media to increase popular support for domestic policies, such as Decision 380 and Decree 99. This domestic, as opposed to international, REDD+ policy focus differs markedly from other developing countries media studies, which all have a major focus on global REDD+ issues (Cronin *et al. 2015*, May *et al.* 2011, Pham 2011). REDD+ discourse in Vietnam is greatly influenced by the central government's control over the media with articles portraying the government's main REDD+ direction in Vietnam's overall national policy framework: the development of REDD+ as well as domestically funded (forest-based) payments for ecosystem services in order to contribute to national development objectives of poverty reduction.

Media as the voice of the government

In terms of representation of actors in the media, our findings confirm that media frames report the position of the government. In many developing countries, journalists often obtain information on climate change from international news agencies, science magazines, and nongovernmental organisations and the dominant voices in news frames are those of foreign rather than local scientists (Harbinson 2006, Shanahan 2009). In contrast, in Vietnam, government agencies are the main, and almost exclusively sources of information for journalists' on climate change and REDD+. Our findings are similar to what Tolen (2007) found in China where the main sources of information for journalists are government departments and state news agencies. However, while in China, the climate change coverage focuses on international news and events such as global climate change conferences (Tolen 2007), in Vietnam the government seems to have stronger ownership of the REDD+ arena, and reporting focuses on domestic events related to REDD+.

The dominance of government agencies in the REDD+ media articles is evident and leaves limited political space for domestic non-state actors such as civil society organisations (CSOs) or domestic business. While CSOs are relatively involved in REDD+ media debates in other REDD+ countries, for example Indonesia and Brazil (May *et al.* 2011, Cronin *et al.* 2015), CSOs are completely absent in the REDD+ media coverage in Vietnam. This is partly because CSOs in Vietnam are formed under government agencies and have to follow strictly government control (Pham *et al.* 2010). Moreover, although a number of domestic businesses in Vietnam are sceptical about PFES and are reluctant to pay for PFES and REDD+ (Pham *et al.* 2013), no critique from domestic businesses was expressed in the media. Stakeholders with views that differ from those of the government have limited room to express their opinions. This suggests that the social groups have limited ability to influence REDD+ policies. The reluctance of the business sector to pay for REDD+-related PFES might though impact future effectiveness of these policies. It also suggests that awareness raising and pro-active efforts to involve the business sector in REDD+ policy processes will be critical for success. Pham *et al.* (2014) suggest that ensuring a more inclusive decision making processes in Vietnam is a precondition for REDD+ success and thus would require a shift in current governance from traditional top-down approaches to a more participatory form of decision making.

In democracies, the media is expected to be a useful channel for all stakeholders in society to express its views on particular issues. However, the way climate change is reported depends on the economic, cultural and socio-political characteristics of a country (Carvalho 2007, Boykoff and Mansfield 2008). Results from this study show that media coverage in Vietnam largely represents the Communist Party and the government's perceptions and assessment of REDD+. This supports the argument that mass media in Vietnam serve to publicize government policies and rally public support for them.

Dissent and REDD+ equity concerns in the media

We find more nuance in the findings if we look at who shares a common view on REDD+. Most actors in the media shared an optimistic view, as for example the government's view in reference to mainstreaming REDD+ into the national agenda for climate change mitigation. An optimistic outlook was also found among international actors, suggesting the international and national mitigation agendas are quite well aligned. A critical evaluation of this finding may infer that international actors self-censor or that only views that reflect those of government are published. Media representations of REDD+ in Vietnam are indeed extremely optimistic, not covering the sorts of controversial and critical issues related to REDD+ that have been raised often in the international media, such as leakage or indigenous rights issues (Di Gregorio *et al.* 2015), a fact that is likely traceable, again, to government control of the media. However, some state actors and international organisations expressed relatively more pessimistic views, mainly related to the future of REDD+. In Vietnam such conflicting views are expressed by only a small number of government actors and international NGOs, while in countries such as Brazil, Nepal or PNG conflicting views occur across different actor groups and mainly include civil society (Brockhaus *et al.* 2014).

With respect to concerns with effectiveness, efficiency and equity, we found that the primary focus on REDD+ effectiveness as opposed to equity or efficiency is also a common trend amongst policy actors' opinions reported in the media in other REDD+ countries such as Brazil and Indonesia (May *et al.* 2011, Cronin *et al.* 2015, Di Gregorio *et al.* 2015). In the Vietnamese governance context, effectiveness in REDD+ is discussed by policy actors nearly exclusively as depending on better law enforcement, and hence reflecting traditional command and control planning modalities.

Equity, however, was a concern often put forward by state actors, but also by international environmental organizations and in fewer instances also by the business sector. In total 20% of policy actors' opinions discussed equity issues. Thus, REDD+ equity concerns are taken into account by the government and are discussed in the media. This equity discourse, pursued by the government of Vietnam, is rooted in the strong interest of the government to link PFES and REDD+ to poverty reduction policies and outcomes in Vietnam and serves as a political tool to argue for additional foreign funding to support Vietnam. This discourse, however, does not reflect equity concerns one would expect to hear from NGOs and CSOs. For example, Di Gregorio *et al.* (2013) found, that across seven REDD+ countries the main equity concerns were related to benefit sharing mechanisms between actors and between levels of governance.

The media in Vietnam disseminate the government's views on REDD+. Yet, some limited voice is given to a number of other actors, as long that they avoid confrontation with the dominant government position. Equity discourses seem to reflect mainly the interest and position of the state, and no room is given yet in the media to domestic civil society and grassroot organisations and their concerns. However, the reflection of equity issues and the limited space given to the interests of some non-state actors suggested for a more participatory decision making on REDD+ in Vietnam, as for example Wells-Dang (2010) suggested. Tolen (2007) finds a similar pattern in China, which has a similar political regime to Vietnam, where the government has become more open and allows state-controlled media to report on and interpret climate change issues more freely. Influential political actors can use media as a political tool to significantly influence the media, and in authoritarian states it is always the state actors that dominate the media (Azhgikhina 2007, Carvalho 2007, Boykoff and Mansfield 2008, Vaagan 2011). Those who control the media have the power to silence debate, suppress issues and decide what can or should not be published (Anderson 2009).

CONCLUSION

Our findings on changes in the government stances also indicate that Vietnam has moved from an early honeymoon period towards a more contested situation with some actors providing less positive assessments on REDD+. This finding is confirmed by a global comparative study on REDD+ progress, where similar features have been observed in other countries as well (Brockhaus *et al*. 2016). However, in the case of Vietnam, these conflicting views are expressed by actors of the same organizational type, namely government, while in other countries conflicting views occur across different actor groups and mainly include civil society (Brockhaus *et al*. 2014). REDD+ policy processes and media frames in Vietnam differ from those in other developing countries working to create and implement national REDD+ strategies. REDD+ discourse here is greatly influenced by central government control over the media (with articles portraying the government's strategies) and the close link between payments for ecosystem services, poverty reduction and REDD+ in Vietnam's national policy framework.

In the media, REDD+ is mainly framed around the enforcement and implementation of the national PFES and REDD+ policies. This reflects traditional command and control planning modalities, as well as equity concerns that reflect Vietnam's priorities on poverty reduction and, to a lesser degree, concerns about effectiveness of REDD+ policies. Efficiency is not widely discussed in the media, and this could represent a weakness for future implementation. Additionally, the findings highlight that media have been overly optimistic, not covering the sorts of controversial and critical issues related to REDD+ that have been raised often in the international media (such as leakage and involvement of indigenous groups), a fact that is likely traceable, again, to government control of media discourses.

Our paper highlights that in an authoritarian regime, such as Vietnam, the media represents mainly the stance of the government with regard to REDD+. The perspectives of business are less represented, and the voices of national NGOs, civil society and marginalized groups are absent. This has a number of implications for the interpretation of media analysis on climate change in the REDD+ arena in authoritarian countries. It also calls for a stronger effort from scientists and journalists to disseminate and inform not only key stakeholders, but also the wider public about REDD+ in Vietnam and its potential impact on the forestry and other sectors.

Our findings also show that while state actors dominate REDD+ media frames, some limited space is present for some non-state actors' interests, but only domestic business and international organisations discussing equity issues are represented. Yet, other domestic non-state actors, seem not to have access to the print media in the REDD+ domain at the moment. While the print newspapers in Vietnam are always controlled by the state, public and social actors have recently gained more space to express their views on government policies through social media and the internet. It remains to be seen whether these developments can help to democratize the media landscape on REDD+, as well as other issues, in the future.

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Narrating illegal logging across the globe: between green protectionism and sustainable resource use

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SUMMARY

In the last decade illegal logging has triggered the attention of policy makers and scholars of international forest governance. The issue is multifaceted, involving aspects of social and environmental sustainability, development, trade, access to markets and competitiveness. A vivid academic debate has resulted, exploring the nexus between markets and trade on one hand, and environmental and social sustainability on the other. The purpose of this paper is systematically assess the international policy discourse on illegal logging and legality verification policies in different regions of the world, drawing on the concept of policy narratives. Specifically, we analyse and compare policy narratives in Australia, Cambodia, China, the EU, Indonesia, Peru and the US. Our analysis is grounded on a rich empirical basis consisting of 260 interviews conducted by various researchers, numerous conversations with practitioners, policy documents and a media analysis. We find striking differences across the globe in narratives about illegal logging and legality verification and conclude that these need to be considered when assessing the support for, and the current and potential effects of, the emerging legality verification regime.

Keywords: global forest governance, legality verification, narratives, illegal logging, forest policy

Etat de la coupe de bois illégale à travers le monde: entre le protectorat vert et une utilisation durable des ressources

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La coupe de bois illégale a attiré l'attention des créateurs de politique et des érudits de la gestion forestière internationale durant cette dernière décennie. La question comporte plusieurs facettes, incluant des aspects de durabilité sociale et environnementale, le commerce, le développement l'accès aux marchés et la compétitivité. Un débat académique vigoureux en a résulté, explorant d'une part les liens entre les marchés et le commerce et la durabilité environnementale et sociale d'autre part. Le dessein de ce papier est d'évaluer systématiquement le discours de politique internationale sur la coupe de bois illégale et les politiques de vérification légale dans diverses régions du monde, en s'inspirant du concept de narration politique. Nous analysons et comparons spécifiquement les narrations politiques en Australie, au Cambodge, en Chine, aux Etats-Unis, en Indonésie, au Pérou et dans l'Union Européenne. Notre analyse est ancrée sur une riche base empirique, consistant de 260 interviews conduites par divers chercheurs, de nombreuses conversations avec les acteurs, de documents de politique et d'analyse médiatique. Nous découvrons des différences marquées dans les narrations de la coupe de bois illégale et de la vérification légale à travers le globe et en concluons qu'elles doivent être prises en compte dans l'évaluation du soutien accordé au régime de vérification légale émergeant ainsi que dans l'observation de ses effets potentiels et actuels.

Narrando la tala ilegal a través el mundo: entre proteccionismo verde y el uso sostenible de recursos

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La tala ilegal ha sido desde la última década un tema de preocupación para políticos y académicos de gobernanza forestal internacional. El tema es complejo y toca aspectos de sostenibilidad social y ambiental, desarrollo económico, comercio, acceso a mercados y competitividad. A raíz

de eso, se ha generado un intenso debate académico. El propósito de este artículo es de evaluar sistemáticamente el discurso en la política internacional de la tala ilegal y las políticas de verificación de legalidad de la madera en diferentes regiones del mundo, usando el concepto de narrativas políticas. Específicamente, analizamos y comparamos narrativas de verificación de la legalidad de la madera de Australia, Cambodia, China, la Unión Europea, Indonesia, Perú y los EEUU. Nuestro análisis se basa en fuentes empíricos que incluyen 260 entrevistas a investigadores, conversaciones con actores del sector, documentos de políticas y un análisis de los medios de comunicación. Encontramos diferencias sorprendentes en las narrativas sobre tala ilegal y verificación de la legalidad de la madera en diferentes regiones del mundo. Concluimos que se debería tomar en cuenta estas diferencias, cuando se evaluara el apoyo a, y los efectos del emergente régimen de la verificación de legalidad de la madera.

INTRODUCTION

Illegal logging is a major issue debated in both environment and development discourses. While it is in the nature of the issue that accurate statistics are lacking, the overall dimension is seen as being significant (with shares of more than 50% of overall logging activities being estimated to be illegal in several important forest countries, cf. Gan *et al.* 2016). Illegal logging is connected with environmental challenges such as tropical deforestation and sustainable forest management, as well as crucial development issues such as free trade, national sovereignty over natural resources and good forest governance (Cashore and Stone 2012, McDermott *et al.* 2014).

For a long time international political initiatives tackling illegal logging targeted countries seen as major producers of illegal wood (so-called "producer countries", e.g. Indonesia or Ghana, cf. Wiersum and Ekands 2013). Policy schemes such as the Forest Law Enforcement, Governance and Trade Action Plan (FLEGT) of the European Union (EU) promote measures to support these countries to enforce their own forest laws and thereby advance their economic development as well as social and environmental stewardship in the forest- and land-use sector (cf. Van Heeswijk and Turnhout 2013).

This approach has changed remarkably in the last ten years. A new generation of policies has emerged that target major wood-consuming markets in industrialized nations (so-called "consumer countries" – the dichotomy producer and consumer countries is widely used in the policy discourse, but neglects the importance of many 'consumer' countries as producers, and reversely 'producer' countries as consumers, see Leipold and Winkel 2016). This is done by prohibiting the import of timber harvested in contravention to the laws of the country of origin. The first of these policies was the 2008 amendment of the US Lacey Act through the Legal Timber Protection Act, which was quickly followed by the EU Timber Regulation (EUTR) in 2010 and the Australian Illegal Logging Prohibition Act in 2012.

All three laws together are portrayed as forming a newly emerging global legality verification regime (cf. Bartley 2014, Overdevest and Zeitlin 2014). Together with the previous initiatives, which target 'producer' countries directly, this regime is viewed as holding the potential to globally promote development and environmental goals related to forest management and the whole forest product chain. However, the specific effects of the legality verification regime are subject to controversial debates. While some scholars expect an enhanced promotion of "environmental and social stewardship in the forest sector" (Cashore and Stone 2012: 1), others point to possible adverse effects such as "disproportionate burdens on smallholders" (McDermott *et al.* 2014: 8) or even see incentives for "governments to weaken their laws" (Bartley 2014: 105, see also Cashore and Stone 2014).

In this paper we assume that the effects of the global legality verification regime will crucially depend on its interpretation (and resulting practices) across different regions of the world, including 'producer' and 'consumer' countries (note that we will use this politically established dichotomy throughout this paper, however we will critically reflect on it at the end, based on our findings). A key to understanding this regime and its possible effects on societies, economies and the world's forests is the analysis of the *narratives* connected to the regime's emergence and implementation.

In the literature up to now, narratives on illegal logging and the emerging global legality verification regime have only been analysed in 'consumer' countries, i.e. the US, the EU and Australia (Leipold *et al.* 2016, Leipold and Winkel 2016, Sotirov *et al.* 2017). This research shows that the development of the regime – specifically the development of the three laws that mainly constitute the regime – required a significant shift in the narratives on illegal logging that re-interpreted environment and development discourses, resulting in a shift of global responsibilities connected to illegal logging. Narratives on illegal logging and the emerging global legality verification regime in 'producer' countries have yet to be systematically analysed. An analysis of these narratives is crucial as the emerging regime is meant to influence global wood trade flows and the connected forest policy and management practices in both the 'Global North' and the 'Global South'.

Against this background, this paper aims to identify and contrast major narratives on illegal logging and the emerging legality verification regime in 'consumer' (specifically in the US, the EU, Australia) and 'producer' (specifically in China, Indonesia, Cambodia and Peru) countries. The US, the EU and Australia were selected because their new legislations built the cornerstone of the legality regime (see above); also, they are crucial wood product consumers (and producers) in the global market. China and Indonesia were selected as they are two powerhouses in the global wood product market (with China being the biggest producer and consumer) and are both very much involved in the global debates on the legality verification regime. Cambodia and Peru were selected as they represent two developing nations with a high share of illegal

logging activities and a limited formal participation in global wood (products) trade. Moreover, Cambodia is a potentially significant exporter of illegally harvested wood in the region (Global Forestry Services *et al.* 2014), and in Peru, illegal logging has in recent years repeatedly reached an extraordinary level of political attention which has resulted in intense political debates about the issue there (Sears and Pinedo 2011). While these countries and regions remain a selection from a much larger set of possible countries and regions (e.g., Africa is not represented), we believe that this selection is representative enough to allow for insightful findings. Hence, based on the portrayal of narratives in these regions across the globe, we then identify and discuss consequences for the impact and relevance of global forest governance.

ANALYZING POLICY NARRATIVES

Narratives can be understood as consistent political stories about an issue. The analysis of narratives is tightly connected to the argumentative (or interpretive) turn in the political sciences (Forester 1993), which emphasizes that political problems and solutions are not just there, but need to be manufactured through processes of truth production. In such processes, narratives (or ''stories'', cf. Bevir and Rhodes 2002, McBeth *et al.* 2005, Roe 1994) are the ''lifeblood of politics'' (McBeth *et al.* 2007: 88). They are the thread "by which policy makers explore social and physical factors and events in order to organize complexity and render it governable by constructing intervention logics via problematizations, offering governance arrangements and assigning responsibilities" (Winkel 2014: 87; referring to Stone 2002, Gottweis 2003).

Narratives are "both the visible outcome of differences in policy beliefs (McBeth *et al.* 2005) and the equally visible outcome of political strategizing'' (McBeth *et al.* 2007: 88). They are hence the result of stakeholders' perceptions and entail a strategic element by representing a certain perception of truth in policy making. In this way, narratives "create a fine web of stories that circulate in a policy arena, connect to superordinate discourses, and either stabilize or destabilize given policy arrangements by providing legitimacy, or orchestrating paradoxes, crisis, and need for change" (Winkel 2014: 87).

Narratives involve the identification and description of the problem (i.e., what is seen as problem – we refer to this in the following as "problematization"), problem solutions, actors and their subject positions (the actor's different roles and responsibilities), as well as perceived implications, threats and opportunities within and across these stories. These very dimensions make them accessible to analysis, and will be explored in the following by bringing together the extensive research data of the participating research groups.

METHODS

Table 1 provides an overview of the social science data used in this paper to represent the narratives in illegal logging and the legality verification regime.

In view of identifying narratives, the data analysis has been guided by the same set of jointly developed analytical questions for each case, focussing on national policy discourses (or supranational in the case of the EU). These questions are:

1. Who is debating illegal logging and related politics in the respective countries/regions? Can major discourse coalitions (i.e. authors sharing a specific narrative) be identified and who is engaged in these coalitions?
2. What are the most important narratives on illegal logging and the emerging legality verification regime in different parts of the world? Specifically,
   a. what issues are presented as major problems related to illegal logging and illegal logging policies?
   b. who is presented as having the responsibility to act on illegal logging and what does the preferred policy solution look like?
   c. what major rhetoric figures (e.g. key terms, metaphors and dichotomies) are reproduced in the narratives (e.g. "developed North" vs. "less developed South"; environment vs. development; legality vs. sustainability etc.))?
   d. which issues/aspects are excluded?
   e. how are the implications (e.g. on forests, forest management and forest-related livelihoods) of the different laws making up the regime perceived in the analysed countries?

In the following, the most prominent narratives are presented for each of the case study regions. Subsequently, we compare narratives across the cases, highlighting similar patterns and notable differences, also with regard to the coalitions producing these narratives in different parts of the world. Finally, we draw conclusions on the potential implications of different ways the global legality verification regime is framed for its further evolution and impact.

COUNTRY STUDIES

Narrating illegal logging in 'consumer' countries

United States

The policy discourse in the US coalesced in relation to amendments to, and implementation of, the Lacey Act in 2008 through the Legal timber Protection Act – which were aimed at stopping illegal timber from accessing the US domestic market. Two major discourse coalitions emerged during these domestic debates, which developed opposing narratives. The first coalition included ENGOs, particularly the Environmental Investigation Agency, and to a lesser extent WWF and Greenpeace, alongside the US domestic timber industry, mainly represented by the American Forest and Paper Association. This industry-environmentalist coalition developed a narrative that problematized illegal logging in two related ways: a) as an environmental challenge related to deforestation in 'producer' countries mostly in the Global South and;

TABLE 1 *Data per country/region*

Country/Region	Interviews	Documents and other data	Detailed publication of the case data (insofar existent)
Australia	8 (with various stakeholders including industry, NGOs and government) conducted 2014 and 2015	38 policy documents	Leipold *et al*., 2016
Cambodia	20 (with various stakeholders including government staff, representatives of development agencies and industry, local leaders and local people) conducted 2011	28 newspaper articles, 5 NGO reports, 5 policy documents	
China	107 (43 with various stakeholders including policy makers, civil society leaders and business officials; 64 with forest users and local forest officials) conducted 2011 and 2012		Cashore and Stone, 2014
European Union	45 (with various stakeholders including forest owners, forest industry, environmental NGOs, national governments and EU institutions) conducted 2013 and 2014	31 policy documents	Sotirov *et al*., 2017
Indonesia	49 (with various stakeholders including policy makers, civil society leaders and industry officials) conducted 2011 and 2012		Cashore and Stone, 2014
Peru	Email exchanges with 3 key forestry experts; multiple informal interviews with forestry experts over a period of over 20 years and participation in multiple forestry forums conducted in 2015	Several reports produced for policy makers, national and international audiences, and research papers; Assessment of news stories, and videos produced by public media that are accessible through the Internet database provided by Mejia *et al*. (2015) Recently completed country-wide study on the country's timber sector, which included legality compliance	Caillaux and Chirinos, 2003; Cornejo-Arana, 2007; EIA, 2012; Mejia *et al*., 2015; Sears and Pinedo, 2011
United States	31 (with various stakeholders including industry, NGOs and government) conducted in 2013 and 2014.	19 informal conversations, 103 policy documents	Leipold & Winkel, 2016

b) as an issue of unfair competition from importers who outcompete responsible American producers by importing much cheaper, but illegal, wood. The policy solution offered by this coalition was to require every company along the supply chain to exercise due care to avoid importing illegal timber, and to develop penalties for non-compliance. Key rhetorical figures include reference to criminals and to American values of fairness and patriotism (protecting US producers against dubious foreign competitors). Notably, the environmental and industry partners in the coalition purposefully agreed to exclude any mention of sustainability in the debate and instead focused on legality (as the first would have redirected the focus from forest management practices in other countries to possibly also include the US, an idea that was strictly opposed by the industry). Moreover, while the link between illegal logging and deforestation was emphasized, the potentially more significant contribution of legal land conversion from forest to agricultural lands (to meet rising consumption) was excluded from this narrative (Leipold and Winkel 2016).

A second distinct narrative in the US policy debate on illegal logging was voiced by a coalition formed of importing wholesalers, and later, building and large retailing companies, including musical instrument retailers whose products often include tropical wood. This coalition did not question the importance of illegal logging as a major environmental policy problem. Instead, they offered a narrative that promoted international voluntary measures to support producers in the Global South to improve their domestic forest governance. Moreover, they criticized the US law as a backdoor protectionist policy aimed at unfairly increasing rent for domestic wood producers, resulting in government overreach that could threaten innocent American manufacturers, retailers and consumers. While their rhetoric was rather muted before the legislative changes, this coalition has become more vocal over time, asserting that the Lacey Act amendments went far

beyond the good intentions connected to tackling illegal logging (Leipold and Winkel 2016).

In sum, the US debate on illegal logging predominately revolved in relation to the Legal Timber Protection Act (amending the Lacey Act) and its implementation, where two distinct policy narratives developed. While the problematic nature of illegal logging as an issue in the Global South was consensual in the US, deep disagreement about the preferable policy solution existed. Moreover, the connection of illegal logging to domestic competition within the US and related effects on competitiveness and US jobs was and is crucial in the US debate on illegal logging.

European Union

In the EU, the prominence of illegal logging and related trade as a topic culminated in the policy making process that resulted in the adoption of EU Timber Regulation (EUTR, adopted in 2010) (Sotirov 2014, Sotirov *et al.* 2017), and the debate continued throughout the implementation stage (Schwer and Sotirov 2014; Sotirov *et al.* 2015, Leipold 2017). The EUTR contains a formal prohibition on placing illegal timber on the EU market and obliges every economic operator who place timber products on the EU market for the first time to exercise due diligence.

The policy discourses surrounding the formulation of the EUTR were marked by heated debates, in particular focussing on a clause prohibiting the placing of illegal timber on the EU market, the relation between legality and sustainability (Sotirov *et al.* 2017), and the allocation of responsibilities (between 'producer' and 'consumer' countries) concerning illegal logging (Leipold *et al.* 2016). The topic of illegal logging rose on the European policy agenda in 2002 when the UK Government and British forest administrations, forest industry and ENGOs jointly defined it as a priority issue and set the objective to prepare EU legislation in the matter. The UK became a focal point calling for common European rules for fair competition and sustainable markets (Sotirov 2014). This ultimately led to the adoption of the FLEGT Action Plan in 2003, which applies the logic of 'consumer' countries helping 'producer' countries through voluntary agreements. The European Commission announced later on that further legislative action was needed to complement and strengthen the FLEGT policies (Sotirov *et al.* 2017).

Following the passage of the US Lacey Act, the idea of closing off EU markets to wood generated from illegal logging increased in salience. Environmental non-governmental organizations (ENGOs) presented European importers as beneficiaries of illegal logging crimes. As a consequence for the European timber importer industry, the protection of their image became a dominant policy priority, and they subsequently called on policy makers to introduce legislation banning illegally logged timber from entering the EU. A coalition pushing for European legislation was formed, made up of these economic groups including associations such as the EU and UK Timber Trade Federations and the Timber Retail Coalition representing leading European retailers, and ENGOs. In terms of the intergovernmental negotiations, the EUTR was supported by member states who significantly depend on timber imports and where the timber import based industry plays an important role (e.g. the UK, the Netherlands and Denmark) as well as by the European Parliament (Sotirov *et al.* 2017).

At the beginning ENGOs portrayed illegal logging as an issue of sustainability, but once allied with the timber importing industry, sustainability was no longer used and the focus was limited to legality and fair competition. A powerful narrative was developed combining the normative power of environmental moral values with legitimate economic arguments. Key rhetoric figures included presenting the EUTR as a legislation that aimed at prohibiting something illegal (a difficult argument to contradict), and linking illegal logging and deforestation impacts to the high-profile global discussions on climate change. In this way, ENGOs put substantial political pressure on governments and caused opponents to lose credibility when questioning the necessity of demand-side actions to curb illegal logging. Once illegal logging started to be debated as a deforestation and climate change issue, there was little legitimate possibility to stop the regulation from being adopted. Next to this environmental morality, industry and business groups further legitimized the discourse as an important trade and industry policy (for eliminating unfair competition on the market) (Sotirov *et al.* 2017).

In opposition to this narrative, European domestic timber producers (public and private forest owners), (exporting) domestic forest industry, and several forest-rich EU member states (e.g. Austria, Germany, Finland and Sweden) opposed the regulatory changes that were suggested by ENGOs and the European Parliament. The narrative of this coalition emphasized illegal logging as a problem that originated abroad and would be better tackled at its source through policies in the 'producer' countries. Additionally, the regulation was portrayed as unworkable, with major challenges regarding its technical and practical implementation. Their narrative also built on concerns regarding compliance with WTO rules on non-discriminatory trade and proportionate costs and burdens. Since this group of European producers and countries could not be easily portrayed as unscrupulous beneficiaries of crimes in tropical countries (because they were producing in Europe) and were perceived as traditional voices in forestry policy, they were able to maintain considerable influence in the process. Nonetheless, they could not overcome the normative power of the discourse in favour of prohibiting illegal activities (Sotirov *et al.* 2017).

Australia

The Australian discourse on illegal logging became particularly prominent in the mid-2000s. The discourse accelerated when domestic industry groups like the softwood and hardwood producers (Australian Forest Products Association, AFPA) and the domestic furniture producing industry (Furnishing Industry of Australia Ltd (FIAA)) called for a measure to close off the Australian market to imports of illegal timber. These debates later resulted in the passage of the Illegal Logging Prohibition Act (ILPA 2012). The dominant narrative in this policy discourse framed illegal logging as a crucial cause of large-scale environmental and social

degradation, particularly in the Global South. It was not seen as solely caused by weak law enforcement and corruption in countries significantly affected by illegal logging, like Indonesia or Malaysia, two of Australia's major timber trading partners; it was also framed as being caused by Australian firms importing morally questionable goods. According to this framing – which stresses the responsibility of Australian importers and the Australian government – the most suitable solution was to close off the Australian market to illegally harvested or traded timber. This solution was presented as enabling Australia to meet its collective responsibility for the global environment (and particularly forests in the Global South) through the support of legal producers in countries struggling with high rates of illegal logging by granting them preferential market access while forcing out irresponsible or less accountable producers.

The two major groups supporting this narrative, the softwood and hardwood producers (the AFPA) and the domestic furniture producing industry (the FIAA), characterized themselves as honest and caring producers who were disadvantaged by foreign competitors selling assumedly illegal timber for unfairly low prices. This narrative was also supported from an early stage by the Australian Department of Agriculture. Some interviewees even characterized the department as the initiator of the legislative process towards the ILPA, because they commissioned a Jakko Pöyry Management Consulting Report in 2005, which assessed the impact of illegal forest products on the Australian market and predicted market gains for Australian producers if such a law was introduced.

Subsequently, ENGOs like Greenpeace engaged in the ILPA policy-making process. Initially they campaigned against timber importing companies in Australia to move them to support the law. Later, they joined the domestic timber producing industry's story line and built a strategic alliance with them. The Australian ENGOs' story line continued to portray illegal logging as an issue of sustainability even though they allied with the softwood and hardwood producers and the domestic furniture producing industry (cf. Greenpeace Australia Pacific 2011), which aimed to exclude sustainability from the debate. This can be explained by an extension of the strategic alliance to large retailers (understanding themselves as first movers regarding responsible sourcing) and Church groups (stressing wider moral questions like sustainability and proceeds of crime) in Australia (cf. Greenpeace *et al.* 2013). Australian ENGOs and Church groups particularly promoted a solution strategy to tackle illegal logging by introducing legislation against money laundering; nevertheless, this solution strategy was excluded from the final policy solution, the ILPA (Leipold *et al.* 2016).

An essentially distinct narrative on illegal logging was promoted by the Australian Timber Importers Federation (ATIF). This narrative portrayed illegal logging as a problem of large exporters of tropical hardwood like Indonesia. As such, it was not seen as Australia's responsibility to develop a solution strategy but rather an issue of the international community, which was already supporting countries seen as predominantly affected by illegal logging with voluntary measures like the Forest Law Enforcement and Governance Initiative. This narrative argued for the logic of assisting 'producer' countries in their domestic efforts to "stop illegal logging where it's happening" (Australian industry representative) instead of tackling the international trade of illegal logs by closing off 'consumer' countries' markets. It portrayed the ILPA as government overreach, potentially impacting importers' competitiveness and thereby threatening Australia's position as an international market place for timber. Notably, this narrative did not succeed in overcoming the normative power of the idea to introduce a law against illegal activities. The domestic wood (products) industry did however actively approach the opposing timber importing industry so as to include the latter's considerations in the design of the ILPA, which was eventually also happening (Leipold *et al.* 2016).

Narrating illegal logging in 'producer' countries

China

In China the discourse over illegal logging has changed substantially in the last 15 years as domestic officials shifted from strongly resisting to accepting legality verification. During this period there were three main narratives that circulated regarding the intentions and potential impacts of legality verification. Initial resistance was based on scepticism that illegal logging was a meaningful concern for Chinese consumers and was instead driven by a Western desire for protectionism. Two other narratives soon appeared, outlining reasons for Chinese support of legality verification. First, a narrative of business pragmatism supported legality verification as being important because international trading partners were demanding it. Second, the forestry management segment of the government determined that support for legality verification fits well into their existing policy initiatives and provides further reason to support their taxation efforts for the granting of timber transportation permits.

The business pragmatism narrative was important for securing the support of internationally oriented timber companies in China. It quickly became clear to the Chinese government that international corporations were committed to following the requirements set by both the EUTR and the US Legal Timber Protection Act. As a country heavily involved in wood processing and production, this meant they would need to follow the demands of these international customers. The Chinese government was reassured to find that the legality verification efforts were not aimed at undermining internal government policy or threatening national sovereignty. While international customers were interested in following rules set by EU and US officials, the main source of revenue for the Chinese wood product industry is the domestic Chinese market. By not destabilizing the domestic market, the illegal logging initiatives were far less concerning to Chinese officials. This ensured that even if most of the industry did not trust Western environmentalist concerns for illegal logging, only those who maintained international customers would be affected.

Internal bureaucratic power politics within the Chinese government favoured supporting this issue based on a narrative of strengthening state capacity. The Chinese State Forest Administration (SFA) had been granted authority under China's twelfth five-year plan to develop a new national certification scheme. Officials reasoned that they could fold legality verification efforts into this scheme to allow the SFA to have authority to regulate both domestic and international timber within their supply chains. The goal was to protect their existing mechanisms for taxing the transportation of timber. At this time other government departments were seeking to have SFA stripped of that authority in an attempt to lower the tax burden on Chinese businesses. By supporting national forest certification and legality verification, the SFA developed support for their standing taxation efforts.

Central to the Chinese approach to legality verification is a perception that some international environmental programs are designed to undermine the competitiveness of the Chinese wood product industry. This narrative dismissing environmental concerns as a subversive method to reduce developing countries' competitive advantages in timber trade saw legality verification as a program designed to protect faltering Western wood product companies. With time the Chinese government came to recognize that while legality verification has the potential to buttress faltering Western companies, it does not substantially impede the Chinese wood product industry. Rather, complying with legality verification created pressure to streamline existing fragmentation in the wood product supply chains throughout China. While there was some concern that the ultimate burden would fall on small- and medium-size industry, the industry itself is going through restructuring towards large-scale production due to increasing labour costs and competition from Southeast Asian nations. Furthermore, the limited enforcement of the EUTR and US Lacey Act amendment is seen as not having a significant direct impact on Chinese industry.

Indonesia

The interest in legality verification within Indonesia has been substantial and this is evident in its progression in the FLEGT programs and negotiations. Indonesia was among the first countries to initiate international negotiations in an effort to halt illegal harvesting within their own borders and presently stands as one of only two to deliver any shipments of legally verified timber. The drivers for these efforts were both environmental and economic concerns. Indonesia faced rapid deforestation following its transition to democracy. While democracy was a welcome end to an oppressive authoritarian regime, the institutional decentralization that followed was associated with a large-scale boom in illegal logging and rapid deforestation as local officials created forest concession permits to enrich themselves (Purwanto 2005). This issue is an essential concern for the Indonesian central government forestry department. Timber concessions were struggling at the same time that large volumes of illegal timber were leaving the country, in part due to weak institutional controls. Accordingly, the Indonesian government saw legality verification efforts as a way to buttress their existing governance efforts and to develop new pathways for enforcement. This effort to return control to the central government became a central narrative for government officials eager to reassert control over local officials. Despite the strong institutional reasons to support legality verification, they remained concerned that if they spent resources to develop certification without any market incentive to support these efforts then they would hurt their competitiveness nationally. For this reason the initial FLEGT negotiations faltered when the EU failed to enact legislation requiring the purchasing of legal timber. It was only after the US Lacey Act Amendment and the passage of the EUTR that the Indonesian government fully committed to developing legality certification nationally.

Indonesia developed a national timber-tracking program, *Sistem Verifikasi Legalitas Kayu* (SVLK). This was a substantial institutional change made by the government to address illegal logging, but this effort only impacted parts of the issue. Broadly, the industry was worried about low-stocking volume in concessions as well as the expansion of palm oil and mining interests, which were getting priority for land over timber. These pressures formed the basis of the second major supportive narrative, that legality verification would be a way to revitalize the industry and secure preferential trading relationships. Many in the Indonesian timber industry looked to legality verification as a potential form of salvation as they hoped that it would provide secure linkages to trade with the most lucrative markets and provide a price premium based on assurances of legal status. The SVLK sought to help the industry by improving their reputation and pushing the issue of overlapping concession rights to the fore. For instance, if a segment of land has both a mining concession and a timber concession on it, then conflicts over use will arise; the SVLK provides a forum for adjudicating these conflicts.

In this way, much of the policy narrative in Indonesia focuses on the role of streamlining efforts to address institutional confusion, to clarify rights, and to protect the timber industry from falling competitiveness. Indonesia seeks to reduce conflicts in rival industries, to clarify issues in informal ownership rights and to reduce intergovernmental competition. Legality verification provides a market incentive that encourages negotiation relating to these issues. While it has not solved any of these issues, the fact that these efforts have led to dialogue and some legal clarification is already progress. In the long term, the major issue is whether corruption, competition and weak governance will destabilize existing progress or if legality verification will provide sufficient incentives to combat these long standing issues.

Cambodia

The discourse on illegal logging in Cambodia is highly fragmented. At the time of study, knowledge and awareness about legality verification was practically absent outside the national government agencies and the international community. The narrative of international organizations, donors, and NGOs was, and still is, that illegal logging is one of the main causes of forest loss in Cambodia made possible mainly because high-level government officers are involved and/or benefit (see e.g. Verver and Dahles 2015, Global Witness

2013). Internationally owned economic land concessions (ELC) and the military are also involved (e.g. Milne and Mahanty 2015, Global Witness 2013, 2009). According to this narrative, illegal logging causes biodiversity loss and has serious implications for rural poor people, a majority of who depends on forestland and forest products (Nathan and Boon 2012). Improved forest governance is a core element of most suggested solutions, ranging from national forest programs to community forestry and large-scale internationally funded programs such as REDD+ and legality verification (Nathan and Pasgaard 2017, RGC 2010, UN-REDD 2011).

The Royal Government of Cambodia has expressed interest in legality verification, but was, at the time of study, not very articulate about illegal logging or its implications, and the topic was sensitive. The Forest Administration (FA) pointed to official statistics showing that Cambodia hardly exported any timber at all. At the time of writing, Cambodia has still not entered actual VPA negotiations with the EU (EFI 2017). Newspapers in English regularly report that government agencies have seized loads of wood from illegal loggers meant for export, imposed fines on the loggers, and/or destroyed it (for instance, Pye and Titthara 2014a). Yet they also report that parts of the seized wood is resold and subsequently exported to China and Vietnam (Pye and Titthara 2014b). One of the few respondents from the FA that was familiar with legality verification considered these findings "no big issue." Though he appreciated the prospects of EU funding for good governance, he did not expect it would be large enough to make a real difference. Yet he did expect legality verification to become beneficial for Cambodia's planned future export of plantation wood.

The narrative according to local rangers in a national park under the Ministry of Environment was about "influential people" (not necessarily high level government officers) being behind illegal logging, by organizing local people and providing them with chainsaws. The rangers themselves felt they lacked the authority and capacity to deal with the magnitude of the problem. The only thing they could do was to collaborate with local community leaders and try to identify the chainsaw users. In their view, since illegal logs from the national park were sold mainly at local markets, they did not see international legality verification as a solution, at least not the way we presented it to them.

In the 1990s private international forest companies dominated the forest sector in Cambodia (e.g. Billon 2000). In 2002 the government introduced a logging moratorium, and currently very few private timber companies are left in the country. Nevertheless, the Cambodian Timber Industry's Association (CTIA) was still active at the time of research, lobbying for policy change. According to CTIA, illegal logging was not the problem; the problem was that the ELCs were often established in natural forests, but rarely made use of the wood they felled. This was because it was too expensive and difficult for them to get government permission to export, and because they lacked the relevant expertise. Instead, they burned the wood, primarily at night. Cambodia therefore not only loses forest but also huge amounts of revenues. According to CTIA, the government should allow the forest companies back, allow exporting, and recognize legality verification as part of the solution.

At the local level, there is a rapidly growing rural population. There is also an increasing amount of community forest groups, initiated by NGOs and approved by government (e.g. Yeang 2012). When asked about the main causes of deforestation and forest degradation, local people and community forest groups mostly mentioned logging by "high ranking people", the military and other outsiders. They also often mentioned encroachment by local people, including domestic immigrants, who need land for cultivation. The implication is that local people lose access to forest land, forest products, and livelihoods (Nathan and Pasgaard 2017). As part of the solution, the local people we interviewed called for increased government support and for more resources and authority for forest patrols.

Peru

Concern over illegal logging in Peru intensified since about 2000, when the Peruvian forestry administration tried to promote the forest sector, including to international investors (Cornejo-Arana 2007). This concurred with the enactment of Forestry Law 27308 in 2000. This law changed forest exploitation as it abolished the small concessions of 1,000 ha, which had been created by the Forestry Law of 1974. Under the 1974 law, an informal system of forest exploitation operated parallel to the formally approved extraction and marketing of timber. At that time, all the actors in the forestry sector were aware that close to 100% of the extracted timber was illegal. It was expected that the reforms proposed under Law 27308 would improve legality compliance within the forest sector. In addition to the law, the state and ENGOs initiated a targeted crusade to eliminate illegal logging, forming the Multisectoral Commission to Combat Illegal Logging. Though this had no real impact, it made the issue newsworthy (Cornejo, personal communication).

The earliest reference to illegal logging in the media that we are aware of is from 2002. It concerns a report on illegal logging of mahogany in the Peru, Brazil and Bolivia border region (Caillaux and Chirinos 2003). Subsequently, an increasing number of reports on illegal logging emerged (e.g. Aidesep 2007, Cornejo 2007, IEA 2012). Previous analyses on Peru's forest sector had pointed out the negative impact of logging on species and forests, the detrimental impact of debt peonage arrangements on forest communities, and the mismatch between areas authorized for logging and areas actually logged (Chirif 1983); but these were not yet characterized as illegal logging. During much of the 1980s and 1990s Peru was occupied with insurgent groups, who operated in the country's forestry centres, like Pucallpa; as such, the forest sector was mostly dormant during those years. The late 1990s saw the beginning of a progressive national government supporting the revival of the industry.

The debate on illegal logging intensified in the mid-2000s. Especially during the early years, short news articles appeared regularly in specialized online periodicals, for instance *Sevicio en Comunicacion Intercultural* (http://servindi.org/nosotros), and also in mainstream newspapers, for instance

El Comercio. A study on illegal logging in Peru (Mejia *et al.* 2015) tracked media reports related to illegal logging and other irregularities in forestry related articles; the study found 115 articles between 2006 and 2014 in *Ahora* and 34 in *Impetu*, two regional newspapers. Illegal logging was also addressed regularly on television.

Based on this latter analysis, a number of illegal logging narratives can be identified. They emerged to some extent sequentially. These narratives are: illegal logging destroys natural populations of valuable timber species like mahogany and tropical cedar; illegal logging has detrimental impacts on indigenous communities; illegal logging persists because it is condoned and supported by a corrupt forestry administration and it is costing the state important amounts of money; illegal logging is a threat for the Trade Promotion Agreement with the US.

The protagonists are slightly different for the distinct narratives. In the case of high-value timber species depletion, the primary protagonists are professional foresters. In the case of negative impacts for indigenous people, the narrative is especially supported by indigenous groups' organizations, which also take up the narrative of species extinction, likely because this also helps further the support for indigenous groups. A wide group of actors take up the narrative of illegal logging in regards to Peru's international relations; the international trade narrative is seen as a new opportunity to voice their disagreement with illegal logging by them. The narrative on illegal logging and corruption of government agencies and officials fits within the wider civil society concerns and opposition against similar practices especially within the realm of regional governments and is hence supported by ENGOs.

The framing of illegal logging as detrimental for indigenous people has evolved into a narrative of violent exchanges between illegal loggers and indigenous people, the latter have meanwhile begun taking active measures to stop illegal logging in their territories. In recent years, more reference is being made to how illegal logging in Peru is framed in the international discourse. This internationalization of Peru's illegal logging is reflected, for instance, by regular stories on Peru's illegal logging in the New York Times. These stories are subsequently reported as news in Peru's public media.

Summary

Table 2 provides an overview of the narratives we have identified in the seven regions in this paper.

DISCUSSION – COMPARING ILLEGAL LOGGING NARRATIVES ACROSS THE GLOBE

Our analysis has revealed a diversity of narratives across different regions relating to the issue of illegal logging and the global legality verification regime. Narratives differ greatly in terms of the overall problem perception, responsibilities, policy preferences and solution strategies.

Taking a closer look, however, reveals some similarities amongst regions. To begin, illegal logging policy narratives are similar amongst the three analysed 'consumer' countries/regions US, EU and Australia. In each region, one pro-legality-verification and one counter-legality-verification policy narrative were identified. While the former emphasizes the international responsibility of 'consumer' countries and supports regulatory policies foreclosing domestic markets for illegal timber (which have meanwhile been adopted in all three regions), the counter-narratives underline the responsibility of 'producer' countries and the importance of soft international governance approaches. Notably, both narratives depict the respective opposition in an unfavourable light – with the pro-narratives suspecting opportunistic or even criminal interests being responsible for the opposition against legality oriented legislation, and the counter-narratives surmising green protectionism and unfair competition as essential motivations of the supporting groups. With these main patterns being similar across the three regions, differences exist regarding the argumentative patterns and the strategic alliances and coalitions that share the respective narratives.

As for the 'producer' countries, the picture is more diverse. In China, the powerhouse of the global forest product market, the narrative emphasizing green protectionism as a major motivation behind Western 'consumer' countries' regulatory policy approaches mirrors the narrative of the critics of legality verification within these 'consumer' countries. At the same time, a pragmatist narrative considers legality verification as an opportunity for Chinese exporters. This mirrors the narrative of the export-oriented forest industry in Indonesia and Cambodia. A third narrative in China supports legality verification as a tool to strengthen state government in domestic forest governance, also to combat competition with other policy sectors. A similar narrative is also found in Indonesia, but in regards to (re-)centralizing forest governance.

For the cases of the developing countries of Peru and Cambodia, the debate on illegal logging seems to be less structured and more fragmented. Several narratives related to illegal logging circulate amongst different societal groups, and the governments' position themselves much more cautiously when confronted with accusations of illegal activities in their territories. This guarded positioning goes together with the finding that in these countries, the knowledge related to legality verification is often limited to a narrow circle of internationally oriented NGOs, industry representatives and government officials, while many other forest experts do not consider the issue to be important, or even know about it.

One interesting finding from our review relates to the debatable distinction between 'producer' countries and 'consumer' countries (which, to recall, neglects the major importance of the 'consumer' countries as producers and vice versa): the degree of internationalization in the respective illegal logging debates differs significantly. In 'producer' countries, the debate focuses more on domestic issues (e.g. national competitiveness, sovereignty, indigenous people, conflicts between industries over concessions) than on global dependencies or global governance. This holds particularly

TABLE 2 *Illegal logging narratives across the globe*

Country	Narrative	Problematization	Policy Solution including responsibilities	Major rhetoric figures	Major exclusions	Impact of the global legality (verification) system	Main actors supporting the narrative
USA	**Protect US producers and Southern forests**	Illegal logging as environmental and social hazard, US importers as potentially criminal profiteers	Domestic Law effectively closing the US market for illegal timber	Fair competition, unfair/criminal US importers, illegal logging major global problem linked to deforestation	Sustainability (focus is only on legality), contribution of other factors to deforestation (e.g., consumption patterns)	Not specifically discussed, national law preferred solution which is believed to be effective globally	Domestic wood (products) industry and environmental NGOs
	Tackle illegal logging internationally and avoid green rent seeking	Illegal logging is a major problem, but outside the US, not US responsibility	Tackle illegal logging at its source in the Global South (through international voluntary measures)	Unfair rent seeking of US producers destroys competition; Lacey Act and its implementation is government overreach	Responsibility of US-based companies (as importers)	Voluntary and market based instruments are positive, regulation can result in trade distortion and unfair competition	Timber importers, music merchants, building companies, and retailers
European Union	**Protect European industry and world forests**	Illegal logging as a problem linked to deforestation, and climate change, with negative impacts on the image of EU timber industry	EU legislation prohibiting illegal logged timber from entering EU markets	Moral dimension of the EUTR (prohibiting what its illegal)/ fair competition vs. unfair competition/ links to deforestation and climate change	Sustainability (narrow focus on legality)	EU legislation is presented as the most efficient solution	ENGOs, EU timber importing industry, EU timber-importing member states, European Parliament
	Fight illegal logging where it occurs and avoid unfair competition	Illegal logging as problem abroad, fostering unfair competition within the EU	Illegal logging to be prevented through policies in the producing countries	Fair competition, unfair competition/ punishment of domestic industry with additional burdens/ challenges of technical implementation of the law and the practical assessment of legality	Responsibility of EU based companies	Voluntary instruments like FLEGT and market-based instruments are appropriate to tackle the problem; EU regulation results in trade distortion that can affect compliance with WTO rules	European domestic timber producers, domestic forest industry, forest-rich EU member states

TABLE 2 *Continued*

Country	Narrative	Problematization	Policy Solution including responsibilities	Major rhetoric figures	Major exclusions	Impact of the global legality (verification) system	Main actors supporting the narrative
Australia	**Protect Australian industry and the world's forests**	Illegal logging as a problem linked to deforestation and social problems abroad, Australian domestic producers as potentially disadvantaged	Domestic Law closing the Australian market for illegal timber	Fair competition, international efforts to prohibit illegal logging, normative power of prohibiting what its illegal, global deforestation and social problems/ organized crime	International money laundering as mechanism of illegal timber trade, partly sustainability (focus is mostly on legality but recognition of sustainability certification schemes)	Australian legislation as complementing the US LTPA and the EUTR and, thus, closing off crucial consumer markets	Australian domestic softwood and hardwood producers, Australian domestic furniture producing industry, ENGOs like Greenpeace, Church groups, large retailers
	Tackle illegal logging through international initiatives and avoid domestic regulation	Illegal logging as a problem of 'producer' countries of the Global South	Illegal logging to be prevented through international policy initiatives tackling the problem at its source	Punishment of domestic industry with additional burdens, international competitiveness of Australian industry at risk	Responsibility of Australian companies (as importers)	Voluntary international initiatives supporting countries of the Global South as appropriate solution, more regulation is a burden to importers and risking Australia's position as international market place for timber	Australian timber importers
China	**Legality verification as a tool to weaken Chinese firms competitiveness**	Illegal logging is other countries' problems; Chinese government only buys legal timber, and all domestic timber is legal	Include legal status tracking in existing government programs related to forest certification, forest planning, and taxation of timber transportation, otherwise no action needed	Environmentalists and foreign firms seek to weaken Chinese competitiveness	China's involvement in extracting illegal timber in Russian Far East	No impact is seen	Small and medium sized timber companies and Chinese government officials
	China supports legality verification where customers demand it	International buyers have to comply with the EU and US law	Medium and large companies targeting international export markets improve their supply chain governance	Customer is always right	All consumption by Chinese domestic market	Little to no impact is seen on the Chinese market itself	Chinese timber industry that seeks to export wood products

TABLE 2 *Continued*

Country	Narrative	Problematization	Policy Solution including responsibilities	Major rhetoric figures	Major exclusions	Impact of the global legality (verification) system	Main actors supporting the narrative
China (cont.)	**Legality verification enhances state authority over timber industry**	Forestry department is losing control about timber production and trade	Develop legality verification as part of national certification and timber licensing program, strengthen control	Bureaucratic conflict internal to Chinese government	Opposition to taxes on timber trade in China	A technocratic approach is built into the world's largest timber processing country. Streamlines internal Chinese timber traffic to be more transparent	State Forestry Administration officials
Indonesia	**Legality verification as a key tool to revitalize the forest industry**	Faltering concessions elicited demand for new efforts to improve Indonesians competitiveness in forest products.	Utilize legality certification to generate a price premium or a preferential purchasing system.	Large concession holders saw their industry in shambles. Hope to secure preferential access to lucrative markets or price premiums.	Driver of illegal logging and deforestation was overcapacity in mills resulting from authoritarian governance.	Indonesia's progress under FLEGT serves as a model for other countries to potentially follow	Domestic timber companies and wood product exporters
	Legality verification as a tool to strengthen and (re-) centralize state government	Local officials and petty corruption drive resource grabs.	Reaching out to international level and developing new institutions can reduce the fragmentation of authority.	Centre versus periphery where decentralization is problematized by national officials	Corruption at national level	Legality verification requires clear procedures and authority. The central government needs to reassert control over chaotic on the ground practices	National forestry department officials
Cambodia	**Illegal logging made possible by "bad" governance, govt. staff do illegal export**	Illegal logging causes loss of valuable forests and livelihoods.	Government is the main actor responsible for the problems as well as for the solutions.	Corruption, land concessions, violence, eviction of poor people, forest loss	Fragmentation of government, pressure on land due to population increase	Legality verification is one of the options for improved forest governance	NGOs/development agencies/
	The problem of illegal logging is acknowledged but not openly debated	Illegal logging means loss of forests and forest revenues.	Increased control of transportation of wood.	Better state control	Government involvement, export of wood to Vietnam and China	Legality verification considered "just another program"	National level Forest Administration
	Inappropriate land concessions lead to the destruction of natural forest	Wood destroyed in land concessions means lost profits	Need to restore the reputation of forest companies who are the experts for forest management	Lost profits, lost opportunities, economic land concessions.	Forest companies' own role in deforestation in the 90s	Legality verification one of the options	Main organization of timber companies

TABLE 2 *Continued*

Country	Narrative	Problematization	Policy Solution including responsibilities	Major rhetoric figures	Major exclusions	Impact of the global legality (verification) system	Main actors supporting the narrative
Cambodia (cont.)	**High level people organize illegal logging, people on the ground carry it out**	Protected national parks are destroyed	Increased capacity of personnel on the ground	Chain saws, lack of staff and authority, local people versus outsiders	Own possible negative involvement, rent seeking behaviours mentioned by other stakeholders	Legality verification is not known. Most felling is for local/ national use.	Local antennas of ministry of environment/local antennas of forest administration
	Illegal logging by high ranking people, the military and other outsiders. Local people encroach for agriculture	Local people lose access to forest land, forest products, and livelihoods	Support from outsiders, support from government	High ranking people, military, "what can we do?" forest patrols, need for support	Observation that villagers themselves do illegal logging	No knowledge about legality verification	Local people
Peru	**Illegal logging destroys valuable timber species**	Impact on scarce and protected species Corruption and poor public administration	Improved monitoring and DNA based timber tracking	Unscrupulous forest entrepreneurs destroy forest wealth owned by everybody	Legal logging of several species threatened with overharvesting	The impact is perceived as being small but increasing	Narrative is supported by some, but not all government agencies, and by environmental organizations
	Illegal logging is a threat to economic and social life of indigenous people	Impact on indigenous people	Empower and authorize communities to implement forest monitoring	Unprotected and defenceless forest dwellers are the victims	Indigenous communities also participate knowingly in illegal logging	The global legality regime has boosted the opportunity to defend indigenous rights	Indigenous people's organizations and support organizations; government agencies with a mandate to defend human rights
	Illegal logging relies on a corrupt forestry administration	Illegal actions of public officials	Monitoring of the sector through an agency that is under the presidency	Public officials are trying to enrich themselves by abusing authority	Corruption is widespread within public administration, and forestry officials feel little restrain	International community condones corruption and limits trade if there is proof of corruption	Private sector, civil society organizations, international development cooperation community
	Illegal logging undermines trade relations with the US	Negative effects on trade relations	Improved monitoring and DNA-based timber tracking	The greed of a few forest entrepreneurs threatens the economic progress of the majority of Peruvians	Illegal logging is condoned by some high level bureaucrats and by legislators who are in cahoots with entrepreneurs	The USA Peru Trade Promotion Agreement which was signed in 2006 pushed the importance of the issue	Mostly government and the public media

true for the two developing countries we have assessed, Peru and Cambodia. Illegal logging is here connected to a complex array of home-made problems. In line with this finding, these countries rarely discuss forest management practices in other countries, e.g. 'consumer' countries. In contrast, the domestic policy discourses of Australia, the EU and the US focus on forest management practices in the Southern 'producer' countries. While we would like to warn against too far reaching generalizing from these findings, specifically with regard to the diverse set of developing countries, which we have only selectively covered, our findings do indicate an imbalance in the global debate. This imbalance perpetuates the debatable distinction into the 'producing Global South' and the 'consuming Global North' on this issue, which has been established by the latter through the focus on legality instead of sustainability (Leipold and Winkel 2016). And indeed, when it comes to the larger issue of sustainability and how it relates to legality in forest management, the link between both is not strongly expressed in many of the policy narratives we have analysed. In China, Indonesia, Peru and Cambodia it is only partly discussed by NGOs and the social movement; and in Australia, the EU and the US it has been purposefully excluded in the policy discourses as a result of NGOs joining strategic coalitions with industry to enable anti-illegal logging legislation.

Finally, it is interesting to observe different perceptions across the analysed countries when it comes to the evaluation of the effectiveness of an emerging global legality verification regime. Narratives in the 'consumer' countries Australia, the EU and the US seem to largely assume the effectiveness of their domestic policies internationally. In these cases the debates on the positive or negative effects of legality verification is largely connected to the assumption of effective policies that will affect global trade, production and the competitiveness of their domestic industries. On the contrary, in the 'producer' countries China, Indonesia, Cambodia and Peru, the regime's effectiveness is seen as rather limited. These perceptions are also related to the diverging assumptions of the causalities of illegal logging that are narrated in the respective regions, and to the respective exclusions of causalities such as international demand for timber (largely excluded in China, Indonesia, Peru and Cambodia) and complexity of domestic causal factors relating to illegal logging (largely excluded in Australia, the EU and the US).

CONCLUSIONS

The rise of illegal logging as a top priority issue is connected to a variety of issues and developments in global forest governance, some of which have been discussed for a long time (e.g. concerns about tropical deforestation and debates about decentralization versus central state government), others relating to more recent changes (e.g. the rise of the emerging economies such as Indonesia and China as competitors on the global forest product market). In this paper, we have shown that illegal logging and the global legality verification regime is narrated in very different ways across the globe. This diversity means challenges and, at the same time, opportunities. On one hand, connecting the global regime to distinct domestic narratives – and the related worldviews, perceptions and interests – is probably the only way to make the legality verification regime effective at all. Without creating such connections to domestic policy issues and stakes, the necessary support for the national implementation of policies will likely be missing.

On the other hand, the diversity of narratives across regions does create a major challenge for a global legality verification regime. As this paper shows, support for legality verification comes from very distinct (in some cases hardly complementary) perspectives, against the background of distinct political cultures and related interests. It is an interesting question how far these strikingly different perceptions and related policy strategies can be connected to an overall effective global regime. Moreover, the diversity of interests and motivations linked to legality verification in different regions of the world (ranging from competitiveness, re-centralization and re-vitalization of the timber industry to sustainable management and social and ecological issues) raises the question: what objectives can the effectiveness of the regime be measured against and tracked with over time? In our view, the plurality of goals related to legality perception across the globe makes it questionable to assume that the impact and effectiveness of a global legality verification regime can be measured against a priori objectives established by one specific narrative, e.g. the narratives of the supporting ENGOs and industry in Northern 'consumer' countries. Rather, the mosaic of narratives in which the legality verification regime is reproduced across the globe, and which constitutes the regime politically, will translate into a mosaic of perceptions of its impacts and effectiveness. Consequently, further analyses of the legality verification regime need to integrate regionally diverse perceptions (and possibly effects) of the regime.

The strength of the regime may lie precisely in regional support and the ensuing regional effects without a globally shared problem perception, shared policy goals and shared policy solutions. For instance, supporting narratives in China and Indonesia that assume legality verification will foster national competitiveness, law enforcement or trade relations with the global market are likely to promote the implementation of the regime as do ENGOs narratives on legality verification as a basis for the protection of the world's forests. To carefully assess and make use of these distinct perceptions in view of own pursued goals (whether they be related to the competitiveness of the industry, or to environmental sustainability of forestry worldwide) may be the essence of global forest diplomacy in upcoming years, instead of attempting to arrive at a globally shared vision (consensus) on what needs to be done. Skilful policy brokers or mediators, i.e. government officials, international organizations, or even private sector organizations who have credibility and an understanding of the debates on both the international and domestic levels, can play a crucial role to act as discourse agents

(Leipold and Winkel 2017) and to connecting narratives at different policy levels in order to (incrementally) advance the legality verification regime across the globe.

To assess distinct perceptions of objectives, impacts and effectiveness in different regions of the world remains a major task for future, possibly internationally comparative, research. This research must, on one hand, embrace and analyse the diversity of perceptions of the legality verification regime without implicitly assuming that only one perspective is right. On the other hand, it must also address the crucial question of how the legality verification regime will relate to global forest governance as a whole, i.e. including issues such as sustainability and societal participation. Finally, it would be charming for future work to take up a broader, interdisciplinary perspective and to connect the analysis of policy narratives and perceptions with complimentary analysis of developments relating to global trade or the state of the forests. This paper is meant to pave the ground for such an academic engagement with the legality verification regime as an essential new pillar of global forest governance.

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What can environmental narratives tell us about forestry conflicts? The case of REDD+

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SUMMARY

The aim of the article is to introduce three environmental narratives – ecological modernization, civic environmentalism, and radical environmentalism – to analyse them from the point of view of their normative presuppositions, and then to show how this narrative/normative apparatus can be used as a heuristic device to explain a set of conflicts afflicting market-based forestry policies. Using this narrative/normative apparatus as a template, the article provides a review of academic and grey literature on REDD+ projects, in order to show how conflictual situations in the implementation phase of market-based forestry policies can be explained by the competing systems of values of the different actors involved, as well as by their strategic positioning in relation to dominant ideas in environmental politics. The article is useful to REDD+ practitioners, helping them appreciate how the stories people tell about the environment and how these are used by different actors can shape policies on the ground.

Keywords: discourse, justice, FPIC, carbon monitoring, property rights

Que nous disent les récits environnementaux à propos des conflits forestiers? Le cas de REDD+

U.M. SCONFIENZA

L'objectif de l'article est de présenter trois récits environnementaux – modernisation écologique, écologisme civique et écologisme radical – et de les analyser du point de vue des leurs postulats normatifs et, ensuite, de montrer de quelle manière cet appareil narratif/normatif peut être utilisé comme instrument heuristique pour expliquer une série de conflits qui accable les politiques forestières axées sur le marché. En utilisant cet appareil narratif/normatif comme canevas, l'article offre une revue de la littérature académique et grise sur les projets REDD+, pour expliquer comment les situations conflictuelles lors de la phase d'implémentation des politiques forestières axées sur le marché, peuvent être expliquées par des systèmes de valeurs opposés des différents acteurs concernés, et par leur positionnement stratégique en relation aux idées dominantes dans les politiques environnementales. L'article est utile pour les spécialistes des projets REDD+, en les aidant à comprendre de quelles manières les histoires racontées par les gens nous disent de l'environnement et comment celles-ci, lorsqu'elles sont utilisées par les différents acteurs, peuvent changer les politiques sur le terrain.

¿Qué pueden decirnos las narrativas ambientalistas sobre los conflictos forestales? El caso de REDD+

U.M. SCONFIENZA

La finalidad del artículo es introducir tres narrativas ambientalistas – la modernización ecológica, el ambientalismo cívico y el ambientalismo radical – para analizarlas desde el punto de vista de sus presuposiciones normativas y, posteriormente, mostrar de qué manera este aparato narrativo/normativo puede ser usado como un dispositivo heurístico para explicar un conjunto de conflictos que aquejan a las políticas forestales basadas en el mercado. El artículo, usando este aparato narrativo/normativo como modelo, ofrece una reseña de la literatura académica y gris sobre los proyectos REDD+, con miras a mostrar cómo las situaciones conflictuales en la fase de implementación de las políticas forestales basadas en el mercado pueden ser explicadas por los sistemas de valores opuestos de los distintos actores involucrados, al igual que por su posicionamiento estratégico en relación con las ideas dominantes de la política ambiental. El artículo es útil para quienes practican proyectos REDD+, ayudándoles a apreciar la manera en la que las historias que las personas cuentan sobre el medio ambiente y la forma en la que las mismas son usadas por los distintos actores pueden moldear las políticas sobre el terreno.

INTRODUCTION

Since having been pioneered by Hajer in the early '90s (Hajer 1993, 1995), the practice of looking at environmental policies through the lens of narratives has been gaining adherents (Bäckstrand and Lövbrand 2006, Dryzek 1997, Luke 1999, Oels 2005, Richardson and Sharp 2001). By staying within this strand of research, the aim of this article is to introduce a method for analysing conflicts in environmental politics and, in particular, conflicts which arise during the implementation of market-based forestry policies. The study of narratives has been very useful in environmental politics (for a review, Hajer and Versteeg 2006) because it has contributed to understand this domain in terms of a competition for a very contested political space, i.e. the power to frame problems. Images and suggestions are what often drive the implementation of certain policies and the exclusion of others, more than solid arguments (Forsyth 2003: ch. 4). For example, when concerned with policy making, whether indigenous populations living in forested areas are portrayed as backward populations employing traditional farming methods, or as living in a naturally sustainable manner like uncorrupted *bons sauvages,* matters a lot. The first frame suggests a paternalistic "we-know-better" attitude which would partially justify the taking over of some forested areas in the name of scientific sustainable management; the second, rather, suggests admiration towards their lifestyle and a less intervening attitude. For example, Espinosa (2013) argued that a reframing of a few storylines surrounding oil extraction in Ecuador might have facilitated the decision of the Ecuadorean government, at the time, to back the Yasunì-ITT Initiative, a permanent moratorium on oil extraction in the Yasunì National Park, initially put forward by the environmental activists of the Ecuadorean NGO Acción Ecológica.

There has been a tendency in the literature to reify environmental narratives. Dryzek's popular book, *The Politics of the Earth,* slices environmental politics into nine different discourses.[1] For each discourse, he specifies the basic entities and actors recognized or constructed, the assumptions about the relationship between man and nature, and the key metaphors employed by the discourse. Given the different basic entities, actors, assumptions, and key metaphors, Dryzek is able to pit the different discourses against each other. While Dryzek's work is impressive for the amount of topics covered and the rigour with which he conducts his analysis, he nonetheless ends up depicting discourses as sets of coherent storylines. The consequence is that well-known scholarly debates in environmental politics – e.g. whether market mechanisms advance the cause of environmental protection or rather impair it – are brought back in new clothes, reframed as clashing discourses. Dryzek is partially right, discourses are sets of more or less coherent storylines, but they are much more malleable and susceptible to external influences than he acknowledges. Bäckstrand and Lövbrand (2006) present forestry policy in terms of three narratives – green environmentalism, ecological modernization, and civic environmentalism – which, together, provide some guidance on how different actors frame and understand the negotiations in the forestry regime. While they do not present them as directly clashing, they too consider them as different and separate lenses through which forestry policy can be seen and framed.

Narratives of the sort introduced by Dryzek (1997), Bäckstrand and Lövbrand (2006), and those developed in a following section of the present article are better understood as boxes. The labels attached on these boxes give some indication of what might be going on inside them, but what is actually inside depends on the ability of a wide array of actors to understand, at any given time, which label and box may give them a better chance of success when pushing for a specific policy, and so reframe their messages to fit that specific box. Environmental narratives not only clash – as in Dryzek – or selectively bring into focus specific aspects of certain environmental policies or regimes – as in Bäckstrand and Lövbrand – but can also be moulded in order to accommodate elements which would not initially seem to pertain to their core storylines. In this case, then, a better way to analyse how environmental narratives can be stretched – and hence analyse their capacity to shape policies on the ground – is to look for the normative presuppositions which, in principle, can be invoked under the banner of a narrative's core storyline.

REDD+ projects – the acronym stands for Reducing Emissions from Deforestation and Forest Degradation, and the role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks – are just some of such "policies on the ground" which might be helpful to scrutinize through the lens of environmental narratives and their normative presuppositions. They are complex policies which rest on the promise of combining the different goals and values of different actors situated at different policy levels. Given this complexity, it is unsurprising that their implementation is often troublesome and gives rise to conflicts. In order to explain why and how such conflicts might emerge, an analytical approach which looks at the ways in which the actors involved might pursue their goals by strategically placing themselves in relation to the dominant ideas in environmental politics might be particularly helpful.

REDD+ is a forestry climate mitigation instrument which rewards the sustainable management of forests and forest resources. It has been proposed in the context of international negotiations on climate change and first put on the international negotiations table in 2005 by Papua New Guinea and Costa Rica on behalf of the Coalition of Rainforest Nations (CfRN). The Kyoto Protocol included afforestation and reforestation projects into its scope, yet it failed to include the management of existing forests due to legitimate concerns over issues of additionality and leakage, which could not have

[1] The article uses the terms "narrative" and "discourse" as largely synonymous. In the methodological section I explain the small differences between the two and why "narrative" is preferred throughout the article.

been properly settled before the treaty entered into force. In 2005, the CfRN proposal focused only on deforestation. Due to pressure from countries within the CfRN which were experiencing an array of dynamics which were harmful to their forests and yet could not be subsumed under the category of deforestation, such as those of the Congo Basin, RED acquired its second "D" for forest degradation – thus becoming REDD – and as such was officially adopted at fourteenth Conference of the Parties (COP 14) of the UNFCCC in 2008. Due to additional pressures from other countries whose forest cover was not in decline (e.g. India and China) but which nonetheless feared that, in the absence of the right incentives to manage forests sustainably, their forests were also bound to degrade, REDD acquired its "+", which stands for the conservation of forests, their sustainable management, and for the enhancement of their carbon stocks.

With the negotiations on REDD+ advancing, the focus progressively shifted from "what" and "why" questions, to questions of "how". The management of forests needs to be respectful of the local communities and their ways of life, thus COP 16 in 2010 (Cancun agreement) introduced REDD+ safeguards to account for the social impacts of these mitigation instruments. Once it became clear that the management of forests might have been included in the national mitigation targets of the post-Kyoto arrangements, additional efforts were made to clarify the procedures involved in measuring, reporting, and verifying both the existing and projected amount of carbon stocks. The Intergovernmental Panel on Climate Change – the scientific arm of the UNFCCC – had been tasked to study the matter and provide guidelines on how to properly account for carbon stock exchanges (IPCC, Penman *et al.* 2003).

Parallel to the slow but progressive institutionalization of REDD+ within the UNFCCC, a number of REDD and REDD+ projects have been proposed by private actors; these do not count towards the meeting of national emissions reduction targets but only towards meeting voluntary emissions reduction pledges. The uptake of REDD+ from the private sector is mainly due to two reasons. First, many private actors developed REDD+ projects with the hope of gaining a competitive advantage. Had the independently certificated emissions reductions produced by the projects been allowed to be used by companies in order to meet carbon regulations, the value of the carbon credits would have increased and those companies which had already gained experience in managing these projects would have been in a better position to start new highly profitable REDD+ projects (Laing *et al.* 2015). Second, these early REDD+ projects – especially those financed by public donors – contribute to the complex process of data and knowledge gathering which is useful for implementing Sustainable Forest Management, refining the methods of carbon measuring and reporting, as well as safeguards reporting.

What can be learned about forestry conflicts, especially those happening during the implementation of market-based policies, by looking at them through the lens of environmental narratives? This article aims to answer this question in a distinctive way: by looking at the normative presuppositions behind those narratives. The first section clarifies some theoretical and methodological issues related to the study and use of narratives in the social sciences. The second section introduces three environmental narratives by adapting Bäckstrand and Lövbrand's analysis of environmental narratives: these are ecological modernization, civic environmentalism, and radical environmentalism. Each narrative's core storyline revolves around a broad subject – markets, participation, de-commodification – and each storyline is in turn legitimized by a handful of normative presuppositions – i.e. a theory of why markets, participation or de-commodification is good and should be promoted. By unveiling these presuppositions, the article aims to uncover some of the underlying normative forces shaping environmental politics. In the third section, the article provides a review of the academic and grey literature on REDD+ projects. The review (i) uses the narrative/normative apparatus as a template; (ii) focuses on conflicts which might be explained as having been generated by an incompatibility of views concerning the values that the governance of REDD+ projects should be most informed by; (iii) targets three phases of REDD+ implementation in particular, which are an ongoing concern for REDD+ practitioners, and the operationalisation of which often causes conflicts: (a) FPIC (Free, Prior, and Informed Consent), (b) carbon monitoring, along with whom it empowers and disempowers, and (c) property rights recognition.

THEORETICAL APPROACH, METHODOLOGY, AND SOME *CAVEATS*

There is a family resemblance between the various concepts mentioned above: narrative, discourse, frame, and storyline. They all refer to a shared and partial way of perceiving the world. A narrative involves some sort of temporal structure which connects two events, neither of which presupposes the other (Prince 1982). A discourse need not involve such temporal structure, it is an ensemble of concepts and ideas which distinguish what is normal from what is not; e.g. it is now normal to refer to a plot of forest in terms of its capacity for CO_2 sequestration, whilst it is not normal anymore – as it was in the eighteenth century (Thorsheim 2006) – to refer to the decomposing biomass in the understory of forests as generating toxic effluvia. A frame is an unconscious structure which people use to think (Lakoff 2010). The verb "to frame" implies a purposeful agency; to frame something is to use specific words referring to roles and concepts in order to elicit some shared unconscious structure. A storyline is a simple temporal structure. Storylines and narratives are largely similar, but the latter is more abstract and general. A scholar could, for example, argue that the storyline about indigenous people being backward and dangerous is being subverted, yet the more general narrative about the need for a rational and efficient allocation of forestry resources, which the original indigenous people storyline was instrumental to, is not. This article uses the concept of narrative because its intrinsic temporal structure effectively captures the cause and effect nature of policy-making; i.e. there is a problem now,

there is a desired state of affairs in the future, and there is a story about how best to solve the problem which connects now to the future.

This clarification is necessary as, lately, the concept of narrative has been associated with a rather novel strand of research called the Narrative Policy Framework (NPF) (Jones and McBeth 2010). By clearly defining structures and components of narratives – more rigidly than the definition provided above – and by testing a series of hypotheses about the alleged effects of narratives on peoples and institutions, NPF tries to bring the study of narratives into a realm in which social sciences are less "soft". Similarly to NPF, the use of narratives throughout this article presupposes social constructivism as a starting point. This means that the furniture of the world comprises both brute and institutional facts (Searle 1995), yet these become relevant to policy-making only when they are talked about in a particular way. Global warming is politically relevant not because temperatures are rising, but because rising temperatures are considered dangerous. Unlike NPF, however, the analysis carried out in this article is decidedly interpretivist. How people talk about the environment is analysed by looking at the meanings which are attached to the object of study. In other words, if global warming is politically relevant because rising temperatures are considered dangerous, then the interpretivist scholar questions how and why such a meaning of global worming emerged and became dominant. As a consequence of this epistemic stance, this study does not aim to achieve the replicability of its results. In any case, the claim that the study of complex narratives can be judged along positivist standards is to be received with skepticism: narratives are ideal-typical constructions which abstract from reality certain key features of social types in order to explain a social phenomenon.

Replicability of the results would depend on different scholars "cutting" the social world in exactly the same place and defining a narrative in exactly the same way, which is unlikely given the complexity of the social world. Different meanings and concepts and ideas are constantly overlapping; the boundaries of a narrative are constantly changing (Schwartz-Shea and Yanow 2012: ch. 6). For example, Hajer (1995), Dryzek (1997), Mol (2001), and Bäckstrand and Lövbrand (2006) all characterize ecological modernization in terms of a narrative centred around the role of markets in bringing environmental protection; yet they also disagree on exactly what this narrative covers. Are Bäckstrand and Lövbrand (2006) correct when suggesting that ecological modernization overlaps with the narrative of sustainable development or is Dryzek (1997) right when proposing that there is more to it, i.e. ecological modernization puts forward an idea of economic growth which not only can be reconciled with environmental protection, but it is actually good for it? Replicability might not be important, but generalizability is. Generalizability rests on the fact that the narratives capture ideal-type features which are recognizable by a wide array of people and that interpretative processes, when appropriately guided by the researcher, are similar across humans.

The three environmental narratives explored in this article are analysed by looking at their normative presuppositions. These normative presuppositions are divided along the axis of a popular normative dichotomy: efficiency vs. justice. The embedded normativity shows how the different narratives can be used strategically by various actors in order to further their interests. As actors interested in market solutions to environmental degradation are more likely to look for an efficiency rationale to justify their positions, uncovering efficiency arguments in narratives whose core storyline does not seem to directly involve markets, might give a better idea of what the actual policies which end up supporting corporate interests are. A similar argument can also be made for the interests of indigenous people: whereas there is a sector of the indigenous population who resolutely oppose any external intervention into their way of life, there are also indigenous communities who are willing to adopt a vocabulary more in line with mainstream positions in environmental politics, with the hope of being better placed to defend their positions and further their interests.

A *caveat* on the distinction between efficiency and justice is needed. This distinction is not sharp, as ultimately behind the rationale for efficiency stand the normative assumptions of welfare economics on increasing the wellbeing of the people, which in turn captures important aspects of utilitarian justice. However, most of the time, the distinction is unproblematic: arguments on grounds of efficiency maintain that a certain policy should be carried out if it produces certain benefits while costing less than other alternative options. This type of reasoning has an obvious intuitive appeal: if something can be done with less effort, then the remaining resources can be used in order to achieve something else. On the other hand, the notion of justice captures all those normative positions which depart from the idea that the *equality of something* is of paramount importance: equal respect for property rights (libertarians), equal opportunities to shape one's own life (political liberalism), equal respect for life and life-bearing entities (non-anthropocentrism).

The aim of the following section of the article is to populate table 1 below, which for the time being is empty.

TABLE 1

	Ecological modernization	**Civic environmentalism**	**Radical environmentalism**
Efficiency arguments			
Justice arguments			

In the section titled "REDD+: A Map of Conflicts" the article takes a look at the literature on already existing REDD+ projects and, by using the narrative/normative apparatus put forward in the previous part of the paper as a heuristic device, it tries to locate a series of conflicts which these projects might create or intensify. "Conflict" is another concept which needs some explanation. Following FAO (2000), the article defines conflicts as disagreements and disputes which arise when different actors have interests, needs, and priorities which are incompatible among them.

The aim of the section is to see whether a conflict identified at the theoretical level between two cells of the table mirrors a possible conflict on the ground. Both the conflicts and the evidence the article brings to prove the existence of such conflicts are theory-laden and method-driven. In other words, the conflictual relationships between different actors emerge from the superimposition of this narrative/normative grid of interpretation upon descriptive accounts of REDD+ projects. Sometimes theory-ladenness and method-drivenness receive a negative connotation in research communities, as they are perceived as ways to fit observations to a given method instead of – allegedly more honestly – doing the opposite, i.e. finding the best method to understand a given problem (Green and Shapiro 1994).

A possible pitfall of this approach is that through the interpretative grid developed here, forestry politics in general, and REDD+ in particular, might come across as "too conflictual". The unreflective use of this approach might lead a researcher to overlook cases in which such conflicts have been successfully managed, or did not arise at all. There are also two benefits of this approach, the second of which provides a direct response to this possible pitfall. The first, mentioned above, is that this approach explores forestry conflicts from a distinctively normative point of view and, by so doing, accounts for the strategic use of narratives. The second benefit is that, instead of trying to solve a clearly established exogenous problem, this approach explores what dynamics might be overlooked by *not* employing a narrative understanding of politics, and forestry politics more specifically. As Gritten *et al.* (2009) acknowledge, one of the main problems in a conflict situation is to correctly identify the ethical issues which contributed to cause it. Researchers working on forestry politics often resort to business ethics (e.g. Hartman 2004) in order to identify ethical problems. Yet, these approaches do not reflect the full spectrum of ethical theories currently available on the "philosophical market". Furthermore, business ethics assumes that markets should play an important role in allocating resources instead of problematising this role (Moriarty 2016), which is a particularly limiting stance in assessing debates in forestry politics, where the very role of markets is often questioned. By looking at the normative theories underpinning three popular global environmental narratives, the narrative/normative apparatus developed here could well be a first step towards bridging this gap, helping researchers uncover and explain a different set of forestry conflicts, which might get side-lined in business ethics.

ENVIRONMENTAL NARRATIVES AND THEIR NORMATIVE PRESUPPOSITIONS

Ecological modernization

The core storyline carried by the narrative which, at least since the pioneering work of Hajer (1995) in environmental sociology, has been referred to as ecological modernization, is that well-functioning free-markets and environmental protection are not competing policy objectives; quite the opposite, they can even be mutually sustained. Politicians often repeat the notion that environmental problems should be left to the market and their efficiency-producing mechanisms. What does this mean specifically? Either one of two different claims: (i) environmental protection follows economic growth; (ii) markets are clean when they work properly.

Efficiency arguments. The idea behind the expression "sustainable development" is that economic growth and environmental protection are both possible by finding substitutes to polluting inputs, by finding more energy-efficient technologies, and by moving the bulk of the economy towards the service sector and away from energy and resource intensive industries.

Two different theories explain why economic growth might create a demand for a sustainable economy: Inglehart's post-materialist theory (Inglehart 1977), which explains the rise of environmental concerns in terms of a shift in cultural values; and Hirsch's theory of positional goods (Hirsch 1976), which explains the increased concern for the depletion of the environment as a response to the decreasing availability of environmental resources and services. Starting from the early 1990s a large body of research has sought to empirically demonstrate the truthfulness of these two theories. In economics, the relationship between economic growth and environmental protection is known as the Environmental Kuznet Curve (EKC). It is an inverted-U-shaped curve which describes the changing quality of the environment along different estimates for *per capita* income. As income grows there is first a period in which resources are intensively extracted and the environment degrades, then, after a turning point, more income leads to environmental improvement and increased environmental protection. The EKC hypothesis was tested and vindicated by Grossman and Krueger (1991) in a ground-breaking study which intended to study the impacts on the environment of the opening of the markets with Mexico in the context of the North America Free Trade Agreement. They argued that trade liberalization with Mexico would spur economic growth and, as a consequence, put Mexico on a greener path. More recently, the early studies on the EKC have come under attack; newer studies on the same pollutants (sulphur dioxide), as well as on different pollutants, do not replicate the same inverted-U relationship between economic growth and environmental quality (Stern 2004).

In any case, the real force of the ecological modernization reading of environmental problems rests on the claim that, once people's preferences have greened, properly working markets are clean. Environmental problems are thus portrayed

as either a consequence of the lack of a market in environmental products or as a consequence of markets that do not work properly. By resorting to either one of the two it is always possible to both explain and allegedly solve problems of environmental degradation. When a market for environmental products *does not exist*, economic theory explains environmental degradation as the aggregate result of self-interested actions by rational individuals (Hardin 1968). In this case, it is usually assumed that a policy should either centrally organize the distribution of resources or open a market by privatizing and allocating natural products: the various emission-trading and payment for ecosystem services (PES) schemes are examples of this kind of policies. Valuable products will be looked after in the market if their management depends solely on a well-defined individual (or group of individuals). Concerning the various markets that *already exist*, economic theory explains environmental degradation as a failure to properly price the social costs of environmental degradation. This is the problem of negative externality. Markets fail when the actions of one individual or a firm have a direct, unintentional, and uncompensated effect on the well-being of other individuals or the profit of other firms. In this case, responsive governments try to find a way – usually via a corrective tax on polluters – to correct the pricing of products so that the negative externalities get internalized in the final price.

Behind the narrative that sees the introduction of markets, or market corrections, in order to solve environmental problems, stand the normative presuppositions of welfare economics. The management of natural resources is then achieved by entering the market as a buyer or seller: if someone values the natural resources, or commodities linked with the enjoyment of natural resources – such as houses located in unpolluted areas –, then this person will buy and protect them. This approach to environmental governance not only links environmental protection to a willingness to pay, but also, and more critically, to the ability to pay. Even though a person might be genuinely interested in buying and protecting a given natural resource, she might not be able to do so. Hence, within this understanding of environmental governance poorer people have less of a voice in matters of environmental protection. The environmental justice movement in the United States started as a response to the implicit market distribution of environmental amenities and hazards along rich/poor lines and racial cleavages (Bullard 1983).

Justice arguments. There is one strong line of argumentation for defending, on grounds of justice, the idea that markets and competitive relations among individuals are beneficial to the welfare of a society and to the environment: they enable individuals the maximum enjoyments of the right of property, which trumps any other kind of right that people might claim. This is the defining feature of libertarianism. Nozick – the main libertarian political philosopher – does not directly argue for this position.[2] However, through the famous Wilt Chamberlain example,[3] he shows how other distributive theories of justice which do not take these rights seriously would produce – according to him – unpalatable consequences (Nozick 1974). If the right to property is the most important thing, then it follows that a theory must specify principles on how individuals come to have, keep and exchange their possessions. As long as individuals respect these principles, the distribution of possessions among all the individuals will be justified, no matter how unequally the wealth of the population might come to be distributed. Nozick's theory is historical: one can tell if a distribution of goods in a given society is just, simply by looking at its history, i.e. whether all the acts of acquisition and exchange of goods among individuals respected the principles of justice. It is also "non-patterned" precisely because, by looking at historical transfers, it also excludes that goods can be distributed along the lines of a particular "pattern", such as maximizing utility, equal distributions, equality of opportunities, and many others. Along Nozickian lines then, markets (and markets in environmental products do not differ in this respect) could be defended on the grounds that they are the sole non-patterned mechanisms for distributing properties rights – carbon rights included – which do not violate individual rights. If anything, their reach should be extended in order to encompass all the goods that can be distributed within a society.

Civic environmentalism

The core storyline carried by the civic environmentalism narrative centres around the importance of public participation for environmental governance. According to chapter 23 of Agenda 21 – a United Nations non-binding voluntary action plan to implement sustainable development –, broad public participation is a "fundamental prerequisite for the achievement of sustainable development" (UN Conference on Environment and Development 1992: 23.2). The narrative has been developed as a response to the rampant market approach to environmental governance of the 1980s and early 1990s (Sconfienza 2015). According to the International Association of Public Participation (IAP2), public participation is "any process that involves the public in problem-solving or decision-making and uses public input to make

[2] Nagel famously called Nozick's theory "libertarianism without foundations" (Nagel 1975) and Barry dismissed it by saying that the conclusions of the book "articulate the prejudices of the average owner of a filling station in a small town in the Midwest" (Barry 1975: 331).

[3] Suppose that at a certain time the distribution of the resources in a society is just according to some principle of distributive justice. Now suppose that a famous basketball player, Wilt Chamberlain signs a contract stating that he will receive a small amount of money on every ticket sold, and as a result he comes to own a larger amount of money than anyone else. As the new distribution arose through voluntary exchanges of holdings justly distributed, then – Nozick concludes – also the new distribution in which resources are distributed unequally must be just. If some redistributive principle was placed upon this new society – e.g. a succession tax – this would interfere with the voluntary exchanges made by the people, and this in the Nozickian framework cannot be allowed (Nozick 1974: 161).

better decisions" (IAP2 2017). By being present during the decision-making process, participating people are able to choose which normative ideas they would like environmental policies to be informed by, and so, ultimately, influence politics. Participation in this sense is important because it could help draw the border of the political discourse away from solely efficiency-based arguments, and, as a consequence, away from its tendency to create or deepen distributional imbalances. The need for more diverse voices in environmental politics was made clear by two events in particular: the infamous Summers' memo[4] and the debate about the value of a statistical life in the Second Assessment Report of the IPCC. Both made clear to everyone that there was an elite behind international environmental politics that was sheltered behind specialized knowledge to the point of being detached from common sense.

Efficiency argument. Whereas the uptake of participation has been mostly received as a response to neoliberal ideas in environmental governance, an efficiency rationale can, nevertheless, be found behind the narrative of public participation, especially when it is understood from the informational side of participation (Mitchell 1998, Gupta and Mason 2014). Indeed, in order to contribute to decision-making, and for public participation to be effective, participating people first need to access information; this fact has also been recognized in a number of international law treaties such as the 1998 UNECE Aarhus Convention. However, besides from serving the interests of participating people, transparency and disclosure initiatives such as pollution inventories and satellite images of forest cover, can also further the interests of businesses and various actors operating in the market. In particular, transparency and disclosure initiatives display two market-facilitating elements. The first is that financial markets have informational needs. Transparency and disclosure initiatives contribute to the efficient allocation of resources, in two different ways: (i) by guaranteeing that market actors have enough accurate information about risks and opportunities in a wide array of circumstances; (ii) by managing expectation about the outcomes of various operations in the market, and stabilizing markets over long periods of times. Concerning the second market-facilitating element, transparency and disclosure initiatives are often considered in substitution of stricter top-down regulations. By voluntarily disclosing information about the environmental impacts of their own activities, and by guaranteeing that their environmental performance is more or less in line with the expectations of both regulators and citizens, firms try to escape stringent regulations that might dictate more specific (both in modality and timing) and less cost-effective ways to curb pollution. For this to work, however, both the cost of gathering information and the cost of unintended use of information need to be relatively low.

Justice arguments. Public participation has the potential to affect decision-making when it is understood in terms of a closure of an "accountability gap". In other words, there is a distance between citizens and decision-making elites, which in environmental politics manifests itself, among other things, in the adoption of a specialized vocabulary and knowledge hinging on efficiency-based arguments. The more distant the *loci* of decision from the base (e.g. international), the more likely it is that the accountability gap widens. In non-democratic societies, certain redistributive demands might never arrive at the decision-making table, whereas pork-barrelling, gerrymandering, intense lobbying, campaign contributions, and influence over the media, might equally screen-out the requests of important parts of the population in democratic ones. This is not only a purely procedural problem of lack of representation, but it can also transform into a more substantive problem, as specific normative positions can side-line other others which would put forward different ideas for resource and wealth distribution. If the elected decision-maker is a citizen extension into the decision-making institutions, it follows that the normative judgements expressed by her in the deliberative process cannot represent only partially the citizens' inputs, filter them, or reframe them.

Participation as a potential solution to the "accountability gap" operationalises a very thick understanding of the political equality of citizens in the decision-making process proper of the deliberative model of democracy: not simply having an equal right to vote and provide information when required to do so, but also equality in the deliberation process. A metaphor can be helpful to illustrate the difference between the two approaches to decision-making equality. Votes and information are the hard data of politics. They can be quite straightforward, such as in referenda, or they can be messy, such as election votes in a multi-party system. When they are not messy, they accurately track the citizens' opinions on a policy; this is the case for a yes or no referendum on, for example, nuclear power plants (here, of course, one needs to assume that the referendum question is not voluntarily formulated in ambiguous terms). From non-messy data it is easy to extrapolate information. When they are messy, a similarly straightforward inference cannot be easily made. In a system with a right and a left party, far-right and far-left ones, and a green party, the citizens' opinion on nuclear power plants is dispersed. A green party voter might be favourable to nuclear power but nevertheless decide to vote green because she has animal welfare at heart. Similar mismatches are frequent in nation-wide elections. In these cases, in order to get from data to knowledge – i.e. what is the people's opinion on a policy –, the data needs to be manipulated and information constructed. Deliberation within democratic institutions is the data manipulation of politics. Equality in "data manipulation" presupposes that a person is given the formal and substantial

[4] It is a 1991 internal memo on trade liberalization and the practice of moving dirty industries to poorer countries written by the then Chief Economist of the World Bank, Lawrence Summers. In it, Summers argues that the practice makes perfect economic sense while he largely dismisses concerns over morality issues and in general he seems largely oblivious of the alarming conclusions reached by his argument. A good reconstruction of the normative underpinnings behind the Summers' memo is offered by Hausman and McPerson (2006).

means to contribute to this process; out of metaphor, if an active role of the citizens within the decision-making institutions is sought for, then it needs to be facilitated by formally opening the doors of the decision-making institutions and through some redistribution along the lines of social welfare states.

This commitment to effective and substantial participation thus requires states to embark on a form of double redistribution of resources: on the one hand, for participation to be effective, entrance into the decision-making institutions needs to be facilitated through investments in education and capacity building (*input redistribution*); on the other hand, it is usually acknowledged that new entrants in decision-making institutions change the pattern and principles of wealth redistribution according to the expectations of the new median participant (*output redistribution*). That being said, there are also strong continuities between the proponents of market-based mechanisms to solve environmental degradation, and those who would like to see a more participatory and redistributive environmental governance: the model of political liberalism on which the ideal of participatory environmental governance is fashioned does not eschew a market-based economy; it simply seeks to offer mechanisms for social justice as redistributive measures in the face of distributive distortions wrought by market mechanisms.

Radical environmentalism

Throughout the 1960s and 1970s, environmentalism *tout court* was radical, because the main understanding of it was that it could potentially impose losses to polluting firms; environmental concerns and firm profitability was seen as a zero-sum game. When the main environmental narrative changed in the 1980s, the idea of win-win scenarios gained ground, "sustainable development" became a catchphrase, environmentalism lost its radical edge, and the radical label began to be attached only to those positions that still cling to the idea of a zero-sum relationship between the environment and the market. "Radical" is now used in opposition to a set of fairly stable interests which want to maintain the primacy of economic growth among other policy objectives, and believe in it as a recipe that will eventually cure all social "diseases", from environmental degradation to the gender gap. Radical environmentalism thus comprises both the earlier environmentalism that was critical of the environmental effects of unregulated or poorly regulated economic activity – the case of carcinogenic pesticides is an oft-quoted example thanks to Carson's popular book *Silent Spring* (1962) – and the more recent group of environmental stances that are critical of win-win narratives and market-friendly environmental protection.

There are two interlinked elements behind the radical environmentalism narrative: the first one is the criticism of the market-driven commodification of nature; the second, the criticism of economic growth as a policy objective.

Radical scholars see the commodification of nature as problematic for two different reasons: (i) technical reasons, i.e. nature and its functions cannot be properly commodified, therefore they should not; and (ii) normative reasons, i.e. nature and its functions should not be commodified, therefore it does not even make sense to ask about whether it is feasible or not. Starting with the technical remarks, they claim that nature cannot be properly commodified because complex ecosystems and environmental mechanisms cannot be made to fit bounded and discrete theoretical entities such as "tons of CO_2" (Kosoy and Corbera 2010). Secondly, it has proven difficult to obtain the existential values of natural resources: some people refuse to answer to contingent valuation surveys or give protest responses that are not workable by the economists (Vatn and Bromley 1994). Thirdly, sometimes it is outright impossible to introduce property rights – essential to the procedure of commodification – where the notion of property rights is foreign: for certain indigenous populations it is nature which "owns" humans, not the other way around; furthermore, as some REDD+ experiences demonstrate, tenure rights are often contested. On the other hand, there are two possible reasons why nature should not be commodified: firstly, according to a Marxist line of thinking which goes back to the Lord of Lauderdale and his paradox, nature should be enjoyed *qua* a public good and stay as such. Appropriating nature would amount in an increase in the riches of the few at the expenses of the many (Lauderdale 1804, Foster *et al.* 2010). Secondly, the recognition that nature has intrinsic value should impede human beings from treating it and trading it as if it were an object. Something that has intrinsic value generates a *prima facie* moral duty from the parts of human beings to safeguard it and refrain from damaging it. The argument is modelled after the Kantian categorical imperative: the idea that the recognition of an end-in-itself calls for a very special treatment of the holder of the end-in-itself; this is usually applied to persons, but for radical environmentalists can also be applied to animals and natural resources.

Moving to the criticism of economic growth, radical environmentalists resort to a well-established tradition of ecological economists that dates back to Georgescu-Roegen (1971) and can be traced all the way up to Jackson (2009). According to these scholars, the scenario in which the economy grows and the environment is protected at the same time is no yet feasible. This does not necessarily mean that, considering technological advancements, this scenario will still not be possible in a century or two from now – a fact which remains questionable in any case – only that this is certainly not the present scenario. Georgescu-Roegen argues for the impossibility of combining economic growth with environmental protection by drawing on the physics of economic systems and by showing that the demands for low entropic energy of current economies are far greater than both the rate of low entropy provided by the renewable sources of energy and the rate of sink absorption. Jackson argues for it by adapting Ehrlich's famous I=PAT equation (Ehrlich and Holdren 1971) – the Impact of human activities on the environment equals the product of Population, Affluence, and Technology – to both the current state of the world population (and its projected growth) and the technology available, showing how absolute decoupling cannot be realized at present. All the more problematic for radical environmentalists is that

economic growth is part and parcel of both economic theory, throughout its various stages (classic, marginalism, and Keynesianism), and liberal theories of distributive justice, as well as the liberal institutions modelled after them. For example, Rawls' difference principle makes the economic motivation of talented people the central feature of its redistributive edifice, and it even encourages it (Grey 1973, Barry 1989). A similar argument could be made for Sen's capability approach (Robeyns and van der Veen 2007). Radical environmentalists question this human inner economic motivation on the ground that the utilitarian assumptions underpinning competition are more cultural than biological. The radical environmentalists associated with the degrowth movements argue in support of this stance by resorting to the literature developed by the MAUSS-group – the acronym stands for stands for Antiutilitarian Movement in the Social Sciences. In particular, the work of Caillé (2000, 2004), who takes his cue from Mauss' triadic structure of the gift (giving, receiving, reciprocation); he argues that the utilitarian paradigm which colonized the social sciences cannot really explain one of the most fundamental traits of human sociality: reciprocity. Reciprocity as displayed in the exchanging of gifts is both selfish and unselfish, and geared towards strengthening relational bonds instead of dispersing them into increasingly atomized societies (Caillé 2004, 2007, Muraca 2013).

REDD+: A MAP OF CONFLICTS

Having laid out the normative substratum of the three main discursive formations in environmental politics, and having done so in terms of two competing normative goals – efficiency and justice – it is now possible to test the heuristic potential of this narrative/normative apparatus in the domain of forestry politics.

The normative conflicts explored in the following sections can be both extra-narrative, i.e. between the normative presuppositions of two or more different narratives, and intra-narrative, i.e. between the normative presuppositions within the same narrative. In the latter case, the nature of the conflict is necessarily one of efficiency vs. justice. The merit of the paper is to put to good use the narrative/normative apparatus to clearly show how some unintuitive dynamics can shape the governance of REDD+ projects: sometimes efficiency is promoted through participation – or at least through paying lip-service to it – and redistributive justice through the protection of property rights which, as it has been shown above *(ecological modernization, efficiency and justice arguments)*, is usually associated with the proper workings of markets and their anti-redistributive dynamics. The last subsection explores the conflict which has its origin in the questioning of the very desirability of the Western development model upon which REDD+, as a strategy to mitigate climate change, is based on.

The conflict between (1) and (4), i.e. between efficiency-driven environmental governance and the redistribution of resources required by effective participatory governance

As it had been seen above (*civic environmentalism, justice arguments*), implementing participation along the ideal of the deliberative model of democracy is doubly costly. In the context of REDD+ projects, it requires *input redistribution* on the part of the project promoters – usually a corporate actor together with a local firm which takes care of project

TABLE 2

	Ecological modernization	Civic Environmentalism	Radical Environmentalism
Core storyline	Markets and economic growth can be good for the environment.	Market-based mechanisms might well provide environmental protection, but it is unlikely that they provide *equitable* environmental protection. Public participation, and the policies of transparency associated with it, are helpful in correcting the inequities generated by market-based policies.	Market-based environmental protection, and the process of commodification of Nature that goes with it, are bad both for the environment and for the people dependent on it. No participation or redistribution can rectify this.
Efficiency arguments	1. Welfare economics	3. Welfare economics (information is good for markets)	None
Justice arguments	2. Emphasis on property rights protection underpinning libertarianism	4. Substantial equality underpinning the deliberative model of democracy	5. Nature should not be commodified. Non-anthropocentric understanding of Nature
Policy outputs	Market-based mechanisms. Fights over property rights introduction/recognition.	Participation mechanisms, such as Major Groups in Agenda 21, FPIC, REDD+ Safeguards.	No policy output strictly speaking; scholarly enterprise and grassroots protest movements
Political model	Neoliberalism	Political liberalism	Agonistic politics

management – directed towards the local populations. This flow of resources is aimed at capacity building, promoting conferences, translating materials from English into the local language, and the hiring of cultural mediators. Furthermore, implementing effective participation indirectly impacts heavily on the balance sheets of REDD+ projects: accessing difficult locations – sometimes by renting helicopters – allowances to the staffs working off-site, and various technical equipment. As a consequence of effective participation, REDD+ projects can also be impacted by *output redistribution*: this happens when forest communities might want a bigger share of the benefits produced by the projects and additional guarantees on how the project is run. To achieve this, they might threaten to withhold consent – which is in their full right to do – until their demands are met. Project promoters thus face a difficult choice: the more they pursue input redistribution by financing capacity building, the more likely it is that they will also face output redistribution, as well-informed forest communities will probably be in a better position to bargain a deal which is more favourable to them and respectful of their rights and way of life. It is therefore clear that providing scant, one-sided information is an extremely tempting course of action for project promoters and can save them an enormous amount of money.

It comes as no surprise that this normative conflict between an efficiency-driven understanding of REDD+ by the project promoters and the redistribution required to bring local and indigenous populations into the decision-making process, bursts into actual conflicts on the ground. The forestry literature is full of examples in which the requirement of effective participation enshrined in the principle of Free Prior and Informed Consent (FPIC) is either partially or totally disregarded in order to save the project promoters' money. For example, the Purus REDD project in Acre (Brazil) came under attack when the project promoters from the firm Moura & Rosa presented the forest communities a document to sign as "an insurance that the communities were going to benefit from the project", which was later found to serve a different purpose (Centro de Memòria 2013: 7). Instead, the document was to guarantee the promoters legal rights to the land and could be used as evidence in court in case the forest communities were to seek legal recognition of their ownership over the land in the future. Similarly, the REDD project in Bribri territory (Costa Rica), often presented as a project involving the participation of the indigenous population, has been implemented without FPIC (Aguilar and Cabrera 2012). As there is a section of the indigenous population that has been continuously involved in the REDD national strategy of Costa Rica since 2008 – indigenous officers involved in state institutions which sometimes have no relation with the forest communities directly impacted by a specific project – project promoters can sometimes claim that their project involves indigenous people, which is technically true, albeit not in line with the spirit of effective participation (Kill 2015).

REDD+ projects have to deal with a value of carbon which is significantly lower to that which was originally expected, and on top of that, they require costly management; while these facts do not make these cases of efficiency-driven governance, they do, however, pose constraints on project promoters, with promoters needing to make trade-offs that can be more or less in line with an efficiency-driven rationale. If more in line, then this will have significant repercussions on more redistributive measures favouring participation.

The conflict between (3) and (4), i.e. between the efficiency-driven uptake of transparency mechanisms and the redistribution of resources required by participatory governance

Although the narrative of public participation emphasizes the empowering potential that information can have for both the local populations affected by a forestry project and for stakeholders in general, it is often overlooked that not all types of information necessarily empowers local communities and indigenous people. First of all, gathering information concerning the health of forests is technically difficult and costly. Project promoters are thus generally interested in acquiring the type of information most instrumental to the success of the project in the market, such as better reporting on forest carbon stock changes, and not the type of information which could potentially halt the project if fed to the stakeholders, such as reporting on safeguards and livelihood issues. Furthermore, the type of information which is most sought after by project promoters, in line with internationally agreed standards, requires a high level of scientific and technological expertise; even a developed country like Germany does not yet have the capacity to fully report on tier-3-level, i.e. the most stringent method to account on forest emissions according to the IPCC guidelines (Herold *et al.* 2012). Thus, for the time being, a limited role is available for indigenous and local communities in the process of gathering, reporting, and interpreting information which is so central to all REDD+ projects. As preference is given to ensuring that an acceptable quality in the reporting and measuring of carbon is achieved, it is only once this whole technical machine is already in place that some funds are also directed towards capacity building for the local population. In other words, redistribution in order to guarantee the effective participation of the locals is, for the project promoters, only an afterthought. The problem with this choice is that the local population cannot be consulted on some of the most political issues affecting them directly, as well as those affecting REDD+ projects, before it is too late and the stakes too high to pull out, i.e. what should be measured, by whom, and how (Gupta *et al.* 2014). One important piece of information in determining forest carbon stock changes is the extension of forest cover, measured through satellite and aerial images by highly trained professional personnel. This information needs to be supplemented with ground-truthing in order to complement and calibrate remote-sensing data. There are cases in which remote sensing has been complemented by successful community carbon monitoring on the ground (for a review, Larrazábal *et al.* 2012), yet these participatory activities beg the question of how participatory they are. For the time being, these activities engage the local population in data collection, but the bulk of data interpretation, and the political decisions that go with it,

happen elsewhere and over the heads of the local populations (Evans and Guariguata 2008).

Community carbon monitoring might place project promoters in a trade-off situation – similar to the one explored in the previous section – and might raise a conflict between them and the local population. Community carbon monitoring might represent a cost-effective way to gather data relevant to carbon reporting. On top of this, through carbon reporting, the local population can achieve a greater understanding of the economic and political value of their work. In other words, the more project promoters involve the local population in the processing and interpretation of data, the more they risk seeing the terms of the benefit-sharing mechanism renegotiated; community carbon monitoring could become a space of counter-expertise (Gupta *et al.* 2012). This is certainly to be welcomed. But there is the risk that, as community carbon monitoring becomes more expensive, project promoters will have the incentive to strategically and selectively involve the local population in some participatory activities but not others.

The conflict between (1) and (2), i.e. between efficiency-driven environmental governance and the fight for recognition of statutory property rights, i.e. the unlikely alliance between forest communities and libertarianism against efficiency-driven environmental governance

Although most of the time libertarianism and fetishism for market-efficiency go hand in hand (both justify markets but from different points of view, see the section on *ecological modernization* above), they do sometimes clash. In an article on what it means to take property rights seriously when it comes to climate change, and environmental degradation in general, Adler (2009) juxtaposes the positions of the free market environmentalist – those that would uphold efficiency arguments – to the positions of the libertarians; the author shows that taking property rights seriously – i.e. Nozick's libertarianism – would lead to policies in favour of tackling environmental degradation, even though they might not always be cost-effective. Within the libertarian theoretical edifice, the protection of property rights trumps calculations of utility.

This line of reasoning is what is implicitly behind the choice being made by forest communities of having statutory property rights formally recognized in the process of setting up REDD+ projects, even though, by doing this, and by appropriating part of the language of the ecological modernization narrative, they might end up legitimizing it in the long-term. Without property rights lands, trees, tons of carbon, genetic materials, and many other entities cannot be exchanged on the market. Whereas, on the one hand, indigenous populations are well aware that in the short-term the protection of their lands might have to be realized through the fight for property rights recognition, on the other, they are – if not themselves directly, then through the organizations that represent them – still vividly mindful of the over-exploitation of forestry resources introduced by property rights and the logic of privatization which came attached to the structural adjustments programs of the IMF throughout the 1990s (Tockman 2001, Vreeland *et al*. 2001).

Furthermore, the introduction of property rights also takes its toll on community cohesion, as they create haves and have nots within the forest communities, which are used to sharing resources since time immemorial (Rojas *et al*. 2013). By maintaining their customary land titles, forest communities could, in theory, hold back the process of the commodification of nature and resource-grabbing. In practice, this has seldom been an effective strategy. First, customary land titles are often considered second-tier titles compared to statutory ones, hence when conflicts arise, holding customary titles does not guarantee the respect of one's property. Second, ever since Hardin (1968) implicitly suggested that environmental degradation was the consequence of inefficient managing of open-access areas, mischaracterised open-access areas as commons (which is the system that more closely approximates to customary tenure), and framed the introduction of statutory property rights as a possible solution to degradation, a narrative took shape that placed the blame for environmental degradation onto local communities and their tenure systems. However, by resorting to the language of property rights, and by fiercely fighting for the recognition of land titles, forest communities might more effectively defend their ways of life in the short term. Yet, by doing so, they also run the risk of implicitly legitimizing, and helping advance, the narrative that sees the introduction of well-defined property rights and markets as possible solutions to environmental problems. This would, once again, place the blame for environmental degradation on the local communities, this time for legitimizing the commodification of nature. However, this accusation would now come from the radical fringes of the environmental policy spectrum and not from those pushing for a neoliberal environmental agenda.

That being said, in the short-term, securing statutory property rights over a land targeted by a REDD+ project might well be a good guarantee against unwanted intrusions into a population's way of life and might thus trump the calculations of those who want the governance of REDD+ projects to be informed solely, or mainly, by considerations of efficiency. In many instances, this is the strategy pursued by local and indigenous populations. The conflict here arises out of two different understandings of property rights: on the one hand, project promoters implicitly subscribe to a notion of property rights as instrumentally valuable, i.e. valuable as long as they enable markets and market mechanisms to work more smoothly; on the other hand, local communities and indigenous people – or the organizations which represent them – explicitly subscribe to a notion of property rights as valuable *per se*, an extension into the legal world of a natural relationship between men and their lands.

Through the lens of the distinction of efficiency vs. justice, one could appreciate how the FPIC procedure, which had been introduced as a method to guarantee the participation of local people into the management of forests, had in fact been designed as a trojan horse in order to exploit this conflict between the two different understandings of property rights. Indeed, the practice of obtaining FPIC in the forestry sector

was promoted by a coalition of non-governmental actors led by the World Wildlife Fund for Nature (WWF), which was dissatisfied with the impact of the extractive timber industry on local populations and with the slow response of intergovernmental negotiations on this issue. This coalition of environmental NGOs thus launched the Forest Stewardship Council (FSC) to address the problem. The FSC is an international certification scheme in the form of market-driven governance: it sets environmental standards and ensures that the forestry industry employs socially responsible practices. These standards, through a system of green-labelling, then incentivise socially and environmentally sustainable forest practices. A number of organizations which comprise the coalition were, however, more interested in indigenous issues and recognition than in forest loss, and, as a consequence, fought because FSC also placed significant emphasis on the issue of participation by indigenous and local people. This internal trend was also welcomed due to the perceived convergence between indigenous and conservation interests (Mahanty and McDermott 2013). Even before the formal launch of FSC in 1993, indigenous organizations were consulted on the content of FSC standards and became full members of the certification system. The standards that came out of these early consultations are known as the Ten Principles and Criteria (P&C); principle number 3 deals specifically with indigenous rights and required "free and informed consent" on all matters involving indigenous legal and customary rights. FPIC is grounded on the Western notion of property rights (Mahanty and McDermott 2013: 407). Property rights specify that people who have a legal title to a certain property cannot be alienated from it without their consent. The fact that the main mechanisms for indigenous people's participation is grounded on the notion of property rights is not a fortuitous accident, rather a well-thought out political move. Behind it stands the desire of indigenous groups to affirm the rights to their lands while at the same time strengthening them in front of public opinion and international organizations. If property rights need to be introduced, it is going to be on their terms, and these terms sometimes work against the understanding – privileged by REDD+ project promoters – of property rights as market-facilitating legal instruments.

The conflict between (5) and the rest, i.e. the criticism of economic growth, and the commodification of nature it entails, is deeply antithetical to both efficiency-based environmental governance and a more redistributive-minded model of environmental governance, which, however, does not alter the status quo

This whole map of normative conflicts in forestry politics would not be complete if this article did not mention the stance of those who resolutely reject the notion that forest protection has anything to do with economic efficiency and market mechanisms. These are the positions of the radical environmentalists who do not accept any compromise with those who are believed to be the true perpetrators of environmental degradation. As the commodification of nature and economic growth remain of paramount importance not only for the more efficiency-driven promoters of environmental protection, but also for those more wary of the intrinsic problems of equity in protecting the environment through markets – politicians and bureaucrats working in the national and supranational environmental institutions –, radical environmental activists resolutely refuse to enter any type of institutional dialogue with either of them. In particular, radical activists are critical of the promise of participation as an instrument to redress market-generated inequities: this would ideally be achieved by entering into the decision-making institutions and by asking for environmental politics to be informed by different principles of justice – e.g. polluter pays, benefited pays, different balance of benefit-sharing in environmental projects, and others. However, for something to be redistributed more fairly, it first needs to be made available; this means that, according to the radical positions, the *status quo,* which still centres around market-based mechanisms, will not, and cannot, be fundamentally altered by engaging with it.

These are the armies of people who remain, and want to remain, outside the establishment; often they organize conferences and events which run parallel to relevant institutional events. These are the protesters partaking in climate marches in the streets of the world capitals during UNFCCC COPs. These are the activists from local, grassroots NGOs. In the forestry domain, this position of fierce activism and protest is taken by organizations such as No REDD in Africa Network, whose main representative is Nnimmo Bassey, or the Global Alliance against REDD. In early 2015, these networks of organizations met in Durban during the World Forestry Congress to, once again, resolutely oppose "the commodification, privatization and plunder of Nature". The output of this parallel event is the Durban Declaration on REDD; the text of the declaration rejects REDD in all its forms and states that no amount of corrective intervention in the design of market-based forestry policies could ever redress the exploitative nature intrinsic in this "market-driven neoliberalism of forests"[5].

CONCLUDING REMARKS

This article has been an exercise in showing how the normative presuppositions behind three common environmental narratives can help uncover conflicts arising from the trenches of environmental politics. In order to do so the article focused specifically on REDD+ projects as a source of potentially conflict-ridden evidence.

[5] The declaration is available here: www.no-redd-africa.org/index.php/declarations/147-durban-declaration-on-redd (last accessed February 2017).

The tendency shown by more than a few REDD+ project promoters not to implement FPIC fully, i.e. in line with the spirit of the FPIC principle, can be understood in terms of a conflict between the drive for more cost-efficient forestry policies and the demand for more participation. The marginalization of the local populations in both gathering information for REDD+ projects and deciding what information should be relevant for the projects can be understood in terms of a conflict between the efficiency-driven demand for information relevant to carbon markets and the redistributive-driven demand for information relevant to safeguard reporting. The fight for statutory property rights recognition by local and indigenous populations has highlighted the very difficult place indigenous populations sometimes find themselves in: on the one hand, they are aware that in certain circumstances the protection of a territory must be obtained through the recognition of land titles; on the other, they are aware that in many cases it is the very introduction of property rights, where there were none before, which permits the logic of over-exploitation of forest resources and *de facto* legitimises the commodification of nature. At the same time, the fight for statutory property rights recognition by local and indigenous populations – when they decide to pursue such a fight – can also be understood in terms of a libertarian approach to property rights against an economic approach to property rights, i.e. instrumentally valuable only in so far as they contribute to efficient market exchanges and economic growth. In other words, whilst the introduction of statutory property rights might, in the long-run, legitimise the commodification of natural resources and the exploitation of forests, by securing statutory property rights and espousing a libertarian understanding of them in the public sphere, local and indigenous populations attempt, in the short-term, to push back the appropriation of forests by those outsiders who see property rights *only* as instruments for the efficient allocation of resources. Finally, the position of environmental activists' firm intransigence towards both market-based mechanisms for environmental protection and policies to increase the participation of, and redistribution towards, local and indigenous populations has been characterized by resorting to the normative presuppositions behind the narrative of radical environmentalism. These activists are particularly driven by the recognition that every form of participation implies, at least initially, consenting to the very institutional procedures that made the exploitation of the natural resources possible in the first place.

The aim of the article has been to show how the narrative/normative apparatus introduced in the first part can be employed and, by means of its employment in the second part of the article, to illuminate some of the conflicts to which competing understandings of environmental politics give rise. The list of conflicts and the evidence selected to support it, explored in the second part, are in no way exhaustive, and the informed reader might well be able to use the narrative/normative apparatus to find and explain additional conflictual situations. Future research could develop by analysing what other types of conflicts – other than those originating from the contrasting interpretations on how to operationalise FPIC, carbon monitoring, and property rights recognition – could be read through the lenses of the narrative/normative apparatus.

People involved in forestry politics, and REDD+ practitioners in particular, can profit from the research developed here. It could help them develop a broader understanding of how (i) values are embedded in environmental narratives, (ii) how these can be used strategically by the actors on the ground to further their goals, and (iii) how values which inform the governance of market-based forestry projects might cause or intensify conflictual situations. The stories people tell about the environment are not just stories. They are vehicles of values, blueprints for action, and, sometimes, stalking horses.

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Emerging forest ecosystem service entrepreneurship in Finland and Peru

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SUMMARY

Ecosystem services have been under intensive research and policy interest during the past two decades, resulting in advanced theoretical understanding and a variety of innovative policies. However, as economic approaches to ecosystem services are gaining foothold, co-creation of ecosystem services through entrepreneurial activity has been almost totally neglected in scientific discourse. By focusing on recent developments in the forests of Finland and Peru, we show how forest ecosystem service entrepreneurs are introducing new ecosystem service-related livelihood initiatives, business models and economic mechanisms. Scientists and policy-makers are showing a growing interest in how these bottom-up initiatives actually happen and what it takes to create new socioecological opportunities. The new discourse is critical toward the habit of mind to see a wide ontological and epistemological gap between the use and protection of ecosystems as well as between the abstracted practices of many ecosystem service approaches and particular forest use practices.

Keywords: development discourse, ecostructure, ecosystem services, entrepreneurship, forest livelihoods

L'émergence de l'entrepreneuriat dans le domaine des services écosystématiques forestiers en Finlande et au Pérou

J. HIEDANPAÄ et M. SALO

Les services d'écosystèmes ont été l'objet d'une recherche intensive et d'un intérêt marqué dans le domaine de la politique au cours des deux dernières décennies, donnant en résultat une avance de la compréhension théorique et une variété de politiques innovatives. Toutefois, bien que les approches économiques envers les services des écosystèmes gagnent une place mieux établie, la co-création de services par le biais d'activité entrepreneuriale a été quasi totalement négligée dans le discours scientifique. En se concentrant sur des développements récents dans les forêts finlandaises et péruviennes, nous montrons que les entrepreneurs de service d'écosystème forestier introduisent de nouvelles initiatives de création de revenus, de modèles de commerce et de mécanismes économiques liés au service de l'écosystème. Les scientifiques et les créateurs de politique portent un intérêt croissant à la manière pratique dont ces approches "de bas en haut" se réalisent et à ce qui est nécessaire à la création de ces nouvelles opportunités socio-écologiques. Le nouveau discours est critique envers la pensée habituelle qui voit un important hiatus ontologique et épistémiologique entre l'utilisation et la protection des écosystèmes, ainsi qu'entre les pratiques abstraites de plusieurs approches de service de l'écosystème et les pratiques particulières d'utilisation de la forêt.

Emprendimiento emergente en base a servicios ecosistemicos del bosque en Finlandia y Perú

J. HIEDANPAÄ y M. SALO

Los servicios ecosistémicos han sido objeto de gran interés científico y político durante las dos últimas décadas, resultando en sólido conocimento teórico y una variedad de políticas innovadoras. No obstante, mientras que se consolidan acercamientos económicos a los servicios ecosistémicos, su co-creación por medio de actividades emprendedoras ha sido casi completamente ignorada en el discurso científico. Enfocándonos en los bosques de Finlandia y Perú, demostramos como los emprendedores de servicios ecosistémicos están introduciendo nuevas iniciativas de sustento y negocios, además de nuevos mecanismos económicos. Investigadores y diseñadores de políticas ambientales muestran un creciente interés en el actual desenvolvimiento de estas iniciativas surgidas "de abajo arriba", tanto como en las condiciones favorables para la creación de nuevas oportunidades socioecológicas. El nuevo discurso es crítico hacia el hábito mental de ver una amplia brecha ontológica y epistemológica entre el uso y la protección de ecosistemas y entre las prácticas abstraídas de muchos de los acercamientos a servicios ecosistémicos y las prácticas concretas de uso del bosque.

INTRODUCTION

The degradation of ecosystems (Shepherd *et al.* 2016), including the loss (Hooper *et al.* 2012) and change (Dornelas *et al.* 2014) of biodiversity from global to local levels remain among the main concerns of humankind. As a response, almost 13% of the world's terrestrial surface has been designated as protected areas (Watson *et al.* 2014) and a variety of other approaches seek the sustainable use and management of ecosystems through the initiative of private land owners or holders, and under such labels as integrated conservation and development (Kremen *et al.* 1994) or community-based conservation (Berkes 2007).

One key concept, ecosystem services (i.e. functional features of ecosystems activated by humans for improved wellbeing and livelihood), has been under intensive research (Kremen 2005) and policy (Braat and de Groot 2012) interest during the past two decades, resulting in advanced theoretical understanding and a variety of innovative policy approaches. To some extent, human agency has been incorporated into ecosystem service models, with emphasis on societal processes (Spangenberg *et al.* 2014) and on their political nature (Hausknost *et al.* 2017). Nevertheless, most of the current approaches treat ecosystem services solely as benefit streams that need to be protected and the resulting loss of legal economic opportunities compensated or redistributed (Farley 2012, Hahn *et al.* 2015). The problem is principally observed as a game of trade-offs between different uses of land and resources (Mönkkönen *et al.* 2014, Rodríguez *et al*. 2006) and, despite all the progress in the theory and practice, mainstream environmental policy still applies a rather narrowly economics-based understanding of ecosystem services, hindering the employment of their full potentiality (Hiedanpää and Bromley 2014).

The current trend in biodiversity policy is to introduce economic instruments for the purpose of bringing about new behaviours in regions of contested natural resources (Anton *et al.* 2010, Gómez-Baggethun *et al.* 2010). For instance, the schemes of Payments for Ecosystem Services (PES) and Reduction of Emissions from Deforestation and forest Degradation (REDD+) have become the icons of new environmental policy (Corbera and Schroeder 2011, Norgaard 2010, Rosendal and Schei 2014). In addition, biodiversity-related certificates are an economic instrument with which to indirectly address how ecosystem services are treated in different land and resource use options. Some of these economic approaches are predominantly market-based, while others build on other economic mechanisms, e.g. compensation of some kind (Hahn *et al.* 2015) or higher levels of public involvement in mechanism design and implementation (Pirard and Lapeyre 2014).

However, inducing a long term change in the behaviour of actors among human populations through such economic instruments is difficult (Banerjee and Duflo 2011, Rodrik 2011). The demand for new environmental behaviours (e.g. local changes in land and/or resource use) can originate at different levels, but it is often the case that those who seek these types of changes are either national authorities implementing environmental policies or the representatives of environmental non-governmental organisations (NGO) or international organisations such as the United Nations Environment Programme (UNEP) (Koellner *et al.* 2008). These organizations can be considered to be the potential buyers, brokers or initiators of new markets of new environmental behaviours. The sellers of these behaviors (i.e. the rural landowners or resource users), then, are expected to be eager for new sources of income and to make the desired environmental moves when they are offered reimbursement or payments to do so. However, if the underlying societal conditions, governance structures, or income/wealth distribution patterns have not changed, the behaviour reverts back to where it was when the payment is gone; opportunity costs being considered. This is so because the underlying habits, customs and social norms have not changed.

Our purpose in this paper is to shed light on what might be changing this picture. What is still poorly understood is how new economic opportunities from ecosystem services may emerge from the local-level entrepreneurial activity, contributing to long term economic development and livelihoods on a particular area. As various economic approaches to ecosystem services are gaining a strong foothold, this kind of entrepreneurial activity has been almost totally neglected in scientific discourse.

We focus on forest ecosystem services in all kinds of forests in human use, drawing on two countries, Finland and Peru, both of which have modern forest and biodiversity legislations within very different policy cultures, administrative structures, economies and civil societies (Hiedanpää *et al.* 2015, Salo *et al.* 2013). In both settings, new ecosystem service-related inventions are emerging. We are interested in the types of livelihood initiatives, business models and economic mechanisms that are being initiated, how they come about and how to facilitate the development of new forest ecosystem-based opportunities.

Our abductive purpose therefore is to articulate what might be happening; how new locally created economic opportunities seem to be emerging from the forested ecosystems through particular innovations. In short, abduction is a creative logic of reasoning (Paavola 2004, Peirce 1997) that begins with a surprise, continues to a tentative rule (theory) and results, and finally concludes with a case, i.e., with a hint of what might be the key aspects of this initial surprise. This differs in a fundamental way from both deduction and induction. Deduction sustains the theoretical core ideals and the assumption of a particular epistemic community and empirical practice. In its strict sense, deduction does not produce new knowledge: it only may affirm the already existing hypothesis. Induction, instead, goes from particulars to generals deriving knowledge from empirical experience based upon a system of handling empirical data. Inductive inference is not necessary inference, as is deduction (Peirce 1955).

THEORETICAL PERSPECTIVE

As humans, we depend on countless interrelated ecosystem functions to survive, and the same is true for just about every

other species on earth. However, only some of these ecosystem functions become services. They become services due to a change in human experience and habit. Central to the new understanding is, however, that the change in experience is accompanied by subsequent innovative activity. We posit that this emerging line of discourse requires that ecosystem services entail not only human presence (they do not simply flow from A to B), but creative human action is also required for there to be services in the first place. We must underscore this point here. It is an elementary characteristic of a service that there is co-production of service (see Palomo *et al.* 2016) and that services are produced and consumed simultaneously (Katzan 2011) – this is what we call co-creation of service experience and value.

Our argument is that the mainstream conception of ecosystem services as benefits flowing from ecosystems is in itself too vague to constitute sufficient ground for understanding how new opportunities and livelihoods emerge. The attempts to overcome the divide between protection and use will fall short as long as a richer conception of ES is not available. Ecosystem services are end-directed, and they exist to fulfil a particular purpose, directly or indirectly. If there is no purpose to serve, there is no beneficial activity, there is no service, and only the underlying ecosystem that functions. By following the Peircean (after the pragmatist philosopher Charles S. Peirce) teleodynamic thinking of Deacon (2012) and Herrmann-Pillath (2013), we posit that it always takes entrepreneurial activity to break old mental and corporeal habits, i.e. discourses and routines, and initiate something new. Human livelihoods and their development are based on entrepreneurship of this nature (Hiedanpää *et al*. 2015).

Already Schumpeter (1963, 66) noted that entrepreneurial activity is multilevel action. An entrepreneur is someone who (1) launches a new product or a product with essential new features in the marketplace, (2) creates a new production method, (3) opens up a new market, (4) obtains a new source of raw materials, (5) re-organises a certain field of activity or (6) establishes a business using existing approaches but in a new context. As we see, all these break existing societal customs and patterns in different ways. It follows from this Schumpeterian definition that there are different types of entrepreneurship. These include new-venture entrepreneurship (Bayrasli 2015), technological entrepreneurship (Mokyr 1992), social entrepreneurship (Ziegler 2008) and institutional entrepreneurship (Battalina *et al.* 2009). All of these approaches have different roles and purposes in modifying the settings and circumstances and finding new long-term ways to utilise the forested environment.

As such, entrepreneurship is rather widely studied in the contexts of environment and rural development (Pato and Texeira 2016) and environmental problems. Concerning the latter, there is a field of research that addresses ecological entrepreneurship (Marsden and Smith 2005), environmental entrepreneurship (Meek *et al*. 2010), sustainable entrepreneurship (Dean and McMullen 2007, Patzelt and Shepherd 2011) and ecopreneurship (Schaper 2012). A common thread to all of these entrepreneurs – as we ponder on them from our perspective – is that they do not pursue only economic gains to the entrepreneur but also non-economic gains to ecosystems and communities as well as to nature and society as a whole; their aim is to simultaneously sustain nature, life supporting processes and communities.

The concept of habit is the key to understanding changes in Schumpeterian entrepreneurial processes. Entrepreneurs are in the business of changing habits. We should bear in mind that habit is not a repetition of action – a dull routine. Habit is a spectrum of potential behaviours and actions, a latent recurring tendency. For Peirce (1934, paragraph 317), habit is a general term that refers to regularities of behaviour that arise in both corporeal and mental contexts. As Deacon explained further, '[t]he concept of constraint is, in effect, a complementary concept to order, habit, and organisation, because it determines a similarity of class by exclusion. . . Constraints are what is not there but could have been, irrespective of whether this is registered by any act of observation' (Deacon 2012, 191–192). Indeed, from this perspective: invention breaks the habit and innovation facilitates habit taking.

What, in fact, are ecosystem service entrepreneurs doing when they are in the business of breaking habits? They are modifying habits in order to bring something not yet existing to the fore. Recall that habits may be functional features such as organisational routines, productive customs, technological lock-ins, predispositions, and furthermore, path dependent regimes of how administration uses reason, judiciary follows its legal reasoning, and policy makers justify their political decisions (e.g., Hodgson 2013). Regarding the context in which the modification of habits is embedded, Colander and Kupers (2014) take up an important concept, "ecostructure". By ecostructure, they refer to a formal and informal institutional incentive structure that constitutes a particular setting for economic and social activity. They argue that through the ecostructure, bottom-up solutions and top-down interventions take effect and produce their intended results and unintended consequences.

Here their thinking is aligned with that of Dewey. We should notice that habits are environmentally constituted. Dewey noted that ". . . customs persist because individuals form their personal habits under conditions set by prior customs. . ." (Dewey 1988, 42). He goes on to suggest that "Habits incorporate an environment within themselves. They are adjustments of the environment, not merely to it" (Dewey 1988: 38; emphasis in the original). We will follow Dewey (2008) and expand Colander and Kupers's (2014) view and incorporate social, cultural and ecosystem aspects into the ecostructure. Ecostructure is then the setting in which particular ecosystems function, ecosystem services are brought to the fore by entrepreneurial activity and various ecosystem-based livelihood projects are exercised. Ecostructure is contingently constituted by particular constraints and habits, ecosystem service entrepreneurship, and governmental interventions.

THE CONTEXTS

We presented above our theoretical perspective to identify emerging discourses in the context of forest livelihoods. Here

we present our abductive results in the context of two very different countries, Finland and Peru by drawing examples from two regions therein: south-western Finland and Peruvian Amazonia. We address forest use in all kinds of forests, including both primary and secondary forests as well as both intensively managed production forests (even forest plantations when applicable) and extensively utilised multi-use forests. The differences between the two countries and regions are manifest in the provision of nature-based opportunities such as the levels and characteristics of biological diversity and ecosystem functions but also in relation to such constraints as the rule of law, presence of corruption and land ownership patterns. Despite many striking differences, the cases also show similarities; both countries are in the midst of the implementation of new and modern forest and nature conservation legislations.

Finland

Three quarters of Finland's land area is covered by forest, most of which is a relatively species-poor boreal forest. For centuries, the use of forest resources has formed one of the economic cornerstones of people's livelihoods in Finland (Pappila 2010). While most forests in southern Finland are privately owned small-holdings, towards the north and north-east, the proportion of publicly owned forests grows significantly.

Finland is a liberal social-democratic Nordic country with a hundred year tradition of representative democracy, a strong confidence in an uncorrupted government and a strong resistance to state-run biodiversity conservation planning and implementation (Hiedanpää 2002). During the 20th century, Finnish forestry became industrialised, and the forest owners became suppliers of the forest industry that, together with the successive national governments, concentrated on making this supply as large and stable as possible (Siiskonen 2007). Recently, however, this has been challenged. The Forest Biodiversity Programme for Southern Finland (2003–2007), known as METSO I, initiated a new era in Finnish biodiversity policy; more emphasis was given to individual forest owners, their values, interests and willingness to act for nature voluntarily (Primmer *et al.* 2013). Moreover, Hetemäki and Hänninen (2009) estimated that by 2020, only approximately 40% of annual forest growth would be harvested because of the diminishing demand by industry and sawmills. The incentive structure of Finnish forestry was historically not designed for this kind of change but rather to maximise the annual forest growth, to keep forest owners obedient, and ensure that they receive reasonable timber-related revenues, while also ensuring a secure wood supply to forest industry and enhance the competitiveness of the industry (Ollonqvist 1998, Siiskonen 2007).

The situation is volatile, however. METSO II (2008–2025) proceeds in its aim to halt the ongoing decline in forest biodiversity and establish stable favourable trends in Southern Finland's forest ecosystems, but the overall biodiversity goal is becoming ever more challenging to meet because of new bioenergy demands brought on by the transition towards bioeconomy (Ministry of Agriculture and Forestry 2015) and decreasing public funding for biodiversity conservation (METSO 2016, Primmer *et al.* 2013). As Finland becomes more committed to global climate actions, energy production is depending more on bioenergy. While the climate effects of this choice are debated (Repo *et al.* 2015), in practice, the trend is toward logging residue, including the stumps, being collected from clearing sites (Vanhala *et al.* 2013). This creates an increasingly more intense conflict of interest between protection and the use of forest resources and ecosystem services because of the growing alteration of the forest floor and the soil that is associated with the increasingly intensive removal of woody matter. This is happening while forest owners are looking for new alternative economic opportunities in their forests.

This situation indeed may trigger pressure to the current incentive structure of Finnish forestry: the national commitment for safeguarding and maintaining forest growth is challenged, and new purposes and possibilities are called to the fore. Further, new entrepreneurial initiatives are emerging from the bottom up. If we recall the Schumpeterian definition of what entrepreneurs do, we can identify three general fields of activity in Finland: ecosystem service initiatives that alter the institutional environment, those that incite new economic activity by new products and those that create new markets altogether. In general, some of these are nature conservation initiatives, some involve inventions in nature-based tourism and some are novel health services and products that are derived from forest ecosystems (Nummi 2015).

For instance, in Finland, institutional entrepreneurship is exercised in schemes such as Natural Values Trading (NVT) (Hiedanpää and Bromley 2012) and the Golden Eagle (*Aquila chrysaetos*) Compensation Scheme in Finnish Lapland (Hiedanpää and Borgström 2014). The purpose of NVT was to explore how a voluntary, fixed-term, payment- and incentive-based scheme for forest biodiversity protection might perform. As a result of the experiment (2003–2007), the principles of the scheme became a formalised part of Finnish forest and nature conservation legislation and policy in 2008. Unlike NVT, which was invented by an Environmental NGO member, the Golden Eagle compensation scheme was initiated in 1999 by a well-known national politician. According to this scheme, damages to reindeer herding are not compensated, but the presence of breeding eagle pairs and the breeding success are rewarded. Both schemes came into being because of entrepreneurial activity, albeit of different types (Hiedanpää and Borgström 2014).

Landscapes (amenity value), game species (use value) and wellbeing (health value) are becoming richer sources of new venture and environmental inventions and entrepreneurial activity. Regarding the landscape values, the principles that were adopted from the NVT are introduced in a new context to compensate for the harm caused to nearby housing by landscape alteration due to the construction of windmill farms; the power company may negotiate with the forest owners to exercise a certain type of forest management to keep the windmills invisible for those living near the area. This novel (yet to date not implemented) deliberative PES scheme has been envisioned by the forest administrator (Nummi 2015).

Second, Green care is the catch phrase around which various business models are emerging (Renfors and Ruoho 2015). These inventions are based on the health effects of ecosystems either through recreation in the forest (Korpela *et al.* 2014, Tyrväinen *et al.* 2014) or through forest ecosystem-based health products, i.e., health drinks from certain parts of trees (phloem and cambium), the sap tapped from birch trees (*Betula spp.*), or health products from other tree-living organisms such as the Chaga mushroom (*Inonotus obliquus*) (Ludvig *et al*. 2016). There are some rather surprising institutional constraints concerning nature-based edible products, however. For example, according to the EU legislation (EC/178/2002), if the product was already in use before EU membership, health assessments are not mandatory. In the case of more recent products, these assessments are mandatory and for small businesses they may be next to impossible to accomplish. Third, while there are particular cultural, social and institutional constraints on how for example moose hunting can be commercialised on private lands (Soini *et al.* 2016), new such approaches to hunting tourism are nevertheless underway in Southern Finland (Matilainen and Keskinarkaus 2010).

In Finland, berry and mushroom picking are allowed on private lands according to the customary everyman's right (Salo *et al.* 2014: 7–8). Now, due to entrepreneurial activity, there is a flow of berry pickers from Thailand and Vietnam, and this development is challenging the traditional rules of berry picking. Informal adjustments are already underway (signs prohibiting foreign berry pickers to enter the "community" land) (La Mela 2014). Berries as ecosystem services and berry picking as an activity are getting new, refurbished, meanings.

As these examples indicate, there is a rich variety of local-level entrepreneurs trying to create business opportunities that are based on new modes of utilization of forest ecosystem services. Previously the Finns grew trees, sold hard wood and pulp and exercised their everyman's rights. The emergence of the alternative types of entrepreneurial activity is challenging the existing habits and ecostructure.

Peru

Peru is a global megadiversity country with vast tropical rainforests on the eastern slopes of the Andes Mountains and in the adjacent Amazonian lowlands (Mittermeier *et al.* 1997). Diverse forest use includes e.g. hunting, harvest of non-timber forest products and selective logging of valuable trees among a diverse assembly of species (Salo *et al.* 2014, Sears and Pinedo-Vasquez 2011). Large tracts of Amazonia have been designated as forest, oil and gas concessions, protected areas and indigenous lands (Finer *et al.* 2015, Salo *et al.* 2011, Salo and Toivonen 2009). The Peruvian State owns the majority of all forests, granting use rights to communities, individuals and companies. Since the early 2000s, a political decentralisation process embedded in a liberal market economy has been ongoing, with a particular emphasis on extractive economies (Orihuela 2012). Like the rest of Latin America, Peru has adopted elements of a "green state", such as a ministry of the environment (in 2008), an environmental impact assessment law and forest protection regulation (Orihuela 2014).

However, Peruvian governments have had difficulties in enforcing their forest policies, thus resulting in low levels of sustainability as well as a dubious development of the forest-related economy (Oliveira *et al.* 2007, Salo *et al.* 2013, Sears and Pinedo-Vasquez 2011, Smith *et al.* 2006). The Peruvian forest sector started to articulate forest values in more diverse economic terms during the 1990s and 2000s, with new forest laws entering force in 2001 (Salo *et al.* 2013, Salo and Toivonen 2009, Smith *et al.* 2006) and 2015. In 2016, the Law 30215 entered force to regulate "the mechanisms of Payments for Ecosystem Services".

Peruvian Amazonia homes a number of REDD+ projects that usually involve multiple stakeholders and a complex mix of social, institutional and venture entrepreneurship (Evans *et al.* 2014, Hajek *et al.* 2014). Additionally, more exclusively venture-type of enterprises are emerging, including for example novel for-profit (Matta 2013) and for-benefit (Argumedo and Pimbert 2010) markets of biodiversity products, ecotourism businesses (Kirkby *et al.* 2010, 2011) and certified extractive industries (Quaedvlieg *et al.* 2014), as well as combinations of these.

The National Programme for Forest Conservation (hereafter Programa Bosques) explicitly claims to intend to halt and reverse greenhouse gas emissions from deforestation in Peru by the year 2020 through conserving 54 million hectares of forests (Hiedanpää *et al.* 2011, Rosa da Conceiçao *et al.* 2015). This ambitious – someone could say unrealistic – goal means that many types of forest designations qualify under the programme, including protected areas, wetlands, indigenous territories and NTFP concessions, as well as rural community lands and timber production forests.

Despite the broad approach and the various types of Schumpeterian entrepreneurship the Programa Bosques entails, the main attention thus far has been on legally recognised indigenous and rural community lands. In these areas, Programa Bosques functions as an incentive-based conservation endeavour. The direct transfer of 10 Peruvian Nuevos Soles (PEN) per hectare per year is equivalent to c. 3 US Dollars and is conditional to forest protection through a conservation agreement. The money is deposited on a bank account that the community organization needs to open, this requirement serving to promote the formalization of communities as juridical and economic actors.

The Peruvian state considers this transfer explicitly a subvention and not a PES scheme (MINAM 2011: 15; but see Boerner *et al.* 2016: 407). This arguably is because the aim is to promote conservation by incentivising venture-type entrepreneurial activity through the introduction of ecosystem service-based business plans and not to pay for the provision of specific ecosystem services. The use of the revenue, within the limits of the contract, is therefore decided upon by the community members through representative community organization (under the supervision of a community assembly). Notably, up to 20% of the total sum transfered can be used to increase social investment to address development

needs. This was a key feature of the scheme to be established in the first place (Rosa da Conceiçao *et al.* 2015). The flat hectare of forest-stock-based payment is simple to implement but may not be the best option from the distribution of benefits viewpoint (see Boerner *et al.* 2016).

With regard to Schumpeterian entrepreneurship, REDD+ projects are intended to untap a new market while the certifications schemes (also) re-organise an existing field of commerce. The Brazil nut harvesters are one example of how these connect. Their concessions are commonly under both REDD+ and certification schemes, both pursuing higher incomes as compensation for forest conservation. However, the hierarchically constituted Brazil nut value chain has little space for harvester entrepreneurship, reducing the concessionaires' role to mere providers of raw material. Brazil nut harvesters' associations have developed independent processing facilities, but their commitments with companies mean that they cannot sell their product elsewhere when e.g. the prices drop (Quaedvlieg *et al.* 2014). These disadvantages are not only related to their dependence on the for-profit exporting companies but also on the social entrepreneurship skills of the NGOs that facilitate the certification processes – without their help, the transactions costs would be unbearable.

Recently, a new set of entrepreneurs have emerged along with a political discourse adopted by the Peruvian state promoting venture-type entrepreneurship in the fields of "biobusiness" and "biocommerce" (Promperú 2014, Prompex 2013). These entrepreneurs are after new markets by launching modified biodiversity products to satisfy the differentiated tastes of urban consumers. In particular, this can be seen in the "gastronomic revolution" of Peru in which new fusion kitchen incorporates Andean and Amazonian ingredients with new ethical and health features (e.g., Matta 2013, see criticism e.g., García 2013).

Ecotourism is expanding in Peruvian Amazonia (Kirkby *et al.* 2010, 2011). The new institutional arrangements introduced by the Peruvian government include concessions for conservation and for ecotourism as well as conservation easements (voluntary agreements between a land owner and a government agency or NGO who acquires the right to restrict land use, see Rissman *et al.* 2007). Several concessions for ecotourism purposes are already functioning in the country, and the Peruvian Government has facilitated these businesses through low tax rates to tourism enterprises (Kirkby 2010).

Various watershed protection initiatives based on a PES scheme are underway in Peru involving social and institutional entrepreneurship. In 2009, the region of San Martín implemented a payment scheme that adds a monthly fee equivalent of up to 0.33 USD in the water bills (Alvarado *et al.* 2010, Montoya-Zumaeta and Nolazco Cama 2015). This revenue is then invested in measures to control colonisation-related land cover changes in the upper watershed areas that supply the city of Moyobamba with fresh water.

The above examples indicate that in Peru, a variety of entrepreneurs are pursuing new business opportunities from forest ecosystem services, and revenues from these activities are expected to grow. Indeed, Peruvian legislation and political discourse are increasingly addressing the need to capture ecosystem service value. While it is clear that this means a shift from a more traditional extractivism toward an increasingly diversified economic valuation of ecosystems, a debate remains on whether this means only a turn to a neoextractivist agenda or to truly post-extractivist approaches (Gudynas 2013).

EMERGING DISCOURSES

In both countries the natural resource and conservation planning and decision-making are becoming increasingly sensitive and receptive to novel ecosystem service-based business models and policies. In this section we abduct the case concerning how to understand the still hidden but emerging features of this change.

Realisation-orientation

A feature of societal change is a new-born awareness that when trying to initiate and boost local forest-based livelihoods it does not suffice to focus on getting formal institutions and policy instruments right. Instead, the challenge is more broadly about getting the functioning of the ecostructure right, e.g. enabling structures for improved consequences of actions. According to Amartya Sen (2009, 5–6), the approach of *getting institutions right* can also be called *transcendental institutionalism*, and it has two specific features: "First, it concentrates its attention on what it identifies as perfect justice, rather than on relative comparisons of justice and injustice. . . Second, in search of perfection, transcendental institutionalism concentrates primarily on getting institutions right, and it is not directly focused on the actual societies that would ultimately emerge". Transcendental institutionalism is a fundamental feature of how, for example, neoliberal ideology portrays the structure and functioning of ecostructure and the role of markets and entrepreneurship therein.

Those doing realisation-focused comparisons have often been interested in identifying and solving practical problems that lead to injustices and other problematic consequences and not so much in getting institutions transcendentally right. Sen (2009) calls for realisation-orientation in development planning. It is not only about policy will and institutional scaffolding (e.g., modifications in property rights) that support the fulfilment of societal purpose, but it is also about what type of society actually emerges. Here we see that the intertwined types of entrepreneurial activity that harness ecosystem functions and co-create ecosystem services and thereby novel products, means of production, and markets generate an ecostructure that allows and responds to new realisations.

In both our case countries, the policy discourse builds on the need to make ecostructure more diverse and receptive for the concept of ecosystem services and ecosystem service entrepreneurship. However, the actual change in ecostructure may be slow and in itself it takes entrepreneurial activity. In 2014, a new forest law came into effect in Finland, and its

articulated purpose was to improve the state of biodiversity and the entrepreneurial opportunities of the forest owners. According to critical evaluations, the legislation may push activities in the opposite direction and diminish biodiversity by allowing cuttings in habitats that were previously outside of active forest management (Anon. 2012, Siitonen 2013). The governmental will was, no doubt, in favour of the articulated purpose of the renewed forest law. Forest owners were indeed given more liberties in their selection of forest management practices, but because of institutional inertia only one percent of the forest owners have chosen management for continuous cover silviculture (Metsäkeskus 2016).

Real-life realisations take time, and they do not appear without further institutional entrepreneurship. Both in Finland and Peru, the new forest legislation (and in the case of Peru, the legislation on ecosystem services as well) is an initial step, but administrative routines are in this case the great conservative force of forest use. We think this feature is exactly what makes the concept of ecostructure and its call for the collaborative bottom-up solutions and creative and courageous government so important and attractive.

Indeed, not all of the attempts to modify ecostructure come from above, from the higher levels of government. In southwestern Finland, the PES scheme known as Natural Values Trading was initiated from the bottom up fifteen years ago (Hiedanpää and Bromley 2012). Along these lines, a three-year EU Funded Leader project, "Ecosystem services in southwestern Finland," began in January of 2016. The project is led by the Finnish Forest Centre (SW-Finland). Its main purpose is to identify new ecosystem service-based enterprises and to inform land owners about the economic meaning and significance of forest ecosystem services. The forest administration in SW Finland is now actively looking for pioneer forest-owners to become showcases of forest ecosystem service entrepreneurship and the human resource of peer-to-peer learning and habit change. Ecosystem services-related capacity building is starting to take shape.

The purpose of the project is to contribute to an understanding of what it entails – culturally, institutionally, ecologically, socially and economically – to have an ecostructure that promotes ecosystem service entrepreneurship. Such an ecostructure would produce and allow more diverse set of entrepreneurial motivations. The motivation is not only that of for-profit but also that of for-benefit. The latter covers a broad range of positive social and moral consequences (in addition to economic revenues) of ecosystem-based activities to the localities (see, Colander and Kupers 2014). Some local and small-scale entrepreneurs may be willing to forgo higher profits in exchange for other non-financial values as Pokorny and Pacheco (2014) have indicated. This seems to be a common feature in social (Ziegler 2008) and sustainability entrepreneurship (Shepherd and Patzelt 2011).

Sufficiently diverse and policy-facilitated ecostructure promotes what Colander and Kupers (2014, 214–236) call *laissez-faire* activism. Indeed, almost all of the novel ecosystem service entrepreneurial initiatives that we found in the Finnish context, and some of the Peruvian examples (e.g., the launching of new biodiversity products or markets), originate from the civil society entrepreneurial activity which is facilitated and supported by multi-scalar institutional entrepreneurship within that particular ecostructure.

De-institutionalized mind

One reason why novel ecosystem service-related business models and mechanisms are emerging so slowly is the current habit of understanding ecosystem services not actively imagined and co-created but more like passively enjoyed benefits (see Palomo *et al.* 2016). This also fuels the ongoing debate over the use and protection of ecosystem services. Somehow, in much of the literature, this has turned to a philosophical debate between those who categorically oppose monetary valuation and commodification and those who see it as the only way forward (Kallis *et al*. 2013, Kosoy and Corbera 2010). We see this changing, as the social-ecological understanding about the origin and delivery of ecosystem services develops (Mononen *et al.* 2016). Habits of mind die hard on both sides of the commensurability and incommensurability debate about nature of ecosystem service values. Incommensurability of values means that there is not necessarily a common metric to measure and compare the benefits derived from ecosystems. Those people pushing for commensurability think there is such a measure, price for example (see O'Neill 1993). You make your particular asset a commodity, put a price tag on it, the customer enjoys the service. If you are able to show that also biodiversity benefits from your venture e.g. through conservation or restoration efforts, you may expect that the critics are satisfied as well. If we take a broader view and take, as an example, an international business enterprise that purchases biodiversity off-sets, the debate quickly takes on an ethical content (Dhanda and Hartman 2011, Rosendal and Andersen 2011). The debate is not a disagreement over a particular aspect of biodiversity; rather, the matter is concerned with abstracted biodiversity.

However, the change in discourse is underway and it is accompanied by real-life entrepreneurial activities, both in Finnish and Peruvian forests. The emerging discourse is critical to the habit of mind to see a wide ontological and epistemological gap between more *abstract* mechanisms such as REDD+ and other PES and Offset Schemes and the *particular* business practices of ecosystem services and land uses. In this, one is not evil, and the other is not good but both potentially share the same functional constituency and the same types of global features (Knippenberg 2013, 32). From the entrepreneurial perspective, the message is that the difference or similarity of small scale enterprise and related innovations and bigger scale institutional arrangements originates in their purpose and realisations, not of their nature as such.

For example, cash transfers, such as those that are implemented in the Peruvian Programa Bosques, can enable governments to address two challenges by simultaneously promoting conservation and development, including "biotrade" or "biobusiness". From this viewpoint, the interesting question is not necessarily whether this public investment is able to notably favour forest conservation *per se* but rather whether it will be able to create enabling conditions for

associated local small-scale ecosystem service entrepreneurship and go beyond the use–protection divide, offering a path toward a more lasting change of habits. It is important to bear in mind here, that such change is entangled with political struggles and goes beyond the portrayal of indigenous communities as living in harmony with nature and the critique of this idealization as naïve by the "ironic scholar" (Hope 2017).

For a long time, it has been argued that ideology matters in how ecosystems are treated (Söderbaum 2000). In Finland, because most of the land is owned by private smallholders, the ideology is grounded in private property and the liberty of landowners. However, the institutional setting has made sure that the landowners fulfil the general societal purpose as they exercise their liberty (Hiedanpää *et al.* 2011). As such, this setup has not received much criticism in Finland. As the forest owning populace becomes more diverse in their beliefs, interests and values, the administrative habits of mind are under a pressure to change. It is not a matter of who *may* do what within the institutional setting anymore, but it is becoming a matter of *can*, i.e., the positive liberty to take part in how to own forests and also how local forests are managed (on positive liberty, see Berlin 2006, Commons 1995).

In other words, the balance in prevalent political ideologies is changing, and this affects how the formalised administrative routine is pushed to shift towards practical relevance (Primmer *et al.* 2013). In the 1960s, a Finnish forest owner would be called to court and sentenced if (s)he embraced forest biodiversity in the wrong way, i.e., exercised selective cuttings and continuous cover silviculture. These habits are still deep-rooted; they survive through changing legislation that has made the management for more multiple-aged forests possible as the forest legislation was renewed in 2014 (Forest Act 1996/1093). We see neoliberal tendencies in how forest-owners are now not taken as *docile bodies* but more as *entrepreneurs* who act, create and initiate on their own behalf within the institutional setup that has been readjusted for this general purpose (see, Foucault 2008, Mirowski 2013). There seems to be an accompanied hope that this not only leads to more diverse livelihood opportunities but also to improved biodiversity conservation.

CONCLUSIONS

According to our abductive work, forest ecostructures are increasingly incorporating ecosystem service entrepreneurs that are in the business of diversifying particular social-ecological functionings by introducing new ecosystem service-related livelihood initiatives, business models and economic mechanisms. Our purpose has been to articulate these still very much invisible aspects from a different angle and show how realisation-orientation is challenging the prevalent institutionalized habits of mind. We hope that we have been able to give these aspects new meaning and significance.

This new discourse is emerging with a critical stance toward the habit of mind to see a wide ontological and epistemological gap between the use and protection of ecosystems as well as between the abstracted practices of many PES schemes and particular ecosystem services aspects. On the surface level, it is still poorly understood how new economic opportunities emerge from ecosystem functions and related social-ecological functioning. Indeed, PES schemes and new local ventures emerge and contribute to long term economic development and livelihoods. This development is not only a problem of science but also of government and administration. So rare are the cases in which enterprises and civil society actors contribute to the invention of new forms by which to benefit from ecosystem services.

We have argued that emerging discourse is constituted by the following three features: entrepreneurship, the consequent habit breaking and habit taking, and the multilevel ecostructure modifications. Ecosystem service entrepreneurship shapes the ecostructure, i.e., the social-ecological setting in which ecosystem-based livelihood activities are exercised. More bottom-up initiatives and reflective governmental actions are needed in the face of entrepreneurial initiatives. We admit that the line between "opportunity" and "necessity" in entrepreneurial activities may be thin. Neoliberal policy tends to promote economic structures that not only support questionable forms of commodification of abstracted environmental values but often also lead to vulgar forms of micro-entrepreneurship that becomes based on little more than survival. This is not the view that is being put forward in this paper, although the emerging general habits of mind may easily be interpreted also in this way. Similarly, the new discourse is potentially more sensitive and reflexive in the face of the ecological consequences and sustainability issues of new livelihood initiatives. But the real-life manifestations of this sensitivity remain to be seen.

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Forestry development priorities in Finnish national forest programmes

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SUMMARY

National forest programme (NFP) is a comprehensive national level forest governance model and overarching strategy to guide forestry development towards sustainability. Focusing on Finnish NFPs this study aimed to uncover the possible sifts in the national level forestry development priorities between late 1990's and the present. Following Carol Bacchi's policy analysis framework that focuses on problematisations, the study concentrated on the framing of the societal problems or situations that the NFPs were aimed to address, the underlying presuppositions and the proposed solutions. The problematisations in the Finnish NFPs have mainly focused on economic sustainability, especially increasing the use of wood, profitability and competitiveness of forest-based industries and expanding and diversifying forest-based business and entrepreneurship. Issues related to ecological and social sustainability have been included, but have generally remained secondary concerns.

Keywords: forestry development, national forest programme, policy analysis, problematisation, framing, Finland

Priorités au coeur du développement forestier dans les programmes de la forêt nationale finlandaise

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Le programme de la forêt nationale (NFP) est un modèle complet de gestion forestière à l'échelle nationale ainsi qu'une stratégie poussée pour guider le développement forestier vers la durabilité. En se concentrant sur les NFPs finlandais, cette étude s'est efforcée de mettre en lumière les mouvances possibles dans les priorités de développement au niveau de la foresterie nationale de la fin des années 1990 au présent. En suivant le cadre d'analyse de la politique de Carol Bacchi, qui se concentre sur les problèmatisations, l'étude s'est tournée vers une définition plus précise des problèmes de société et des situations auquels les NFPs cherchaient à faire face, les présuppositions sous jacentes, ainsi que les solutions proposées. Les problématisations dans les NFPs finlandais se sont principalement concentrées sur la durabilité économique, l'utilisation croissante du bois en particulier, la profitabilité et la compétitivité des industries basées sur la forêt et sur les initiatives d'entrepreneurs. Des questions liées a la durabilité écologique et sociale ont été inclues mais se sont généralement retrouvées reléguées au rang de soucis d'importance secondaire.

Prioridades de desarrollo forestal en los programas forestales nacionales finlandeses

P. KATILA

El Programa Forestal Nacional (PFN) es un modelo nacional de gobernanza forestal y una estrategia completa para orientar el desarrollo forestal hacia la sostenibilidad. Centrándose en los sucesivos PFN de Finlandia, el objetivo de este estudio fue descubrir los posibles cambios en las prioridades nacionales de desarrollo forestal entre finales de la década de 1990 y el presente. Con base en el marco para el análisis de políticas de Carol Bacchi, centrado en *problematizaciones*, el estudio se concentró en enmarcar los problemas sociales o las situaciones que supuestamente deberían abordar los PFN, los supuestos subyacentes y las soluciones propuestas. Las *problematizaciones* de los PFN finlandeses se han centrado principalmente en la sostenibilidad económica, en particular en el aumento de la utilización de la madera, la rentabilidad y la competitividad de las industrias forestales y la ampliación y diversificación de los negocios y el espíritu emprendedor relacionados con los bosques. Se han incluido cuestiones relacionadas con la sostenibilidad ecológica y social, pero por lo general se han mantenido como preocupaciones secundarias.

INTRODUCTION

Sustainable development and sustainable forest management (SFM) have been the guiding principles of forestry development since the United Nations (UN) Conference on Environment and Development (UNCED) in 1992. The conference was also the origin of the UN Forum on Forests and its predecessors. The Intergovernmental Panel on Forests (IPF) which operated in 1995–1997 established the national forest programme (NFP) as a comprehensive national level forest governance model and policy instrument to guide forestry development towards sustainability (UN 1997). To date over 130 countries have developed a NFP (FAO 2012).

NFPs are considered as the core national level instrument of new forest governance which is based on policy networks and flexible policy instruments (Glück *et al.* 2005, 2009). They are meant to provide a holistic and intersectoral national level tool to guide forest sector development towards sustainability and an overarching coherent strategy under which different policies and initiatives contribute towards SFM (UN 1997). NFPs have received considerable scholarly attention (e.g. Elsasser 2002, 2007, Howlett and Rayner 2006, Hänninen and Ollonqvist 2002, Primmer and Kyllönen 2006, Winkel and Sotirow 2011, Yodego 2002). Winkel and Sotirow (2011) undertook a comprehensive review of the research concerning European NFPs. They found that a large part of the research has focused on NFPs as a mode of governance, concentrating on issues like participation and coordination or the democratic quality of the NFP process, as well as to the factors that support or impede the NFP process. Only rarely has the actual substantive content of the NFPs been scrutinised. An exception is a study by the Swedish National Board of Forestry which compared the contents of six European NFPs (Yodego 2002). The study found some common objectives within the analysed NFPs. These included references to increasing forest area, sustainable management, rural development, economic productivity of forests, social services and tourism, protection of the environment, and forest research and education.

Although assessments of European NFPs have shown that especially the earlier ones did not fulfil the international expectations related to increasing national policy coordination, the NFPs provide a basis for developing national forest goals and priorities (Howlett *et al.* 2010). The analysis of NFPs can thus provide insights about national forest and forestry priorities, reflected in changes in forest policies. Policies are designed to address an issue or condition that is thought as problematic and that needs change. Analysis of the often implicit problem representations of public policies can provide insight about the presuppositions and assumptions that underlie policies (Bacchi 2009). How, for instance, situations or conditions related to forests have been represented and framed as problems or challenges to justify drafting of policies to address them sheds light on the relative importance of different societal forest development priorities.

The present study aims at partly filling the gap in analyses of the substantive contents of the NFPs and especially the way how these programmes have framed and represented forestry development priorities. It concentrates on how the ecological, economic and social dimensions of sustainability have been considered in the representations of the problems and challenges for forest sector development and the proposed solutions in the Finnish NFPs. It also aims to uncover the possible shifts in the development priorities. The analytical framework of this study is derived from Carol Bacchi's (1999, 2009, 2012) approach to policy analysis, which provides a systematic approach to scrutinise policy documents, but has according to the author's knowledge not been used before to analyse forest policy.

The NFPs analysed in this study cover the period between late 1990's and the present. During this time the sustainable development discourse has prevailed as the dominant environmental discourse (Pülzl *et al.* 2014). However, it has in recent years become embedded in the discourses of green economy and bioeconomy. In European policy context this discourse has concentrated on bioeconomy which has been understood as an element of green economy (Kleinschmit *et al.* 2014). The European Bioeconomy Strategy does not explicitly define bioeconomy but states that it can "*comprehensively address inter-connected societal challenges such as food security, natural resource scarcity, fossil resource dependence and climate change, while achieving sustainable economic growth*" (EC 2012: 3). Among other natural resources based sectors the bioeconomy includes forestry, pulp and paper production, and parts of chemical, biotechnological and energy industries. It seeks synergies and complementarities with other EU policies on resource efficiency, sustainable use of natural resources, protection of biodiversity and habitats, as well as provision of ecosystem services (EC 2012). In the Finnish Bioeconomy Strategy bioeconomy "*refers to an economy that relies on renewable natural resources to produce food, energy, products and services*". It will "*reduce dependence on fossil natural resources, prevent biodiversity loss and create new economic growth and jobs in line with the principles of sustainable development*" (Finnish Bioeconomy Strategy 2014: 3). The Finnish bioeconomy strategy is a development strategy that is in line with sustainable development, but the emphasis is in generating economic growth and employment while securing the "*operating conditions for ecosystems*" (Finnish Bioeconomy Strategy 2014: 3).

In Finland, NFPs have guided the overall development of the forest sector (Mäki *et al.* 2011). In international forest policy arenas Finland has also been one of the active supporters of the NFP institution as a path towards sustainable forest management. How the different dimensions of sustainability are addressed in the Finnish NFPs is thus of wider interest. Finland has an extensive forest cover and forestry has historically been important for the national economy and rural livelihoods. The Finnish case is thus also relevant for the discussions of the implications of the shift towards bioeconomy, as forestry is a key sector in this development in many countries in Europe (EC 2012, Finnish Bioeconomy Strategy 2014).

Finnish context and NFP processes

In Finland about two thirds of the land area is under forests, covering some 23 million hectares (Ministry of Agriculture and Forestry 2014). Most of the forests are owned by private persons or families (62%), companies own 9% and the government, municipalities, parishes and other public entities 27% of forests. The average size of a private (family) forest holding is about 30 hectares (Finnish Forest Research Institute 2014).

The forest sector's share of the GDP has in recent years been around 3.6%, but forest products exports comprise 20% of the total exported goods. The economic importance of forest sector varies greatly among different regions and is in some regions 10% of GDP. During the past fifty years annual wood harvesting has been clearly less than the annual increment of the growing stock leading to almost 60% increase in the growing stock. The increment is currently about 104 million m^3, while removals total only 71 million m^3 per year. The forest sector employs 65 000 people which is less than 3% of the workforce. Most people employed in the sector are linked to forest industry (Finnish Forest Research Institute 2014).

Finland has a long history of national level forest planning and programmes. The first programs were developed in early 1960's. These early programmes focused on improving forest management and increasing investment for timber production. The last programme that focused mainly on timber production was the Forest 2000 programme drafted in the mid 1980's and revised in the early 1990's (Talousneuvosto 1985). The Environmental Programme for Forestry of 1994 had a clearly different focus as it concentrated on maintaining forest biodiversity and halting negative trends in species extinction (Ministry of Agriculture and Forestry 1994).

The first National Forest Programme drafted following the general recommendations developed within the IPF was the NFP 2010 accepted in 1999. It was followed by the NFP 2015 in 2008; this program was revised in 2010. The latest NFP, National Forest Strategy 2025, was accepted by the government in 2015. The NFP has been institutionalised in the Finnish Forest Act of 2013 (Section 26). It states that "*The Ministry of Agriculture and Forestry prepares a National Forest Programme in cooperation with other ministries and parties representing the forest sector and other relevant stakeholders. The objective of the programme is to promote diverse use of forests and welfare derived from these in line with the principle of sustainable development*."

The Finnish forest policy system has been characterised as a corporatist decision-making system where interest groups have a central role. The main interest groups have traditionally been forest industry and forest owners. Since 1990's with the rise of environmental consciousness, the significance of non-governmental organisations has increased (Kotilainen and Rytteri 2011, Ollonqvist 2002, 2006). The Ministry of Agriculture and Forestry and the National Forest Council have coordinated the NFP processes. The different interest groups have been represented in the working groups preparing the programmes. In the preparation of the NFP 2010 (1999) and NFP 2015 (2008) public participation was organised through public forums and seminars. It was also possible to comment the draft versions of the programme on the Ministry's website. The revised NFP 2015 (2010) was prepared by the National Forest Council, its Secretariat, and six Working Groups, and discussed in various workshops and seminars. The draft approved by the National Forest Council was also circulated for comments. It has been argued that the close link between the national and regional forest programmes prepared within participatory processes by 13 regional forests councils has strengthened the commitment of provincial actors to the national forest programme (Hänninen and Ollonqvist 2002). The regional forest programmes have feeded into the NFP processes and at the same time implemented the targets set in the national level programme.

The preparation of the latest national forest programme, the National Forest Strategy 2025 (2015), differed from the previous NFP processes. The strategy functions as the new NFP and describes the priority objectives and measures to achieve the strategic objectives set out in the Government Report on Forest Policy and the related statement by the parliament. The Government Report on Forest Policy was prepared by the Ministry of Agriculture and Forestry in collaboration with different stakeholders.

The research on the Finnish NFP processes has especially concentrated on the drafting of the NFP 2010 (e.g. Hänninen and Ollonqvist 2002, Ollonqvist, 2002, 2006, Primmer and Kyllönen 2006). Despite the attention to public participation in the drafting process, Primmer and Kyllönen (2006: 851) have concluded that because the process did not function as an arena for dispute settlement, participation did not "*extend to the level of deliberation with genuine possibilities for different groups to provide elements into the process*". They concluded that the NFP 2010 mainly legitimatised and created awareness of the already existing forest policy discourse.

Following this introductory section, section 2 presents the theoretical approach and analytical framework of the study. Section 3 presents the results of the analysis. Section 4 discusses the results from the perspective of the economic, ecological and social aspects of sustainability and section 5 concludes.

THEORETICAL AND ANALYTICAL APPROACH

The conceptual or theoretical underpinnings of forest policy studies have greatly evolved and diversified during the past decades towards increasing use of theories and frameworks from policy sciences. The theories employed vary significantly and reflect the fundamental debates in social science research regarding the understanding of social structures and the motivations of human behaviour (de Jong *et al.* 2012). In relation to theories used in forest policy research Arts (2012) has distinguished between five broad groups of theories, namely advocacy coalition framework, institutional policy analysis, policy network analysis, rational policy analysis and critical policy analysis. Discourse analysis is situated

within the critical policy analysis tradition (Arts 2012). The different perspectives in discourse analysis include discourse as communication, discourse as text, discourse as frames and discourse as social practice (Arts and Bruizer 2009). The analytical approach employed in the present study is derived from Carol Bacchi's (1999, 2009, 2012) approach to policy analysis and understands discourses as frames.

The way policy problems are framed and justified as well as the proposed solutions are central elements of governing processes and in Bacchi's (2009) terminology called problem representations or problematisations. Problem representations can be described as frames, i.e. simplifications used to define problems, detect their causes, and prescribe possible actions to address them. According to Entman (1993: 52) "*To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and / or treatment recommendation for the item described*". Any situation can be framed in alternative ways.

Instead of taking policy problems as exogenous to the policy process, problems can be seen to be created and defined within the policy process. Identifying certain issues or conditions as problems or challenges that should be addressed guides and directs policy responses. Policies or programs are then developed to address these issues, or as a response to a situation that is thought to need change. Directing attention to the ways in which these issues or situations have been represented is important for understanding how society is governed (Bacchi 1999, 2009, 2012).

Problem representations are understood to include the challenges or problems, the underlying presuppositions of the 'problem' and the proposed solutions. Often problem representation involves simplifying the problem or presenting only part of the story. Thus an important aspect in analysing problem representations is to focus on what they include and what they leave out (Bacchi 2009).

Frame analyses have been widely used in different social science disciplines to analyse e.g. media reporting (e.g. Feindt and Kleinschmit 2011, Hovardas and Korfiatis 2008, Kleinschmit and Sjöstedt 2014, Sadath *et al.* 2013), public policy (Söderberg and Eckerberg 2013), woodland restoration (Fischer and Marshall 2010) and actor perceptions and strategies regarding the future forest sector (Lindahl and Westholm 2012). In the Finnish context frame analysis has been used to analyse e.g. how bioenergy options have been framed in Finnish policy strategies (Kivimaa and Mickwitz 2011) and forest conflicts (Raitio 2008, 2013).

The distinguishing feature of Bacchi's analytical approach is that it builds on six concrete questions that focus on different aspects of problem representation[1]. These questions aim at uncovering how the problems and related solutions are framed and what are the presuppositions that justify the need for the policy or programme in question.

Bacchi's analytical approach has in recent years been specifically used to analyse public policy in different sectors (e.g. Bacchi 2015, Cort 2011, Lancaster and Ritter 2014, Molla 2013, Månsson and Ekendahl 2015, Sandu 2013). It is especially well suited to scrutinise public policies through analysing policy documents. It provides a systematic methodology to deconstruct problem representations and reveal underlying assumptions and values. Partially employing Bacchi's approach, this study analyses the problem representations in the Finnish NFPs by focusing on the following research questions:

1. How have the main challenges or problems been represented in the iterations of the Finnish NFPs?
2. What presuppositions underlie these problem representations?
3. What have been presented as the solutions to the problem(s) that need to be addressed?
4. How the different aspects of SFM are included in the problematisations?

In looking for answers to the research questions the study employed qualitative document analysis. The data consisted of the following Finnish national forest programme documents:

- Finland's National Forest Programme 2010, Ministry of Agriculture and Forestry Publications 2/1999, referred to as NFP 2010 (1999)
- Finland's National Forest Programme 2015, More Welfare from Diverse Forests, Government Resolution 27 March 2008. Publications of the Finnish Ministry of Agriculture and Forestry, No 3b/2008, referred to as NFP 2015 (2008)
- Finnish National Forest Program 2015, revised, accepted 2010, Government Resolution 16 December 2010, Turning the Finnish forest sector into a responsible pioneer in bioeconomy, referred to as NFP 2015 (2010)
- National Forest Strategy 2025, Government Resolution of 12 February 2015, referred to as NFS 2025 (2015)

The analysed documents were first manually coded by the same coder in three iterative rounds. Each round focused on identifying sections of the text that related to the research questions 1–3 respectively. In the final phase of the analysis, the problem representations were further analysed against the

[1] Carol Bacchi's analytical approach builds on the following questions: 1. What's the 'problem' represented to be in a specific policy? 2. What presuppositions or assumptions underlie this representation of the 'problem'? 3. How has this representation of the 'problem' come about? 4. What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently? 5. What effects are produced by this representation of the 'problem'? 6. How/where has this representation of the 'problem' been produced, disseminated and defended? (Bacchi 2009).

criteria for SFM as operationalised in the European context within the Forest Europe process[2] to uncover how they address the different aspects of sustainability. The results section presents the findings of the analyses of the NFP documents in respect to the research questions, concentrating on the main challenges, underlying presuppositions and proposed solutions, and how the different aspects of SFM were included in the problematisations. Direct quotations from the data are presented below to illustrate the findings.

RESULTS

Main challenges

The general starting point for the first NFP (NFP 2010, 1999) was the call for sustainability that originated from the Rio Conference on Sustainable development. The overarching challenge was to secure the economic, social and ecological sustainability of forestry. However, the programme also referred to the European ministerial conferences where a trend towards a greater emphasis on economic and social sustainability had emerged to balance the claimed focus on ecological sustainability in the Rio Conference: *"At the Rio Conference the main focus was on the biodiversity and ecological sustainability. During the European ministerial conferences a trend towards a greater emphasis on economic and social sustainability has emerged, which reflects the situation in Finland, also."* (NFP 2010, 1999: 7).

About the ecological sustainability the programme furthermore stated that: *"The greatest challenges to a sustainable ecosystem are problems such as how to retard climatic change, maintain the rich diversity of species and establish a sustainable exploitation rate of natural resources. Judged by international standards the environmental situation in Finland is relatively good in most respects."* (NFP 2010, 1999: 9). However, the unequal geographical distribution of conservation areas and the need to strengthen forest conservation in southern Finland was recognised (NFP 2010, 1999: 17).

The anticipated worldwide increase in the demand of industrial wood products was seen to provide good prospects for the further development of the industry. The challenges for economic sustainability related to efficient and economical utilisation of forest resources and developing technology for building a competitive and profitable forest cluster[3] to take advantage of the growth prospects. The anticipated increase in the industrial roundwood demand entailed increasing investment in silviculture and forest improvement and to turn around the observed decrease in these investments (NFP 2010, 1999: 9–10).

The challenges to social sustainability were seen to be unemployment and social exclusion, increasing social disparities and a weakening rural population base and rural infrastructure. On the other hand, diminishing rural population was also seen to threaten the availability of skilled labour for forestry (NFP 2010, 1999: 6–9).

In the second NFP (NFP 2015, 2008), the challenges related to the changes in the forest sector operation environment, including rising production costs, increasing international competition between forest industry companies, the need to increase the use of domestic roundwood, and the availability of skilled workforce. The importance of the availability and use of wood from domestic sources had increased due to uncertainty in roundwood imports (2008: 11). The main problematisations focused on how to secure a competitive operating environment for forest industry and forest management and enhance climate- and energy-related benefits of forests, mainly through increasing the use of wood energy and wood products (2008: 13–23). The programme also recognised the need to enhance forest biodiversity conservation, particularly in southern Finland (2008: 8, 24).

The continued structural change in the forest industries, severe changes in the forest sector operation environment, economic recession and financial crises combined with fast technological development and changes in forest products demand led to the need to revise the second NFP (NFP 2015, 2008) only two years after its acceptance. The forest sector contribution to the GDP and value added in forest industry production had decreased during the last decade. The financial crises accentuated the need for structural changes in the forest sector (NFP 2015, 2010: 13). In the revised programme, problematisations focused on the need to develop new forest-based products and services for increasing the value of production, improving the profitability and competitiveness of the entire forestry value chain, and increasing the use of wood for energy. Similarly to the two earlier programmes, in relation to biodiversity the problematisation focused on the status of forest biodiversity conservation in southern Finland (NFP 2015, 2010: 5–6).

In the newest programme, the NFS 2025 (2015), the problematisations focused on the need to create a competitive setting for renewing and diversifying the structure of forest industries in order to enhance economic growth. The expansion and internationalisation of Finland's forest industry had enabled growth in the sector, but had at the same time also made it increasingly dependent on global trends and markets.

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[2] The Pan-European Criteria and Indicators for SFM are the following: maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles, maintenance and encouragement of productive functions of forests (wood and non-wood), maintenance of forest ecosystems health and vitality, maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems, maintenance and appropriate enhancement of protective functions, maintenance of other socio-economic and cultural functions and conditions (Forest Europe *et al.* 2011). Finland has participated actively in developing these criteria.

[3] Forest cluster is in the NFP 2010 (1999: 7) defined "as an entity of forestry, forest and wood products industries, machine and equipment manufacturing, production of chemicals for the forest industry, automation, packaging, graphics industry, energy utilities, logistics and consulting enterprises together with associated training and research."

Finland's trade balance had shown a deficit for several years due to weak exports. The global economic situation was seen to contribute to the fundamental change in the structure of forest-based business and activities, especially as the production of paper industry had declined (NFS 2025, 2015: 8, 11).

Underlying presuppositions

In all NFPs the underlying presuppositions have reflected the important role of forests and the forest sector for the national economy. The first two NFPs emphasised the importance of forests to the welfare of the people and economic development of the country (NFP 2010, 1999; NFP 2015, 2008). As a renewable natural resource, forests together with a competitive forest cluster were seen to offer the basis for sustainable development: *"The export markets of forest products provide Finland with a flow of income, which secures the means for developing a sustainable forest economy. A profitable and competitive forest cluster creates the prerequisites for preserving biodiversity and social and cultural values."*(NFP 2010, 1999: 7).

Along similar lines the presupposition behind the NFP 2015 (2008) was that forest-based manufacturing and service production can be expanded while securing social acceptability, economic viability and ecological, social and cultural sustainability. Forests and forestry were also seen to be important for maintaining dynamic countryside and for balanced regional development (NFP 2015, 2008: 9). The programme emphasised market orientation and the role of private sector. Public sector was to create preconditions for competitive forest management and utilisation to support the private sector (2008: 11).

Due to the economic recession that started in 2008, the revised NFP 2015 (2010) put more emphasis on the role of the forest sector in reversing the economic downturn and introduced the concept of bioeconomy. According to the revised NFP 2015 (2010) the forest sector had an important role in sustainable development and potential to reverse the effects of the economic recession. Also, the strategic importance of natural resources was growing due to climate and energy policies. The forest sector was to be the pioneer sector in the development towards a bioeconomy. On the other hand, bioeconomy was also seen to provide the foundations for the future success of the forest sector. Extensive forest resources and high-level expertise were seen to create a competitive advantage that could be realised by developing bioeconomy (NFP 2015, 2010: 10, 15). *"Forests, and the sustainable use of forests, are the foundation on which Finland's bioeconomy can grow."* (NFP 2015, 2010: 15).

The NFS 2025 (2015) further emphasised the forest sector's role in developing a bioeconomy and increasing the societal wellbeing based on forests. The forest sector was understood as a strategic part of the Finnish bioeconomy: *"Forest-based business and activities are a key part of the Finnish bioeconomy that will help to generate sustainable economic growth in Finland."* (NFS 2025, 2015: Abstract). The NFS was to support the implementation of the Finnish Bioeconomy Strategy. In Finland harvesting volumes had in recent years been clearly lower than forest growth. Increasing use of wood and more active forest management were seen to offer good opportunities for developing a bioeconomy and increasing and diversifying welfare based on forests, including new jobs, better recreation opportunities and improved biodiversity (NFS 2025, 2015: 8–11).

Proposed solutions

In the first NFP (NFP 2010, 1999), the proposed solutions focused on increasing the use of domestic wood and to double the value of the wood industry's exports, increasing the use of wood for energy production and increasing investment in silviculture and forest improvement to support increasing wood harvesting (NFP 2010, 1999: 3). The role of the public sector was to ensure competitive conditions for the forest industry, including competitive energy prices, an adequate road network and programmes for developing technology and marketing in wood industry and in relation to the use of wood energy (NFP 2010, 1999: 3, 12). Ecological sustainability was to be secured by further development and subsidising of the ecosystem management of commercial forests, and by implementing ratified conservation programmes and, in particular, by establishing a working group to estimate the needs for forest conservation in southern Finland and certain other regions (NFP 2010, 1999: 17).

The solutions presented in the NFP 2015 (2008) focused on securing a competitive operating environment for forest industry and forest management, enhancing the climate- and energy-related benefits of forests and protecting the biological diversity and environmental benefits of forests. The proposed measures included *"[. . .] increasing the use of domestic wood, improving the transportation network and ensuring the sufficiency of skilled labour for the harvesting and processing of both roundwood and energy wood."* (NFP 2015, 2008: 12). Research and development to develop new forest and wood based products and services and to enable their extensive commercialisation and increasing value-added was to support these measures (NFP 2015, 2008: 13–19). The key solutions with respect to biodiversity conservation were the implementation of the Forest Biodiversity Programme for Southern Finland 2008–2016 (METSO), which was seen to form an integral part of the NFP 2015 (2010: 5, 11). In relation to climate change mitigation the programme emphasised the role of increasing renewable, wood-based energy production and sequestrating carbon in wood products and through forest management (NFP 2015, 2008: 20–22).

The solutions proposed in the revised NFP 2015 (2010) concentrated on the strengthening of forest-based business and creating conditions for new enterprises, increasing the value of production, improving the profitability of forestry and forest management, and boosting the profitability of private forestry. The role of research and development and various development programmes was further emphasised in developing new products and services and in their commercialisation. Securing access to skilled and competitive labour was to support forest sector competitiveness. Improving the

conditions for forest growth and diversifying forest management methods and improving the efficiency of roundwood markets were presented as main measures to improve profitability of forestry. The programme also supported the use of wood for energy, promoted carbon sequestration and introduced measures for adapting to climate change (NFP 2015, 2010: 5–6). Similarly to the previous NFP, the forest biodiversity related measures centred on the implementation of the METSO programme and improving commercial forest management through revising forest management financing systems, recommendations and guidelines (NFP 2015, 2010: 6, 28).

The solutions presented in the NFS 2025 (2015: Abstract) focused on facilitating a structural change in the forest-based business and activities and were to be achieved through a strategic project portfolio. They related to developing a competitive environment for forest-based business, renewing and diversifying forest-based businesses and activities and active, diverse and sustainable use of forests. The employed measures included supporting the growth and development of both existing and new enterprises in the forest sector and access to raw material supplies, developing knowledge base and skills and flexible, effective and customer-oriented administration and active, business-like private forestry, and sustainable management and use of forests (NFS 2025, 2015: 16–25). The NFS 2025 (2015: 7, 21) also highlights the importance of influencing the EU and international forest-related policies to promote sustainable use, acceptability and competitiveness of forests and wood. The METSO programme was considered a key instrument for safeguarding forest biodiversity (NFS 2025, 2015: 30–37). The Government had approved the extended and updated programme for 2014–2025 in 2014.

The results relating to the main challenges, underlying presuppositions and presented solutions are summarised in Table 1.

Problematisations and the different aspects of SFM

Forest resources and their contribution to global carbon cycles

Finland has extensive forest resources and the problem representations of the analysed NFPs have not included concerns about the extent of forest resources. Climate change was mentioned as a driver of change in all programmes, but it is not prominent in the problem representations. All programmes stated that Finnish forests have acted as carbon sinks. The implementation of the NFP 2010 (1999) was seen to further increase the volume of the growing stock and to keep the carbon balance positive. However, in the subsequent programmes, the climate change mitigation effects of forests moved from carbon sequestration towards substituting for non-renewable raw materials and energy. Increasing use of wood products and energy wood would substitute for products made of non-renewable raw-materials and fossil fuels and was seen to improve carbon balance (NFP 2010, 1999: 18; NFP 2015, 2008: 8). In this connection the NFP 2015 (2010: 7, 45) and the NFS 2025 (2015: 20, 28) stated that the carbon sink target would slightly decrease due to growing use of wood, including increasing use of wood-based energy. "*As wood consumption increases, forests will lose their significance as carbon sinks, and emphasis in climate change mitigation will shift to replacing fossil raw materials by renewable ones, including wood*." (NFS 2025, 2015: 28).

Renewable energy is typically produced as part of the industrial processes, and increasing the use of wood will also increase the supply of forest chips. Wood-based energy was seen as the *"[. . .] most cost-effective form of renewable energy*" (NFS 2025, 2015: 18). The strategy was based on the assumption that wood fuels will continue to be counted as zero emission energy following the premise that the carbon dioxide released when burning wood is re-sequestered in growing stock, which reflects the current EU policy. However, the NFS 2025 acknowledged the need for further research on the role of wood fuels and forest use in climate change (NFS 2025, 2015: 42).

Productive functions of forests (wood and non-wood)

Increasing wood production and harvesting levels have been at the centre of each NFP. Instead of stating numeral targets for increasing the use of wood, like the first two NFPs, the NFP 2015 (2010) and the NFS 2025 (2015) focused on developing new forest-based products and services, commercialisation of new products, and increasing value added. The proposed solutions in the NFPs have included measures to improve the conditions for forest growth and increase wood harvesting. These measures have included subsidies and other incentive schemes for increasing investment in forest management and diversifying forest management methods. They have targeted private forest owners as about 80% of domestic roundwood used by the industry comes from private forests (NFS 2025, 2015: 12). Furthermore, the NFS 2025 called for material and resource efficiency and developing the exploitation of currently under-used potential of various natural products. This mainly referred to industrial production (NFS 2025, 2015: 17).

In Finland the right to pick berries, collect mushrooms and use forests for recreational purposes is based on a traditional right of public access. Even though the main emphasis in the NFPs has been on wood production, references to non-wood forest products were made in each NFP. The first NFP (NFP 2010, 1999: 4) stated that "*Hunting,* [. . .] *wild berry and mushroom picking [. . .], will be taken into account and advanced within forest management and protection."* They were seen to provide opportunities for new business and entrepreneurship together with developing tourism and recreational services. The main problems in developing the non-wood forest products sector related to the low level of wild berries and mushroom picking as only a small percentage are picked, and to developing their processing and trade (NFP 2010, 1999: 23).

The subsequent programmes referred to natural produce more widely, called for increasing attention into innovation in developing natural produce based products, entrepreneurship and industry and increasing value added (NFP 2015, 2008: 26; NFP 2015, 2010: 19; NFS 2025, 2015: 15).

TABLE 1 *Main challenges, underlying presuppositions and presented solutions in the Finnish NFPs*

Finland's National Forest Programme 2010 (1999)	Finland's National Forest Programme 2015 (original 2008)	Finland's National Forest Programme 2015 (revised 2010)	National Forest Strategy 2025 (2015)
Main challenges			
- Secure the economic, social and ecological sustainability of forestry - Need to build a competitive and profitable forest cluster to take advantage of the growth prospects - Unemployment, social exclusion, increasing social disparities, weakening rural population base	- Changes in the forest sector operation environment and the need to secure a competitive operating environment for forest industry and forest management - Secure the availability and use of domestic wood - Enhance climate- and energy-related benefits of forests - Need to strengthen forest biodiversity conservation in southern Finland	- Changes in the forest sector operation environment and demand for forest products, economic recession and financial crises and fast technological development - Changes in forest industry production structure and decrease in production and its contribution to GDP - Need to strengthen forest biodiversity conservation in southern Finland	- Forestry industry is increasingly dependent on global trends and markets - Extended phase of slow economic growth and trade deficit due to weak exports - Fundamental change in the structure of forest industries - Need to create a competitive setting for renewing and diversifying the structure of forest industries
Underlying presuppositions			
- Competitive and profitable forest cluster is a prerequisite for sustainable development, preserving biodiversity and social and cultural values - Developing sustainable forest economy is based on forest products export markets	- Forest-based manufacturing and service production can be expanded to increase welfare while securing social acceptability, economic viability and ecological, social and cultural sustainability	- Bioeconomy provides the foundations for the future success of the forest sector - Forest sector has potential to reverse the effects of the economic recession and be developed into a biocluster which produces materials and services to other industrial sectors	- Forests based business and activities are a key part of Finnish bioeconomy and offer good opportunities for developing bioeconomy and increasing and diversifying welfare based on forests
Solutions			
- Increase consumption of domestic wood and the value of wood industry exports - Increase the use of wood for energy production - Increase investment in silviculture and forest improvement to support increasing wood harvesting - Develop ecosystem management of commercial forests for ecological sustainability - Establish a working group to estimate the needs for conservation in southern Finland	- Increase the use of domestic wood, improve the transportation network, ensure the sufficiency of skilled labour - Develop and commercialise new products and services - Increase the production of bioenergy - Implement the METSO-programme - Minimise damage to nature caused by forest management - Promote carbon sequestration in forest management and introduce measures for adapting to climate change	- Strengthen forest-based business and increase value added through research and development - Increase entrepreneurship - Support the use of wood for energy - Improve transportation networks and availability of skilled labour - Improve profitability of forestry by diversifying forest management methods and subsidising silvicultural and forest improvement works, controlling threats to forest health and by improving the efficiency of roundwood markets - Implement METSO programme and develop environmental management in commercial forests - Introduce measures for adapting to climate change and promoting carbon sequestration	- Support the growth and development of the current and new enterprises in the forest sector and develop active and business like forestry - Increase the use of forests and new investments, diversify forest-based business and activities and develop knowledge base and skills to support them - Influence the EU and international forest-related policies to promote sustainable use, acceptability and competitiveness of forests and wood - Develop flexible, effective and customer-oriented administration - Reinforce forest biodiversity and ecological and social sustainability though SFM and the METSO-programme

Forest ecosystem health and vitality

In the early NFPs, forest health was considered as satisfactory (NFP 2010, 1999: 21) or good (NFP 2015, 2008: 9; NFP 2015, 2010: 15). However, the NFP 2015 (2010: 6) mentioned the control of threats to forest health as an important action for improving profitability of forestry and stated that the risks of climate change can be mitigated by forest management (NFP 2015, 2010: 27). The NFS 2025 (2015: 11, 19) called for controlling the risks to forest health posed by climate change and active monitoring of and early response to forest damages for safeguarding preconditions for profitability.

The first NFP (NFP 2010, 1999) does not mention adaptation to climate change. The increasing risks posed by climate change were recognised in both iterations of the NFP 2015 together with the fact that more information on these risks and the measures to address them was needed (NFP 2015, 2008: 22; NFP 2015, 2010: 27). The possible positive effects of climate change such as increasing growth, faster regeneration, and more reliable seed production were also recognised (NFP 2015, 2010: 27). The exacerbating risks caused by pests and fungi were also recognised in the NFS 2025 (2015: 19). Adaptation to climate change was to be supported by diversifying forest management: *"Over the long term, forest management techniques must be adapted to new and changing climate conditions. This will allow us to exploit the predicted positive impacts of climate change while minimising the risks associated with it."* (NFS 2025, 2015: 27).

Biological diversity and protective functions of forests

In the NFP 2010 (1999: 9) maintaining biodiversity was mentioned among the greatest challenges to ecological sustainability. A profitable and competitive forest cluster was seen to create the prerequisites for preserving biodiversity (1999: 7).

In framing the challenges, the NFP 2015 (2008: 8) acknowledged the need to conserve forest biodiversity, particularly in southern Finland and the METSO programme was prepared in parallel with the NFP. Subsequent NFPs have repeated the challenges related to biodiversity conservation in southern Finland and have further emphasised the need to meet the objectives of the METSO programme, which has been seen as the key for halting the loss of forest biodiversity. Forest management has been seen crucial for addressing the threats to biodiversity in commercial forests.

In addition to biodiversity the principal problem representations in the NFPs have not included other environmental concerns. However, there are some references to environmental effects on waters and soil caused by ditch cleaning and drainage (NFP 2010, 1999: 18) and increased harvesting (NFP 2015, 2008: 25). The NFP 2015 (2010: 27) and NFS 2025 (2015: 27) discussed these issues more extensively than the earlier programmes. According to the NFP 2015 (2010: 45) the greatest environmental risks relate to increasing nitrogen, phosphorus and solid matter levels in peatlands due to increased logging, ditching and fertilisation. Along similar lines the NFS 2025 (2015: 27) recognised that *"the pollutant load and especially sediment discharges in water systems from forestry may have significant local impacts on the status of water bodies..."* and that more intensive forestry may increase this load.

Socio-economic and cultural functions and conditions

In the NFP 2010 (1999: 3, 6–9) the greatest challenges to achieving social sustainability were unemployment and social exclusion, increasing social disparities and a weakening rural population base and basic rural infrastructure. Increased forestry production was expected to improve employment. In the following NFPs, new ways of using forests were seen to generate new opportunities for entrepreneurship and employment (NFP 2015, 2008: 19; NFP 2015, 2010: 7, 20; NFS 2025, 2015: 15).

However, the NFP 2010 (1999: 15) also raised concerns about the adequacy of the workforce for forestry as unfavourable rural development was anticipated to lead to a shortage of skilled labour. The need to answer for the diversifying labour demands for creating a competitive forest sector were also referred to in the subsequent programmes (NFP 2015, 2008: 19; NFP 2015, 2010: 33; NFS 2025, 2015: 15).

The profitability of family forestry has been a concern in all NFPs. Raising the profitability of family forestry and increasing the size of family forest holdings have been targeted since NFP 2015 (NFP 2015, 2008: 7, 16; NFP 2015, 2010: 6; NFS 2025, 2015: 25–26). The NFS 2025 (2015: 25) also emphasised the need for creating conditions for active and business-like forest ownership that could also include forest-based services and commercial exploitation of intangible ecosystem services. The trend for creating new business and entrepreneurship based on forest products and ecosystem services was initiated already in the first NFP (1999: 23–24) and has continued in the subsequent programmes (NFP 2015, 2008: 26; NFP 2015, 2010: 6; NFS 2025, 2015: 35).

Most of the recreational use of forests takes place in commercial forests and is based on the traditional right of public access to forests. All NFPs reiterate and support this principle. The NFP 2010 (1999: 4) calls for considering landscape and cultural values, outdoor recreation and tourism in forest management and protection, but states that *"Well-managed commercial forests are very well suited to fulfil the demands of outdoor recreation within the limits of Every Man's Right"* (NFP 2010, 1999: 23).

In the NFP 2015 (2008: 27; 2010: 28) the challenges in the recreational use of forests included balancing the supply and demand for recreation opportunities and combining recreational use of forests with wood production. The needs of recreational use were to be taken into consideration in forest management. NFS 2025 recognised the increasing importance and value of forest ecosystem services other than wood production such as recreational use and cultural values and reiterated the need to reconcile the various forest uses and the importance of easy access to forests (NFS 2025, 2015: 16, 28). On the other hand the programme also aimed at increasing the acceptability of forest management and use: *"By encouraging the citizens' positive and versatile relationship with forests we can ensure the acceptability of sustainable forest management and use."* (NFS 2025, 2015: 16).

All NFPs have at least rhetorically acknowledged the cultural importance of forests (NFP 2010, 1999: 7; NFP 2015, 2008: 28; NFP 2015, 2010: 16; NFS 2025, 2015: 28): *"The forests are the most important part of Finnish nature and a fundamental base in the way of life and the culture of the Finnish people"* (NFP 2010, 1999: 7). According to the NFS 2025 (2015: 28) cultural values of forests are of great societal significance, and should be developed as cultural ecosystem services.

The Sámi people are indigenous people living in northern Scandinavia. In northern Finland most of the land is owned by the state and administered by Metsähallitus, a state-owned enterprise. The Finnish Constitution ensures the rights of the Sámi. The first NFP (NFP 2010, 1999) did not acknowledge or mention their rights. The NFP 2015 (2008: 28; 2010: 31) stated that the rights of the Sámi to engage in their traditional livelihoods would be ensured on the basis of their cultural autonomy as set down in the Finnish Constitution. The NFS 2025 refers to the Sámi in connection to land use and forest planning: *"In the Sámi homeland, traditional Sámi industries should be taken into account in land use planning and zoning, and in the planning and target-setting related to forestry."* (NFS 2015, 2015: 24).

DISCUSSION

Despite the scholarly attention that NFPs have received (cf. review by Winkel and Sotirow 2011), the actual contents of these programmes have received surprisingly little attention. Partially utilising the policy analysis framework presented by Bacchi (2009) this study analysed the Finnish NFPs to trace how the economic, ecological and social dimensions of sustainability have been considered in the problem representations of these programmes and the possible sift in the development priorities as expressed in these documents since late 1990's. Following Bacchi (2009) problem representations were understood to include the challenges that the programs were to address, the underlying presuppositions that justify the development of the programme and the proposed solutions.

In all Finish NFPs the problem representations have emphasised the economic dimension of sustainability. This reflects the forest sector's historically important role for the national economy in Finland. However, the forest sector's share of GDP has dropped from 7.3% in 1999 to 3.6% in 2013 (Finnish Forest Research Institute 2014). This was reflected in the shift in the problematisations as the framing of the problems shifted from the need for efficient and economic utilisation of forest resources and advanced technology for developing a competitive and profitable forest sector to the difficulties related to the changes in the forest sector operating environment and structural changes in the Finnish forest industry, which had led to close-downs, decrease in the value added of forest industry products and in forestry's contribution to the national economy. Since the revised NFP 2015 (2010), the main challenges have related to developing new forest-based products and services to diversify the structure of forest industries as well as improving the profitability and competitiveness of forestry.

The growing stock in Finnish forests has increased substantially since the 1970's and the annual increment has in recent years been about 33 million m^3 more than the annual removals (Finnish Forest Institute 2014). Largely based on this an important principle in all NFPs has been that forest-based production and the use of forest resources can be expanded to increase welfare.

In the first two NFPs, the underlying presuppositions emphasised the importance of forests to the welfare of the people and economic development of the country (NFP 2010, 1999; NFP 2015, 2008). Due to the economic recession that started in 2008, the revised NFP 2015 (2010) put more emphasis on the forest sectors' role to reverse the economic downturn and it introduced the concept of bioeconomy that was seen to provide the foundation to the success of the forest sector in the future. The forest sector was to be the pioneer sector in the development towards a bioeconomy. The new NFS 2025 (2015) further emphasised the forest sector's role in developing a bioeconomy and increasing the societal wellbeing based on forests. The NFS was to support the implementation of the Finnish Bioeconomy Strategy. While the earlier NFPs referred to the importance of a competitive and profitable forest sector for sustainable development and the opportunities to expand forest-based manufacturing sustainably to support economic growth, in the latest programme (NFS 2025, 2015) forest sector was understood as a key part of the Finnish bioeconomy that will help to generate sustainable economic growth. The justification of the programmes thus shifted from sustainable development to developing bioeconomy. However, as some scholars have argued bioeconomy cannot be considered as self-evidently sustainable (Pfau *et al.* 2014). This is in line with the findings of the analysis of the bioeconomy strategies of the EU and some member countries (Kleinschmit *et al.* forthcoming). Their analysis found that the dominant frame used within the sustainable development concept in these strategies focused on economic sustainability including references to economic growth, new and innovative products and services as well as new employment.

Kotilanen and Ryteri (2011) have argued that during the past decades the changes in the Finnish forestry have mostly been additions to the industrial forestry model and that providing material for industrial use has remained as the major general goal. Although the results of the present study are consistent with this argument, they also show the increasing focus on diversifying the traditional forest sector in line with developing bioeconomy by generating new entrepreneurship and new forest products.

An important and rather stable principle in the NFPs has been the underlying premise that economic sustainability is a prerequisite or driving force for achieving ecological and social sustainability and that the different aspects of sustainability can be achieved simultaneously without major trade-offs. This ideological premise can be located in the ecological modernisation discourse which connects technological progress with capitalist political economy and claims that

economic growth and environmentally sustainable development can be reconciled. Ecological modernisation has since the 1980's become the most important practical approach to deal with environmental problems especially in Northern Europe and the US (Mol *et al.* 2009). Also, the shift in the proposed policy solutions towards increasing emphasis on commercialisation of ecosystem services and expanding forest-based production and entrepreneurship to transform the structure of the Finnish forest sector as well as the emphasis on new technologies are well in line with the ideas of ecological modernisation (Gouldson and Murphy 1997). However, it has been criticised for stressing the transformational capacity of industries, efficiency, and pollution control instead of focusing on wider concerns about natural resource consumption and associated environmental impacts and an uncritical confidence in the transformative potentials of modern capitalism (Buttel 2000). Some authors see sustainable development as a part of or overlapping the ecological modernisation discourse (Hajer 1995), but the current analysis of the Finnish NFPs suggest that, at least in this case, the economic aspects have maintained a dominant position over ecological and social concerns.

A Europe-wide research project on the most important issues in the future of forests (Sotirov *et al.* 2015) found some common patterns across Europe. The results of that study indicated that future challenges will be related to *"[. . .] managing of trade-offs between timber production, biodiversity conservation, carbon sequestration, and recreation*." (Sotirov *et al.* 2015). However, in the Finnish NFPs the issue of trade-offs have not received prominent attention; the programmes mainly indicate that these challenges can be addressed with SFM and by developing forest management practises in commercial forests.

In Finland the divide between economic and environmental interests and the related trade-offs have been the main source of forest-related conflicts since 1980s (Hellström 2001, Raitio 2013). The NFPs have recognised the negative trend in forest biodiversity and the uneven distribution of protected areas. However, the METSO programme, which was approved together with the NFP 2015 in 2008, has enabled NFPs to leave aside, for a large part, forest conservation issues. Instead, sustainable use and management of commercial forest has been presented as the way to support biodiversity in commercial forests. Yet, the dominating forest management model based on clear-cutting and even-aged strands combined with the low level of protected forests in southern Finland undermines biodiversity protection and calls for a considerable change in commercial forest management (Kuuluvainen 2009). The recent revision of the Finnish Forest Act in 2013 was a step towards this direction. The revised act expands forest owners' decision-making in forest management and allows e.g. uneven-aged forest management (Forest Act 2013).

Environmental concerns other than biodiversity have not featured in the primary problem representations of the NFPs. Interestingly the problem representations of the NFPs do not refer to carbon cycles or the role of forests in carbon sequestration. Forests have acted as carbon sinks, but the sink effect was expected to decrease due to increasing use of wood, including increasing use of wood energy. The principle of using wood to substitute for fossil fuels instead of emphasising the carbon sink effects of forests is favoured in EU and international climate and energy policies as the benefits that countries can obtain is restricted. To meet the EU targets for the use of renewable energy by 2020[4], Finland needs to increase the use of forest-based biomass energy considerably. Kallio *et al.* (2013) have examined the trade-offs between sequestering carbon in forests and substituting wood for fossil fuels in different scenarios. They found that in all scenarios Finnish forests will remain a growing carbon sink. However in the medium term (through 2035), the current wood energy targets seem to be excessive and have negative effects for climate as the avoided greenhouse gas emissions following the increasing use of wood energy to substitute for fossil fuels (coal, peat, fossil diesel) are smaller than the loss of sequestered carbon due to increased biomass removals.

The topic forest biomass energy has received increasing attention in the EU, especially after the establishment of the 2020 climate and energy targets. The EU is also currently considering whether the use of forest biomass energy will be considered emission free in the future. Environmental groups have demanded that bioenergy is excluded from the next Directive (Bioenergy Insight 2016). Change in the EU policy regarding forest biomass energy would imply a radical change in the Finnish bioenergy policy, which relies heavily on the increasing use of forest biomass.

According to Bacchi (1999) problematisations are central in the governing process. The consistent dominance of the economic concerns in the problematisations of the Finnish NFPs raises questions about the representation of different interests in the policy process. Harrinkari *et al.* (2016) identified three advocacy coalitions in the Finnish forest policy subsystem, namely forestry, administrative and environmental coalition. They also found some indication that the administrative coalition was positioned closer to the forestry coalition than to the environmental coalition, especially regarding the economic use of forests. The members of these coalitions, forest owners, industry, and the government represent the traditional interest groups in the Finnish forest sector who have shared the goal of economic development (Harrinkari *et al.* 2016). The results of the current study thus seem to offer partial support to earlier analyses of the early NFP process in Finland which concluded that NFPs have mainly been legitimatised and created awareness for the already existing forest policy discourse (Primmer and Kyllönen 2006). Furthermore, the preparation of the newest NFP, the NFS 2015, was less participatory than the processes for developing the earlier

[4] According to the current EU decision the member states will increase their amount of renewable energy to in total 20% until year 2020. The national target for Finland is 38% by 2020. (https://ec.europa.eu/energy/en/topics/renewable-energy).

NFPs; the strategic objectives were set in a government report prepared by the ministry and in a related statement by the parliament (Ministry of Agriculture and Forestry 2014).

CONCLUSIONS

The problematisations in the Finnish NFPs have mainly focused on economic sustainability, especially increasing the use of wood, profitability and competitiveness of forest-based industries and expanding and diversifying forest-based business and entrepreneurship. Ecological and social sustainability related issues have been included, but have generally remained secondary concerns. An important underlying principle in the analysed NFPs has been the way in which economic sustainability has been seen to provide the foundations for ecological and social sustainability and increasing welfare. The main recent changes have been the increased emphasis on developing, renewing and diversifying forest-based products and services to diversify the structure of forest industries and contribute to developing bioeconomy.

The way natural resource and bioeconomy policies problematisise the issues or conditions that are seen central for advancing sustainable development or bioeconomy can provide important insights to underlying premises of these policies and the related priorities, values and world views. In many countries forests and forestry are central for developing bioeconomy, the present Finnish case study indicates that more attention should be placed on all aspects of sustainability and the inevitable trade-offs that societies will face in the currently dominating shift towards developing green economy or bioeconomy.

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The problematic old roots of the new green economy narrative: how far can it take us in re-imagining sustainability in forestry?

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SUMMARY

The green economy, as conceptualized by UNEP (2011), proposes itself as a new economic paradigm. However, in order to determine if it actually departs from the current status quo, it is imperative to uncover the underlying worldview behind this proposal. Using Rees' (1995) framework of sustainability, which distinguishes between the conventional unsustainable [expansionist] worldview and an alternative [ecological] worldview, this paper argues that although UNEP's proposal is moving towards an ecological worldview, it does not offer a fundamental transformation as it still remains heavily expansionist. Expansionism is mainly revealed in the proposal's anthropocentric approach to nature; its disregard to the existence of limits to material expansion; its emphasis on the social role of economic growth; and its focus on technical and market-based solutions to work out the sustainability crisis. A similar conclusion emerged specifically from the forestry chapter. This paper argues for the need to incorporate three guiding principles in order for forestry to move to a sustainable economy: the acknowledgement of limits to growth; a greater discernment between means and ends; and a move towards systems thinking in theory and practice.

Keywords: green economy, worldviews, expansionism, ecological economics, forestry

Le nouveau discours de l'Economie verte et le problème de ses vieilles racines: jusqu'á quel point nous permet-il de ré-imaginer la durabilité en foresterie?

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L'économie verte, telle qu'elle a été conceptualisée par l'UNEP (2011), se propose comme un nouveau paradigme économique. Cependant, pour pouvoir déterminer si cette proposition se libère du status quo actuel, il est impératif de mettre à jour la vision du monde qui la soutient. En utilisant le cadre de durabilité de Rees (1995), qui distingue la la vision du monde conventionnelle et non durable (expansionniste) et une vision du monde alternative (écologique), ce papier démontre que la proposition de l'UNEP n'offre pas de transformation fondamentale, malgré une proposition plus proche d'une vision du monde écologiste, puisque qu'elle demeure largement expansionniste. L'expansionnisme se caractérise surtout dans cette proposition par son approche anthropocentrique envers la Nature, le mépris des limites existantes à l'expansion matérielle, l'accent mis sur le rôle social de la croissance économique, et l'intérêt donné aux techniques et basées sur le marché pour résoudre la crise de durabilité. Une conclusion similaire se dégage plus spécialement du chapitre de foresterie. Ce papier défend la nécessité d'incorporer trois principes-guides pour aider la foresterie à se diriger vers une économie durable: la reconnaissance de limites à la croissance, un discernement plus grand entre les fins et les moyens, et une évolution vers des systèmes pondérés en théorie et en pratique.

La nueva narrativa de la economía verde y sus problemáticas viejas raíces: ¿hasta dónde nos puede ayudar a reimaginar un sector forestal sostenible?

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La economía verde, conceptualizada por el PNUMA (2011), se postula como un nuevo paradigma económico. Sin embargo, con el fin de determinar si realmente se desvía del *status quo* actual, es imperativo exponer la cosmovisión que subyace tras esta propuesta. A través del marco conceptual sobre sostenibilidad de Rees (1995), que distingue entre una cosmovisión convencional insostenible [expansionista] y una cosmovisión alternativa [ecológica], este artículo sostiene que, aunque la propuesta del PNUMA se mueve hacia a una cosmovisión ecológica, no ofrece una transformación fundamental, ya que, en gran medida, su visión continúa siendo expansionista. Dicho expansionismo se observa sobre todo en el enfoque antropocéntrico de la propuesta frente a la naturaleza; la indiferencia ante la existencia de límites a la expansión material; el énfasis en el papel social del crecimiento económico; y un enfoque en soluciones técnicas y de mercado como solución a la crisis de sostenibilidad. Concluimos de forma similar en base al análisis realizado sobre el capítulo sobre el sector forestal. Este artículo sostiene la necesidad de incorporar tres principios rectores para la transición del sector forestal hacia una economía sostenible: el reconocimiento de los límites al crecimiento; un mayor discernimiento entre los medios para alcanzar un fin y el fin en sí mismo; y el acercamiento hacia un pensamiento sistémico en la teoría y en la práctica.

INTRODUCTION

"The green economy is an idea whose time has come." (Borel-Saladin and Turok 2013, p. 210)

More than 30 years have passed since the publication 'Our Common Future' brought the concept of sustainable development to the fore, aiming to harmonize economic development and environmental sustainability. Yet the world's ecological footprint today is larger than ever and human impact is such that the 2005 Millennium Ecosystem Assessment Board warned: "Human activity is putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted" (Millenium Ecosystem Assessment 2005, p. 5). At the same time, while global wealth increases, economic inequality is reaching astounding levels. Given our collective failure to make progress in the realm of global sustainability, the green economy narrative has emerged, with the promise of transitioning to a different model – a more equitable and green one.

While the green economy has been conceived differently by different actors (Faccer *et al.* 2014, Borel-Saladin and Turok 2013), the definition and conceptualization provided by the UNEP's seminal report "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication" (UNEP 2011) has been amply cited and used as a starting point for presenting and discussing multiple ideas related to this new proposal. According to UNEP (2011), the green economy is low-carbon, resource efficient, and socially inclusive. It presents a pathway to increase people's wellbeing and social equity while reducing resource scarcity and ecological risk. An underlying assumption of the proposal is that there does not need to be a trade-off between environmental sustainability and economic growth: "[. . .] greening of economies is not generally a drag on growth but rather a new engine of growth [. . .]" (UNEP 2011, p. 16). This proposal has been presented as an alternative paradigm to the current approach to the economy and the environment, with many countries adopting at least the discourse of this new green philosophy. Forestry, internationally, has similarly welcomed this concept (UNECE and FAO 2014) and investments in the forest sector are seen as key in the transition to a green economy (UNEP 2011).

However, opinions with regards to the transformative potential of this new green narrative are mixed (Kosoy *et al*. 2012, Brand 2012, Faccer *et al.* 2014, Borel-Saladin and Turok 2013). While some authors commend this proposal for recognizing the need for changing business as usual approaches to economic growth (Borel-Saladin and Turok 2013), critics have pointed to major faults in the modelling on which the green economy is based (Victor and Jackson 2012), have characterised the proposal as technocratic, deterministic, and simplistic (Kosoy *et al*. 2012, Victor and Jackson 2012), and have criticized the lack of discussion of power relations, inequalities and exploration of alternative cosmovisions and other human-nature relationships outside the neoliberal paradigm (Lander 2011).

But, how would we know if this proposal can actually move the current economic system onto a different, more sustainable trajectory? Using systems thinking, Meadows (1997) identifies multiple "leverage points" that can change the behaviour and direction of a complex system (like the world economy). A leverage point is one where a small shift in one aspect can produce large changes elsewhere. Meadows (1997) suggests that one of the most effective points of intervention lie around modifying or transcending paradigms – the mindset and *worldviews*, from which the goals, rules and culture of a system emerge. Paradigms, and thus worldviews, are simply acquired by living and learning in a particular society (Rees 1995) and are "transmitted from generation to generation" (Dunlap and Van Liere 1984, p. 1013). We are often unconscious of our own worldviews and how they shape our understanding of reality in crucial ways (Rees 1995). Paradigms can shift by continuously pointing out the anomalies and discrepancies in the old paradigm, and although change can happen quickly, there is often social resistance to it (Meadows 1997). In this light, if we are seeking to truly transform our economies in ways that are needed to become sustainable, it is thus important to uncover the worldviews on which the "new" green paradigm is based, and determine if it actually departs from the current economic *status quo*, or just presents reforms that do not propose any fundamental transformation.

In this paper, we use Rees' (1995) framework of strong sustainability to critically examine the fundamental worldviews behind the green economy as presented in the UNEP (2011) report. Subsequently, we explore how the green economy narrative is being conceptualized for the forest sector. We conclude by proposing three guiding principles for forestry to embrace a truly sustainable model, and provide illustrations of existing aligned practices. A key contribution of this paper is that it brings to the forefront of forestry discussions a critical analysis of economic worldviews. If forestry aims to have a central role in the transition to a green economy and aspires to contribute to shaping a new economic model, then it is imperative that forestry researchers and practitioners question, recognize, and become aware of the underlying worldviews shaping our current thinking and practices.

ANALYTICAL FRAMEWORK

Rees (1995) carefully deconstructs conventional economic thinking and compares it with a different way of conceiving the economy and humanity's place in nature, grounded in ecological economics. He puts forward two competing visions related to sustainable development; one is the expansionist worldview, representing the dominant and prevailing economic perspective, and the other is the ecological worldview, which represents a departure from the *status quo*, a change in paradigm. Here, we present the first attempt to use this framework to analyze the underlying worldview behind the proposals of the green economy.

Table 1 details the key differences between the two worldviews. Briefly, the expansionist worldview sees humankind as masters of the natural world and does not see the economy, or economic growth, as actually limited and constrained by the environment. This view is characterized by a strong faith in technology and its capacity to compensate for the depletion of nature. Thus, a technical response is often employed for solving systemic problems, "[. . .] one that ignores social and cultural context and accepts unquestioned the fundamental values of the consumer society" (Rees 1995, p. 357). Free markets are often seen as adequate for ensuring sustainability and there is great faith in prices as indicators of scarcity. Finally, an economy is deemed sustainable as long as the total stock of productive assets is not exhausted (i.e. weak sustainability). In this view, natural capital is seen as substitutable with manufactured and financial capital.

On the other hand, the ecological worldview recognizes that the economy and society are embedded and dependent on a larger, but non-growing system – the ecosphere – and thus, economic growth is constrained by the flow of goods and services from the environment. In this sense, growth in national economic income is profoundly bounded to natural income. Also, this worldview is grounded in biophysical reality (rather than only monetary), by recognizing that thermodynamics govern complex systems with a unidirectional and irreversible flow of energy and matter transformed from useful forms into more dissipated and disorganized structures (i.e. entropy). Technology, despite its importance, cannot replace fundamental services provided by nature. "[. . .] despite our technological wizardry, human society remains in a state of obligate dependence on the ecosphere [. . .]" (Rees 1995, p. 348). Finally, a system is deemed sustainable when each type of capital remains intact, meaning that different capitals are seen as complements rather than substitutes (i.e. strong sustainability). The compatibility between growth and sustainability is seriously challenged (see Daly and Townsend 1993), partly because continuous economic expansion is seen to be responsible for the ecological degradation evidenced today (Rees 1995). Moreover, Daly and Townsend (1993) refer to sustainable growth as an oxymoron, as it is impossible to increase the physical size of the economy indefinitely in a finite space[1].

The prevalence of the expansionist worldview should not be understated, as it tends to dominate public policies at all levels, in local, national and international contexts (Jepson 2004). Rees (1995) argues that ecological problems are largely a result of flaws in the expansionist worldview, and claims that as long as this worldview is prevalent, more ecological degradation and associated harms are likely to continue. He asserts that the ecological worldview provides a better, and less risky, alternative for achieving genuine sustainability. Using Rees' (1995) framework, we conducted a qualitative content analysis of the UNEP (2011) report to classify which aspects of the document fall under an expansionist worldview, and which are aligned with an ecological worldview.

HOW DOES THE GREEN ECONOMY PROPOSAL MEASURE UP TO SUSTAINABILITY?

The definition and conceptualization of green economy provided by the UNEP (2011) has been widely used in scientific and grey literature as a benchmark and starting point to talk about a new green direction for the world economy. Following Rees' (1995) worldviews framework, we identified a few aspects of this narrative to be closer to the **ecological worldview**. For instance, as a *central scientific premise*, it acknowledges the multiple uncertainties in the operation of natural systems, such as non-linearity, thresholds, and tipping points (UNEP 2011, p. 18). Regarding the *connectedness to the ecosphere*, it recognizes that natural resources are a critical economic asset and needed for human well-being (p. 16, p. 17), thus the economy is seen as dependant on nature, to some extent. Also, it sees *the substitutability of natural capital* as restricted to the extent that a minimum level of natural capital is required for maintaining basic human welfare (p. 17). It recognizes some important criticisms to *Gross Domestic Product (GDP) as an indicator*, and calls for adjusting it to reflect resource depletion, pollution, and other environmental costs (p. 23). Moreover, it recognizes that economic growth in the last decades has been achieved through an unsustainable use of ecosystems and natural resources (p. 21), and questions its adequacy as a measure of well-being (p. 550). In this sense, the report calls for reducing the per capita ecological footprint of nations that have achieved their level of development through the unsustainable use of resources, while improving the quality of life of people in other countries, but doing so without drastic increases in per capita footprint (p. 21–22). About the *attitudes towards people and the future*, it looks beyond present generations and shows concern for the well-being of future ones (p. 17–19).

Many other aspects of UNEP's (2011) proposal are, however, more in line with the **expansionist worldview**. In the following paragraphs, we unpack eight of the fifteen key themes (Table 1) that we see as being most salient in UNEP's (2011) report. To maintain a logical flow, these themes are not necessarily discussed in the order presented in Table 1.

Connectedness to the ecosphere: Despite recognizing some links between the economy and the environment, the green economy is seen as especially important for low-income countries and poor people, as these are believed to be

[1] Daly and Townsend (1993, p. 267–268) differentiate between growth and development. "To *grow* means 'to increase naturally in size by the addition of material through assimilation or accretion.' To *develo*p means 'to expand or realize the potentialities of; to bring gradually to a fuller, greater, or better state.' When something grows it gets bigger. When something develops it gets different. [. . .] The term 'sustainable development' therefore makes sense for the economy, but only if it is understood as 'development without growth' [. . .]." [italics added in original quote]

TABLE 1 *Comparison between the expansionist and ecological worldviews. Adapted and modified from Rees (1995). For full description see Rees (1995)*

Theme	Expansionist Worldview	Ecological (Steady State) Worldview
Epistemological and scientific origins	Roots in the Enlightenment and the scientific revolution. Newtonian mechanistic analytics.	Roots in biology and physics of 20th century.
Central scientific premise	*Reductionist* approaches to understanding the world. Nature is *predictable and knowable*. The observer is separate from the observed.	*Holistic* approaches to understanding the world. *Uncertainty* in natural ecosystems is very high and irreducible. There is no objective knowledge.
Starting point of analysis and models' structure	*Circular flow of monetary value* between households and firms. Models are often simple, linear, deterministic and single equilibrium.	*Unidirectional and irreversible flow of energy* from the ecosphere through the economy. Models tend to be complex, non-linear, dynamic and with multiple equilibriums.
Perspectives about nature and human's place in relation to it		
Connectedness to the ecosphere	Humans and their economy are *separate and independent from nature*.	Humans and their economy *are part of the ecosphere*, and fully depend on it.
Views towards nature	Humans are the *masters* of nature. Nature is objectified and *valued mainly as a source of resources*.	Humans *depend* on nature. *Nature's intrinsic value is recognized.*
On the substitutability of natural capital	Natural and manufactured capitals are *substitutable*. Technology will compensate for nature's depletion.	Natural and manufactured capitals are *complementary*. Moreover, nature is often a *pre-condition* for human-made capital. It is unlikely that technology will substitute for many of the ecosphere's life-support functions.
Attitudes towards economic growth, markets and trade		
Views on limits	There are *no constraints to economic growth*. Efficiency and technology will allow the economy to dematerialize and decouple from nature.	Biophysical economic growth is *limited by the ecosphere*. We should live with the natural income generated by the remaining natural capital.
Social role of growth	Focus on *continuous quantitative economic growth*. Growth is the solution in both poor and rich countries to alleviate poverty and solve inequality.	Focus on *qualitative development* (steady state economy), especially in industrialized economies. Any remaining ecological space should be allocated to less-industrialized nations.
Ecological role of growth	Growth in developed countries will increase the markets for developing countries products. *Economic surplus* in developing countries, *will allow for the conservation of nature.* Depletion and pollution are third world problems.	*Growth depends on the use and depletion of resources*. Real wealth equals to culture, supportive socio-political institutions, growing natural capital, and long-term ecological security.
On carrying capacity	*No limits to carrying capacity*. Trade can alleviate any local limitations. Technology will alleviate scarcity.	*Global carrying capacity is finite*. The ecosphere is a closed system.
On GDP as an indicator	GDP is an incomplete indicator, but the best we have to a *proxy of human welfare*.	GDP is *inadequate* to measure social and ecological welfare. Economic indicators should also reflect wealth in biophysical terms.
Role and ecological efficacy of markets	*Free markets stimulate conservation* of resources through pricing.	*Prices do not accurately reflect scarcity* or the true value of resources. Various life essential ecosystem functions do not have markets.
On economic globalization	Globalization and free-trade increases economic efficiency, social equity and international security.	Globalization and free-markets will likely increase the rate of resource depletion, thus decreasing ecological and political stability.
Views on intra and inter-generational equity		
Distribution of wealth and power	*Little reference* to global distributional issues.	*Society should act upon global inequality* and face the need for significant wealth distribution.
Attitude towards people and the future	Emphasis on the *individual* and *present generations*.	Emphasis on *collective interests* and conscious about the *welfare of future generations*.

more dependent on nature (UNEP 2011, p. 16, 19–20). "Most developing countries, and certainly the majority of their populations, depend directly on natural resources" (p. 19). A more ecological worldview would recognize that all humans depend on nature, and quite the contrary, industrialized countries appropriate per capita more of the finite ecological capacity of the planet than less industrialized nations (Rees 1995).

Views towards nature: The proposal is anthropocentric and utilitarian in its view of nature as an asset and resource for humans to use and exploit. For instance, nature is seen as substitutable and replaceable, so long as human well-being is not compromised (UNEP 2011, p. 19). In this sense, society's fundamental values and relationship with nature seem inevitable and universal, and remain unquestioned throughout the report (Lander 2011).

On the substitutability of natural capital: Although substitution between natural and man-made capitals is seen in the report as limited and restricted, this is not necessarily due to a function of our absolute dependence on the ecosphere, but rather on the state of current technology: "The other key to balancing different forms of capital recognises that substitutability is a characteristic of current technologies" (UNEP 2011, p. 19). This implies the view that, depending on the state of "technological progress", technology will be able to substitute and compensate for nature's depletion (Rees 1995). Therefore, for the technological optimists, the environment does not necessarily impose any real limits to substitution or industrial expansion.

Views about limits: The delivery of material wealth is seen as compatible with environmental sustainability through more efficiency and innovation in the use of natural resources, thus the idea of limits to growth is not considered seriously (UNEP 2011, p. 14). Moreover, even faster growth rates than business as usual scenarios are promised (p.16), although it is recognized that nothing less than "absolute decoupling" of environmental pressure from consumption would be needed to achieve this goal (p. 251). However, the evidence that relative and absolute decoupling can happen is weak (Jackson 2011a, Jackson 2011b). In fact, increases in efficiency often lead to increased consumption – known as the Jevons Paradox (Daly 2013, Kosoy *et al*. 2012) – and the human ecological footprint has actually increased with strategies based on efficiency and techno-fixes[2] (Rees 2010). Yet, while UNEP (2011, e.g. p. 269, 359) recognizes this paradox, it does not seem to be considered a major challenge in reducing absolute footprint, showing that there is still great faith in techno-fixes to solve the sustainability crisis. UNEP's green economy seems to be more concerned with reducing impacts as a path to sustainability, rather than in actually fitting human activities within the ecological capacity of the planet. But to be truly sustainable, resources need to be used at a rate at or below which they can regenerate in order to allow for recovery of depleted stocks (Farley and Perkins 2013). There is no middle ground. "We cannot have pockets of sustainability. Either we are sustainable or we are not" (Kozak 2013, p. 436). Moreover, the report does not address the inherent contradictions of the current economic model, which is based on unsustainable consumption and production (Brand and Wissen 2013, Brand 2012).

Social role of growth: In addition to the lack of consideration for limits to growth, the *desirability* of continuing to raise incomes also goes unquestioned (Brand 2012). "The key aim for a transition to a green economy is to enable economic growth and investment while increasing environmental quality and social inclusiveness" (UNEP 2011, p. 16). In this sense, well-being is often equated with economic welfare (UNEP 2011, p. 17), regardless of the fact that various studies show that increases in material wealth in industrialized countries are failing to deliver larger gains in well-being and life satisfaction (Kahneman 2011, Easterlin 2001, Jackson 2011a). For instance, the Genuine Progress Indicator (GPI)[3] shows that in the United States and possibly in the world, while GDP has been rising exponentially, GPI actually peaked in the late 1970s and may actually be decreasing (Kubiszewski *et al*. 2013). Furthermore, we may be in a period of *uneconomic growth*, where the costs of economic expansion may well be exceeding the benefits, thus making us poorer rather than richer in the long term (Daly 2013). In the report, economic growth seems to be the ultimate purpose of the economic process, rather than as a temporary mechanism to achieve something more meaningful and significant; this is a conflation of means and ends. Moreover, there is little reference to global distributional issues and how to address these (other than through more economic growth).

Role and ecological efficacy of markets: While the role of policy is seen as vital, market mechanisms are seen as central to the green economy proposal, mainly through the economic valuation of natural capital and ecosystem services, internalizing externalities and getting the prices right (UNEP 2011, p. 18–19). Although better costing and ecological accounting is of vital importance, market mechanisms have some significant limitations that should not be discounted. Some have considered that monetization may make it easier to substitute natural capital for other forms of capital (Barkin and Fuente 2013); it may advance the commercialization and commodification of nature (Gómez-Baggethun *et al*. 2010, Lander 2011); and it may threaten traditional human-nature relationships of local and indigenous peoples, as well as restrict their access to land and natural resources (Faccer, Nahman, and Audouin 2014). In addition, traditional ecosystem valuation methods may obscure intra and inter-generational distributional issues (Weber 2013). A more ecological perspective

[2] As Rees (1995) points out, if the economy keeps growing at 3% per year (which is often considered a modest rate of growth), the environmental footprint per unit of consumption would need to be reduced by 90% within the next 30 years to meet demands within ecological limits; beyond that, a 'complete dematerialization' would be needed.

[3] GPI differentiates between costs and benefits of economic activity on welfare, so for example, ecological degradation and crime, are considered as an economic cost, rather than as a gain (Kubiszewski *et al*. 2013).

recognizes the problems and limitations in pricing externalities, due to our limited knowledge and multiple data gaps about the natural environment. For instance, due to functional transparency, many vital ecosystem functions will only become apparent to humans once they have been critically threatened or disappeared (Rees 1996). Vatn and Bromley (1994, p. 131) conclude that "[. . .] valuing (or pricing) of environmental goods and services is neither necessary nor sufficient for *coherent and consistent choices about the environment"* (italics in original quote). Along similar lines, Korten (2013, p. 22) argues that "the biosphere is not simply a resource to be priced, as if with enough money we could afford to do without it. It is the foundation of life, and as such it is sacred and beyond price." Moreover, non-market mechanisms should not be discounted, as depending on the situation, they may be better suited to incentivize sustainability and environmental conservation (Schmink 2004, Barkin and Fuente 2013, Trosper 2009).

On economic globalization: In line with an expansionist perspective, trade liberalization is seen as positive and is actually considered one of the enabling conditions for the green economy (UNEP 2011, p. 22). Brand (2012) criticizes this along the lines that current political strategies – including trade – are oriented towards competition, which ultimately are a major barrier for sustainability, which requires global cooperation. In addition, based on an ecological economics perspective, free trade will likely only speed up the process at which resources are used and exhausted (Rees 1995).

Central scientific premise: While the proposal recognizes uncertainty and makes efforts to look at the economy in its entirety, it is evident that a reductionist approach to green solutions and a "silo" mentality, still prevail. For example, the report argues that by greening ten specific sectors, the economy as a whole will become green. But, how sustainable will the green economy be if the brown economy continues to grow alongside it (Victor and Jackson 2012)? Or if gains in resource efficiency in a few sectors are cancelled out by continuing overall growth (Jackson 2011b)? We will return later to the need for transcending this silo and reductionist mentality, when we examine the forestry section in UNEP report.

From this analysis, we conclude that the green economy as proposed by the UNEP (2011) moves only slightly away from the expansionist paradigm. Although it recognizes certain dependence of the economy on nature, acknowledges limitations of GDP and admits ecological uncertainties, it is still largely aligned with the current economic paradigm mainly due to its anthropocentric approach to nature; its disregard to the existence of limits to material expansion; its emphasis on the social role of economic growth; its focus on technical and market-based solutions to work out the sustainability crisis; and the primacy of reductionist approaches, among others. Therefore, it seems unlikely that this proposal for the green economy represents actual progress towards a different paradigm, as the myth that we can continue to increase our production and consumption, while at the same time live within the ecological limits of the planet, still prevails in this narrative.

FORESTRY IN THE GREEN ECONOMY

Forestry is projected as one of ten key sectors for greening the economy (UNEP 2011). Indeed, forestry as a discipline, industry and livelihood will undoubtedly have an important role to play in any new green pathways that we embark upon, due to forests' provisioning of numerous local and global services needed for supporting society's ways of life and their inherent role in hosting most of the planet's biodiversity. In order to better understand how far forestry can take us within a green economy, we use Rees' (1995) framework once again, to identify core underlying assumptions and worldviews of the forestry chapter of the UNEP report (2011, p. 151–193).

There are four main aspects in which the approach to forestry by UNEP's report points to an **ecological worldview**.

Central scientific premise: The chapter makes a start at non-silo and integrated thinking by recognizing the importance of looking beyond the forestry sector, for example, for identifying drivers of deforestation. It is recognized that policies within and outside the sector are crucial in influencing the future of forests (p. 169). Similarly, there is a call to look at the landscape level when establishing and managing tree plantations. This is a slight move away from reductionist approaches towards using more holistic thinking.

Substitutability of natural capital: Regarding the perceptions of the natural environment, the chapter recognizes some of the complexities of nature and the irreversibility of some human actions, for example the loss of primary forests (p. 164). In this sense, technology and human ingenuity are not assumed to be able to replace the services provided by forests, thus implying restricted substitutability between human-made and natural capital. Moreover, the report cautions against substitutions between similar forms of natural capital, for example by replacing natural forests with tree plantations (p. 178).

On GDP as an indicator: The full range of ecological goods and services generated by forests are recognized, which go beyond their financial value in market products and contribution to GDP (p. 156). Therefore, a central part of the proposal calls for including ecosystem services into national accounts, and measuring the stocks and flows from forests (p. 161–162). These propositions are indeed important in any transition to a truly green economy. The report also highlights the need for measuring the role of forests in societal well-being, especially for low-income and marginalized individuals, and stresses the significant contribution of forests to employment (which often occurs in the informal sector).

Attitudes towards people and the future: There is a look beyond maximizing the net present value of forests, to thinking of their long-term contribution to society's well-being. In addition, there is a large focus on collective interests rather than solely on maximizing private gains. For instance, the relevance of multiple stakeholders is often highlighted (p. 169, p. 184). Moreover, participation of communities and indigenous peoples is considered an enabling condition for adequate forest governance (p. 184).

Other aspects of the forestry chapter seem more aligned with an **expansionist worldview**. We will focus here on six main themes.

Connectedness to the ecosphere: Even though it is implicitly understood that humans are largely seen as part of the natural world and dependent on the resources and services provided by nature, the proposal emphasizes increasing protected areas as an important opportunity (see Section 2.2. and 3.2), pointing to the persistence of an underlying perception of seeing people as separate from nature, and nature as abstracted from its social context (West and Brockington 2006). This reflects a vision that removing people from the ecosystem is one of the most effective ways to sustainably manage and conserve an area for the indefinite provision of services, pointing to a potentially false dichotomy between conservation and local livelihoods (Schmink 2004). This also relates to the fact that the chapter gives little priority to discussing community-based initiatives as a viable alternative for sustainable forest management, such as community forests and locally-controlled forestry, where humans are rather seen as pivotal in the conservation of resources (Agrawal 2001, Persha, Agrawal, and Chhatre 2011, Persha *et al*. 2010).

Views towards nature: An anthropocentric perspective still dominates, as nature is still mainly seen as a source of resources and services for people's use and benefit. No reference is made to its value beyond its usefulness and worth to humans. Some authors argue that until we move past this utilitarian view of the natural world, sustainability will be a very difficult goal to achieve (Robinson 2004). Also, while the UNEP forestry chapter recognizes limitations in substituting natural capital for other forms of capital, options like biodiversity offsets are also considered as viable instruments for conservation (p. 186). This reflects a contradictory view of nature that on the one hand, is seen as unique and irreplaceable, but on the other hand it is seen as substitutable and exchangeable; destruction of biodiversity in one location is simply replaced by efforts to conserve it elsewhere through an "offset." Furthermore, the effectiveness of biodiversity offset strategies is still in question, as theory and practice remain at odds (Bull *et al*. 2013, Curran *et al.* 2014, FERN 2015).

On carrying capacity: An underlying assumption of the forestry chapter is that the economy will be greener if we increase the proportion of consumed materials made by forests goods and services, especially replacing carbon-intensive products (UNEP 2011, p. 162). However, although forest products are renewable and many have lower carbon footprints than their non-renewable counterparts, this does not necessarily mean that they have low ecological footprints or that they are sustainably produced (especially considering the large reliance on fossil fuels for transforming these products). We should be cautious of labelling as 'green' all things produced in the forest sector just because it is renewable and biodegradable, without fully considering the ecological, social and cultural impacts of its production (Dauvergne and Lister 2011). In general, more comprehensive and standardized indicators of business sustainability are required (Taylor *et al*. 2013). In addition, the size and growth of the overall economy needs to be factored into the equation, because, although the impact per unit of production may be decreasing due to efficiencies, our overall ecological footprint could remain the same or even be increasing through increased overall production and consumption. As pointed out by Taylor *et al*. (2013, p. 247): "An individual agent can only be as sustainable as the economy, society and natural environment in which it operates." In this sense, it is imperative to question, what does sustainable consumption and production really mean? Is the forestry sector just using the green economy as a justification to grow the sector (continuing with an expansionist mindset), or is it taking this opportunity to actually contribute to the creation of a truly sustainable economy through promoting more meaningful consumption?

Role and ecological efficacy of markets: Although there is recognition of the importance of policies and other instruments, the role of market-based approaches is laid out as central for the effectiveness of the proposal in forestry, as it is in the report in general. This could be a double-edged sword as economic forces will play an increasingly important role in determining how forests are used; however, Farley (2009, p. 42) cautions that "[. . .] the globally dominant market economy threatens to grossly misallocate many critical resources, including forests." In line with an ecological worldview, Farley (2009) points to the multiple difficulties in subjecting fund-services resources (like ecosystem services and many of our life supporting systems) to market allocation, mainly because they are often non-rival and non-excludable. Indeed, there is a growing critical literature on inequity of payments for ecosystem services (PES) as a conservation tool (McAfee and Shapiro 2010, Shapiro-Garza 2013, Ibarra *et al*. 2011), and neoliberal approaches to environmental governance in general (reviewed in Singh 2015). In some contexts, non-market mechanisms have shown to be more effective at promoting conservation (Schmink 2004, Barkin and Fuente 2013). In addition, as recognized by the UNEP report, there are limitations to a market-based approach like PES, including high transaction costs and high opportunity costs. For example, it is estimated that approximately $2,000 per hectare would be needed to compensate forest owners for avoiding deforestation,[4] reflecting the high opportunity cost facing many forested lands (UNEP 2011, p. 181). In this sense, anticipated payments for REDD+ are already expected to be low in comparison with other land uses like cattle ranching and agriculture (Pokorny and De Jong 2015).

Distribution of wealth and power: Major global distributional issues and existing power dynamics are not greatly acknowledged or dealt with in the forestry chapter. Although there is some mention of the need for equitable distribution, redistribution, and compensation mechanisms in relation to the establishment of protected areas, tree plantations, and/or PES projects (e.g. see UNEP 2011, Sections 3.2, 3.3. 3.5), it is unclear how these are to be achieved. Moreover, it is worrying that many of the opportunities for transitioning into a

[4] This value reflects the opportunity cost of conserving forests without extracting forest products or clearing.

green economy put forth in this chapter have been repeatedly called out in their perpetuating of inequities and marginalization of indigenous and local communities. Certification schemes have been criticized for their limited access by smallholders and communities (Hajjar 2013, McDermott 2013, Pinto and McDermott 2013). Protected areas have a long history of excluding communities and limiting livelihood opportunities (Adams *et al*. 2004, Adams and Hutton 2007), despite evidence that including local people in co-management regimes most often produces positive socio-economic and conservation outcomes (Oldekop *et al*. 2015). Regarding REDD+ activities, there are many worries, and emerging evidence, of limited benefits to, and even negative impacts on, local communities (Larson and Petkova 2010, van Dam 2011, AIDESEP 2013, Che Piu and Menton 2014), and distributional inequities (Wertz-Kanounnikoff and Kongphan-apriak 2013), making justice and equity with REDD+ a complex matter (Schroeder and McDermott 2014). Finally, establishing tree plantations to meet increasing demand for fibre and forest services also introduces questions of equity and social justice, manifested in increasing conflicts between local populations and tree plantation companies in the Global South (Dauvergne and Lister 2011, Klubock 2014, Gerber 2011). While the UNEP chapter rightfully acknowledges the need to consider multiple stakeholders and mitigate the implications of these activities on local communities (including indigenous peoples), the fact that communities and smallholders are not at the centre of future forest-related strategies (just a factor that needs to be shielded from negative impacts) speaks to possible perpetuation of underlying inequities and power dynamics in the forest sector.

Central scientific premise: Even though the UNEP forestry proposal calls for having a landscape vision and even a national perspective on forestry (UNEP 2011, p. 162, 177), it would certainly benefit from using more holistic and 'systems thinking', by placing the forestry sector within the whole global economy and acknowledging the multiple interactions occurring within this complex system. In this sense, the forestry chapter deals with the *symptoms* of the problem; it rightly recognizes that the causes are coming from outside the sector, but, it does not go far enough in identifying and treating the underlying *root* causes driving our unsustainability. It is accepted that demand for meat and biofuels will mean more pressure on forest conversion, but it is not recognized that indefinite economic growth will eventually and inevitably just increase and exacerbate these pressures. The chapter offers technical solutions like improving agricultural productivity (p. 163), which, as has been argued here, will likely be outstripped by growth and increasing consumption. Moreover, with more economic growth and consequently, greater demand, the opportunity cost of conservation will likely only go up, making it more difficult for PES programs to be cost-effective and financially sustainable (Lievens, Wiert, and Duijnhouwer 2013). There is no serious consideration of the fact that the drive for continuous economic expansion may be what is actually propelling the multiple ecological problems. Moreover, the predominant socio-economic development model is not challenged in any profound way (Death 2014, Brand 2012).

In summary, our analysis of the forestry chapter in the UNEP (2011) report suggests that the narrative is moving closer towards, but has yet to fully embrace, an ecological worldview due to its recognition of the importance of multiple goods and services provided by forests, and to the value granted to their longer term management for the benefit of multiple stakeholders. Nonetheless, if the expansionist view towards the whole economy remains, it will likely matter little what forestry as a sector does, mainly because the economic, and subsequently ecological, pressures will likely continue to increase. The disregard of ecological boundaries by our economic systems will inevitably lead to increased pressure, continuous degradation and loss of natural forests and various life-supporting systems (McLellan 2014). Similarly the disregard of power dynamics and distributional issues will likely increase sociopolitical tensions worldwide.

RE-IMAGINING SUSTAINABILITY IN FORESTRY: HOW FORESTRY CAN BE A PIONEER IN THE TRANSTION TO A TRULY GREEN ECONOMY

Based on Rees' (1995) framework, we argue that although UNEP's green economy is moving towards an ecological paradigm, it is still founded on old expansionist roots which are not identified as transformative and adequate enough for solving, in time, the sustainability crisis facing humankind. In this section, we bring to the forefront what we see as three missing principles in the green economy narrative. Upon reviewing literature on ecological economics, these three principles stood out as missing from the green economy proposal. We believe that by embracing and implementing these three principles together, they could guide the way towards a truly green and just economy. We illustrate a few examples of how they may be put in practice.

Guiding Principle 1 – Recognizing and embracing the limits to economic and material expansion

The first principle underscores that it is short-sighted for forestry to ignore the impacts of an ever growing economy on forests, or for forestry's contributions to the green economy to not critically engage in practices that reduce economic expansion. The amount of input used from other sectors (many from non-renewable resources) and the ecological and social footprint of production need to be recognized, while thinking of the sector's co-existence with other sectors within one and the same global economy. This does not necessarily need to be a constraint, but rather a condition under which forestry could embrace creativity and innovation, and thrive within limits. Forest-based businesses could contribute to the goal of one-planet living by refusing planned obsolescence as a built-in characteristic of products, instead prioritizing and guaranteeing the commercialization of long-lasting forest goods. Also, the contributions to the sharing economy could increase by boosting the re-use and recycling of products

derived from the forest. In addition, focusing on forest-based ecosystem services such as nature-based tourism and recreation, carbon sequestration, and watershed preservation, can, if done mindfully, enhance local economies while limiting material expansion. Forestry can thus play an important role in encouraging lowered consumerism and low throughput initiatives. A key aspect is to have stronger and more comprehensive indicators of sustainability that go beyond reducing impacts *per unit* of production per sector, to considering the *whole* impact of our activities across sectors.

Promoting locally-controlled forestry offers a great opportunity to contribute to the green economy by encouraging local economic activities that often cause *less environmental impact*, particularly when compared to their alternative – large-scale, industrialized forest concessions (White, Kozak, and Liddle 2007). While providing a number of benefits to communities, local small and medium forest operations (including community-based businesses) tend to have a stronger sense of place and deeper local ecological knowledge, especially if they have inhabited the same place for generations (Rockwell and Kainer 2015). Schmink (2004, p. 120) highlights that "community forest management is embedded inextricably in a social community, in a specific historical and ecological setting; it is not simply a forest enterprise." With local forestry, wealth distribution tends to be spread more locally and regionally (Pokorny and De Jong 2015), generating meaningful employment opportunities and improving community livelihoods (Macqueen 2008). Moreover, promoting the local economy can also contribute to the diversification, self-sufficiency and resilience of communities.

Guiding Principle 2 – The need not to conflate the means with the ends

The second principle highlights the importance of distinguishing between means and ends; means being the instruments and mechanisms to achieve something, while ends involve the multiple goals and ultimate purpose. Economic growth and ever increasing amounts of material wealth should not be the ultimate goal of our economies, but rather one of the limited mechanisms for achieving more meaningful purposes (Daly and Farley 2011, Daly 2014). In this sense, the notions of advancement and progress need to be reframed in order to move the system from being centered on increasing production and revenues, to reflect long-lasting prosperity for people and the planet.

Re-thinking and re-defining development and prosperity in this way also entails reforming the indicators that we use to measure progress towards forestry goals. Rather than emphasizing forestry's contribution to GDP, production and consumption (as found in FAO's Forest Resources Assessments, or criteria and indicator schemes such as the Tarapoto Process or the Montreal Process), indicators could focus more on genuine progress and well-being, for people living in and around forests and for society in general. This inevitably includes multiple non-material and qualitative aspects, and requires the valuing of multiple forms of wealth, beyond the financial one. In this sense, valuing does not mean monetization, but rather moving away from monetary indicators as a way of giving adequate worth and relevance to other important aspects. This is a vital feature of transitioning to a new economy with more comprehensive and diverse conceptions of wealth, that include cultural, social, spiritual, natural, and other forms of abundance. Some forest-based communities already integrate multiple values in their management decisions: some community forestry enterprises and initiatives operate beyond the profit motive, to incorporate a multitude of local and non-economic values into their goals (Hajjar *et al*. 2013, Schmink 2004), including preserving cultural identity and practices, and enhancing political empowerment (Mayers 2006). In an example of considering multiple values in forest management decisions, the Confederated Salish and Kootenai peoples in Montana, USA, following principles of aboriginal economics, decided to forgo maximum economic value of a dam project for non-market values of habitat restoration and ecosystem conservation (Trosper 2009). Similarly, the Menominee people of Wisconsin adapted forest management in their reserve to having longer-term rotations, more stock of old growth forest, and uneven aged management, thus subordinating economic goals to ecological objectives (Trosper 2007).

Guiding Principle 3 – Moving closer towards integrated and systems thinking

Finally, the third and crucial principle is to use integrated and systems thinking in our forestry policies and practices. Forests and forestry globally continue to be plagued by environmental and social problems that are mostly due to factors outside of the control of the forest sector itself (e.g. deforestation, climate change). While forestry has come a long way in considering the complexities of whole forest ecosystems (rather than focusing on trees), just discussing forestry in isolation from these other important and powerful forces at play is a throwback to the silo mentality that has plagued our economic system. The UNEP report calls for taking a landscape approach, and major forestry organizations, such as CIFOR, have already reoriented their work to do so, helping to take down the walls that usually separate forestry from agriculture, mining, and other rural development sectors (Sayer *et al*. 2013). Moreover, there is a call to move beyond landscapes to look at whole territories (especially in the context of REDD+), to take into account socio-political boundaries rather than just physical ones in a more holistic approach to natural resource management (McCall 2016). In any case, it is fundamental to shift towards 'systems thinking' if we are to understand the effects, interconnections and feedback loops driving the direction of our economic, social and ecological systems. In this sense, "green" solutions focused on the forest sector alone will only likely have limited impacts on overall sustainability. The ecological crisis facing humankind is such in scope, that we do not only need some sectors being green or greener, but rather we need the whole economy to be sustainable.

A promising trend in this realm is that western scholars and practitioners are increasingly looking to indigenous ontologies to rethink our ways of relating to nature and other beings (Gibson-Graham and Roelvink 2010, Sullivan 2009 2010, in Singh 2015, Chan *et al*. 2016). Some indigenous worldviews can provide examples of systems thinking in a forestry context, where the interconnectivity, interdependence, and interrelatedness between human beings and other entities are considered (Huanacuni Mamani 2010), and people are often seen as part of the natural cycle of life (Trosper 2009). In this sense, it is important to recognize and value that indigenous peoples in many parts of the globe have been stewards of healthy forests and many natural ecosystems for millennia, often acting as barriers to forest conversion (Pokorny and De Jong 2015). Thus, although there are multiple and very different indigenous cosmologies, much could be learned from some principles of self-determined indigenous economics such as leaning towards holistic thinking (rather than reductionist and silo thinking); recognizing economics as being shaped by values (rather than as an objective discipline); focusing on relational aspects and reciprocity (rather than on the primacy of the individual); being biocentric (rather than being solely human-centered); and valuing sustainability over efficiency (van Kessel 1989, Olórtegui 2007, Vasquez Fernandez 2015, Central Asháninka del Río Ene 2012, de Sousa Santos 2010, Trosper 2009, Chan *et al*. 2016). The influence of indigenous worldviews on mainstream forestry practices are increasing. For example, the "**A**mazonian **I**ndigenous **R**EDD+" (AIR), which is a contextualized and intercultural adaptation of conventional REDD+, shows more holistic and integrated perspectives that go beyond the concept of carbon to focusing on the multiple ecosystem services (COICA 2010, AIDESEP 2011; AIDESEP 2013).

In summary, these three principles and the illustrative practices mentioned above are meant to serve as examples of tangible practices that could be incorporated in forestry locally and globally, to move us closer towards an ecological worldview. While the examples portray multiple ways of knowing, doing and relating with society and the environment, our intention here is not to present a one-size-fits-all solution for the way forward; rather, we aim to illustrate how the principles we have listed underlie some existing practices and philosophies. While clearly not an exhaustive list, in exploring the examples listed above, we bring attention to the notion that the dominant expansionist paradigm is just one worldview within many that existed, and still exist in the planet today. It is crucial to recognize that, although this view seems ubiquitous and is often predicated as superior and modern, there is not one universal and supreme way of being and looking at the world, but rather a myriad of other possibilities (Rozzi 2013). Rozzi (2013, p. 14) argues that: "Biocultural homogenization is a pervasive, but underappreciated, driver of today's rapid global environmental change." Thus, we make a call to forestry policy makers and practitioners to learn from other ways of relating to forests (beyond western utilitarian and anthropocentric modes), that are rooted in a place or region, which may help us move away from the current destructive paradigm. As we illustrate with the above three principles and related practices, there are many ways that forestry can contribute to moving towards an alternative way of being that is more in line with an ecological worldview, avoiding unconsciously lingering on an unsustainable path with an expansionist worldview.

CONCLUSION

The green economy is a concept that is being reinterpreted constantly by different authors and organizations as they see fit. Using UNEP's seminal green economy report as a case study, we have highlighted the importance of questioning the underlying values and worldviews of this narrative, to understand whether it arises from a paradigm that is fundamentally different from mainstream (business as usual) economics, or if it is still rooted in this old paradigm.

Our analysis suggests that UNEP's vision of a green economy does not stem from a fundamentally different worldview, although the discourse is certainly moving in the right direction. UNEP's proposal is quite seductive as it implies that growth and sustainability are compatible, which, according to an ecological worldview, is a *false* premise. As long as the model continues to be predicated on material growth, although with greener practices, it will likely continue to be unsustainable. UNEP's proposal looks at important, although less effective leverage points (like changing indicators), and as a consequence, these reforms will likely be slower and possibly futile, unless we change what is driving the goals and culture of the system – the underlying worldview.

The ethical question that emerges from this analysis is: Which vision does forestry want to follow? Forestry could keep to an expansionist worldview, contributing to increased overall production and consumption while trying to reduce carbon footprints through substitutions with "greener" wood-based products. Or it could follow an alternative ecological worldview that places people and the planet at the center and is grounded in genuine sustainability. Forestry, as an industry and a science in the West, has indeed seen many changes in the way it has been envisioned and, in many cases practiced, over the decades. In numerous places, it has evolved from being focused purely on timber and maximum yields, to a consideration of the ecosystem as a whole, learning from the social and ecological feedback of systems. Also, due to the nature of trees and forest growth (e.g. rotations varying from 10 to 100 and more years), forestry is inherently future-focused and has a longer-term view than other sectors. But there is still a long way to go, with fundamental changes in outlook needed, before we can claim that forestry is leading the way to a sustainable economy.

This paper has suggested guiding principles and provided examples within a possible alternative worldview, grounded in ecological economics. Three key principles have been brought to the forefront: acknowledging and embracing limits to growth; differentiating between means and ends; and basing our approach to forestry on more integrated and systemic thinking. Forestry has a unique opportunity to set a precedent

and lead the way towards a different way of making meaning of the green economy – meaning that could take society onto the path of genuine and long lasting sustainability.

We acknowledge that such a path will come with barriers and resistance as it involves changing fundamental beliefs and assumptions, which are highly entrenched in our systems and practices. But, as Richardson (2013, p. 15) put it: "The green economy will not be developed by marginal changes to the global economic structures that created the conditions that made the gray economy possible." Paradigms do shift, and they do so by continuously pointing out and repeating among ourselves the faults we see in the current system. The challenges facing humanity have never been greater; we are making a call to confront, sooner rather than later, the reality of living within limits.

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Changing governance arrangements: NTFP value chains in the Congo Basin

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SUMMARY

As forest products from Cameroon and DR Congo are commercialised, a value chain is created from harvesters, processors, and retailers to consumers worldwide. In contrast to dominant narratives focusing on regulations and customs, these chains are actually governed by dynamic, multiple arrangements regulating access to resources and markets. New institutions have been created, led by project-related civil society organisations and enterprises. These increasingly take on roles traditionally the reserve of governments. In some chains, the state performs its duties, in others not. Customary authorities, projects, non-government organisations and market institutions fill some voids. Often actors with little voice in formal governance create their own messy, bricolaged arrangements, and governance based on 'exclusiveness' produces some of the most sustainable chains and livelihoods in the long term. The different governance arrangements and combinations affect the livelihoods of those involved in chains, forests and their sustainability in different ways, both positively and negatively.

Keywords: governance, livelihoods, institutions, forest product value chains, Central Africa

Changement des arrangements de gestion: chaînes de valeur des NTFP dans le bassin congolais

V. INGRAM

Alors que les produits en provenance du Cameroun et de la République Démocratique du Congo sont commercialisés, une chaîne de valeurs est créée à l'échelle mondiale, depuis les agriculteurs récoltants, les processeurs et les commerçants, jusqu'aux consommateurs. En contraste avec les narrations dominantes se concentrant sur les règles et les taxes, ces chaînes sont gérées pratiquement par de arrangements multiples et dynamiques régularisant l'accès aux ressources et aux marchés. De nouvelles institutions ont été créées, conduites par des entreprises et des organisations de société civiles liées aux projets. Ces dernières prennent de plus en plus des rôles auparavant réservés aux gouvernements. Dans certaines chaînes, l'état remplit ses rôles, mais pas dans d'autres. Les autorités habituelles, les projets, les organisations non-gouvernementales et les institutions de marché parent à certaines des carences. Souvent, les acteurs ayant peu de portée dans la gestion formelle créent leur propres arrangements et gestion, souvent dissipés et bricolés à la va-vite, basés sur l'`exclusivité` de certains produits, résultant en certaines des chaines et des revenus les plus durables à long-terme. Les différents arrangements et combinaisons de gestion affectent les revenus des personnes impliquées dans les chaînes, les forêts et leur durabilité de diverses façons, positives et négatives.

Cambios en las reglas de gobernanza: cadenas de valor de PFNM en la cuenca del Congo

V. INGRAM

A medida que se comercializan los productos forestales del Camerún y de la República Democrática del Congo, se crean cadenas de valor entre los recolectores, procesadores, minoristas y los consumidores de todo el mundo. En contraste con las narrativas predominantes, centradas en las regulaciones y costumbres, estas cadenas están en realidad gobernadas por una variedad de reglas dinámicas que regulan el acceso a los recursos y los mercados. Se han creado nuevas instituciones, lideradas por organizaciones de la sociedad civil y empresas relacionadas con los proyectos. Éstas asumen cada vez más algunos de los roles que tradicionalmente estaban reservados a los gobiernos. En algunas cadenas, el Estado desempeña sus funciones, pero en otras no lo hace. En tales casos, las autoridades tradicionales, los proyectos, las organizaciones no gubernamentales y las instituciones del mercado suplen estas carencias. A menudo, los actores con poca presencia en la gobernanza formal crean por si mismos sus propias reglas no estructuradas, y la gobernanza basada en la 'exclusividad' produce algunas de las cadenas y medios de vida más sostenibles a largo plazo. Las diferentes reglas y combinaciones de gobernanza afectan de forma diferente los medios de vida de quienes participan en las cadenas y están involucrados en los bosques y su sostenibilidad, tanto de manera positiva como negativa.

INTRODUCTION

Despite decades of development-focused policies and actions, poverty remains persistent in much of Africa. In the Congo Basin, the Democratic Republic of Congo (DR Congo) has had some of the lowest human development indexes for decades, whilst Cameroon is now classed as a medium-low development (United Nations Development Programme 2012). These two contrasting countries form the focus of this study. The Congo Basin is the world's second largest forest block, containing more forested land (71%) than any other region worldwide (FAO 2011). The Basin is dominated by dense humid forests covering 36% of the land area, savannah and dense deciduous forests 24%, and forest-cropland mosaics 11% (de Wasseige *et al*. 2016). The congruence of high forest cover with poverty gives rise to a high reliance on forests to sustain livelihoods of rural and urban populations. At least 951 forest species are used in the DR Congo and 706 in Cameroon to provide non-timber forest products (NTFPs) (Ingram 2014, Ngoye 2010). NTFPs include whole and parts of plants and animals and originate from natural, modified and managed forested landscapes. As Wiersum *et al*. (2014) show, a subtle, diverse continuum of production systems have evolved, reflecting different human interactions with forests and their species, ranging from wild harvest to the deliberate enhancement of NTFP production in natural forests, to the gradual incorporation of NTFP species into farming systems and their cultivation in plantations. The resulting forest products are used to meet a wide variety of medicinal, food, materials, construction, energy, forage, economic and cultural needs. Most are wild sourced: only 5% of plants are cultivated and less than 1% of animals domesticated (Ingram 2012). In Cameroon and DR Congo, around a third of NTFPs are traded, and around 50 plant and 70 animal-based NTFPs are exported (Ingram 2014). This trade occurs in a very dynamic, changing and complex setting of increasing urbanization (Ministry of Forests and Wildlife 2013), deforestation and degradation (de Wasseige *et al*. 2012), a difficult business environment and significant corruption (World Bank 2011). NTFP commerce has changed markedly over time, with indications that a greater number and higher volumes are now traded than four decades ago and their economic value is increasing (Awono *et al*. 2013). This trade can be viewed using the concept of value chains (Kaplinsky and Morris 2000, ILO 2006), a term denoting the activities, processes and stakeholders involved as a species is gathered from the forest, then commoditised, being processed, packaged, distributed and sold to consumers as a product, passing from harvesters and farmers to processors, traders and retailers to the final consumer. Indirect stakeholders include those providing inputs and services such as technical support, skills and capacity building, information, finance and equipment. Chain activities can be performed in one or many locations, at all levels from local to global.

NTFP value chains from Central Africa have changed as globalisation has created increasing opportunities to trade existing and new forest products in new markets regionally and worldwide (Tabuna 1999, Tabuna 2007, Ndoye 1999, Sunderland *et al*. 1998, AEERD 1993, Awono *et al*. 2002, Ingram and Schure 2010). These changes have raised the profile of NTFP trade on both the policy and development agendas (COMIFAC 2010). The dominant policy and academic discourses around NTFPs in the two countries, both plant- and animal based, have focused on two forms of governance: legislation and customary regulation (Topa *et al*. 2009, Karsenty *et al*. 2010, Alden Wily 2006, Masuch *et al*. 2011, Pfund and Robinson 2005, Tieguhong *et al*. 2010b). The main themes revolve around if regulations exist (Bonannée *et al*. 2007, COMIFAC 2008), and when they do, their effectiveness (Chikamai and Tchatat 2009, Ndoye *et al*. 2009, Tieguhong *et al*. 2010a, Walter 2001). At international, regional and national level there has been a focus on commercialisation as a development and conservation strategy (Higgins and Prowse 2010, Tabuna 2007, Tieguhong and Ndoye 2004), including through certification (Guariguata *et al*. 2010, Shanley *et al*. 2008).

For this study, governance is defined as a social construct involving institutions – the formal and informal norms, rules, processes and social practices defining how individuals and organisations interrelate and act, and assigns roles to the participants in these practices, within and outside of organisations and guide interactions among the occupants of the relevant roles (IDGEC 1999, Ostrom 1990). A governance arrangement describes the interplay of interactions, institutions, actors, principles, policies, mechanisms and processes. 'Governance arrangement' is used in preference to 'governance system' (Kooiman and Bavinck 2005), highlighting that an arrangement may not always be an integrated whole, as a system implies. Governance arrangements can take many forms, not only statutory regulations and customary social-cultural traditions, but also market-based standards and norms introduced by programmes and projects. Hybrids can arise when different arrangements are combined (Wiersum *et al*. 2014). Corruption is also a form of governance (Ingram *et al*. 2015), stressing that separate arrangements which often shadow statutory and customary structures, and are run in parallel by the same governors: the members of a governing body (Angwafo 2014). Without condoning the practice, this definition is different than seeing corruption as the absence of "good governance", a normative view reflects value-laden judgements of stakeholders from specific cultural settings (Weiss 2000). Though generally accepted by many countries and organisations, good governance principles have been criticized for being ambitious and contested as being abstract, based on an incomplete or partial understanding of governance, lacking contextualisation and localisation, and being 'bad' for certain groups in society (Cleaver and Franks 2005, Grindle 2004, Jabeen 2007).

Value chain governance refers to the relations between people and their control of chains (Gereffi *et al*. 2005) and has been shown to influence how men and women access land (Diarra and Monimart 2006, Goheen 1996), forest resources (Shillington 2002, IFAD 2008, Kanmegne *et al*. 2007) and markets (Hilhorst and Wennink 2010, Ruíz Pérez *et al*. 2003). Governance arrangements can thus contribute to create

conflicts, power imbalances and differential distribution of benefits among those active in chains.

Understanding the arrangements actually governing how NTFPs are harvested and commercialised, and their environmental and socio-economic impacts, is vital if their trade is to continue sustainably and provide opportunities for development (Shackleton *et al*. 2011). Given this context, this paper reflects on how the governance strategies affect access to forest products and their markets, using examples of products originating from Cameroon and the DR Congo. This paper aims to provide empirical evidence of governance arrangements used to guide the future management and governance of forest resources and their value chains.

METHODS

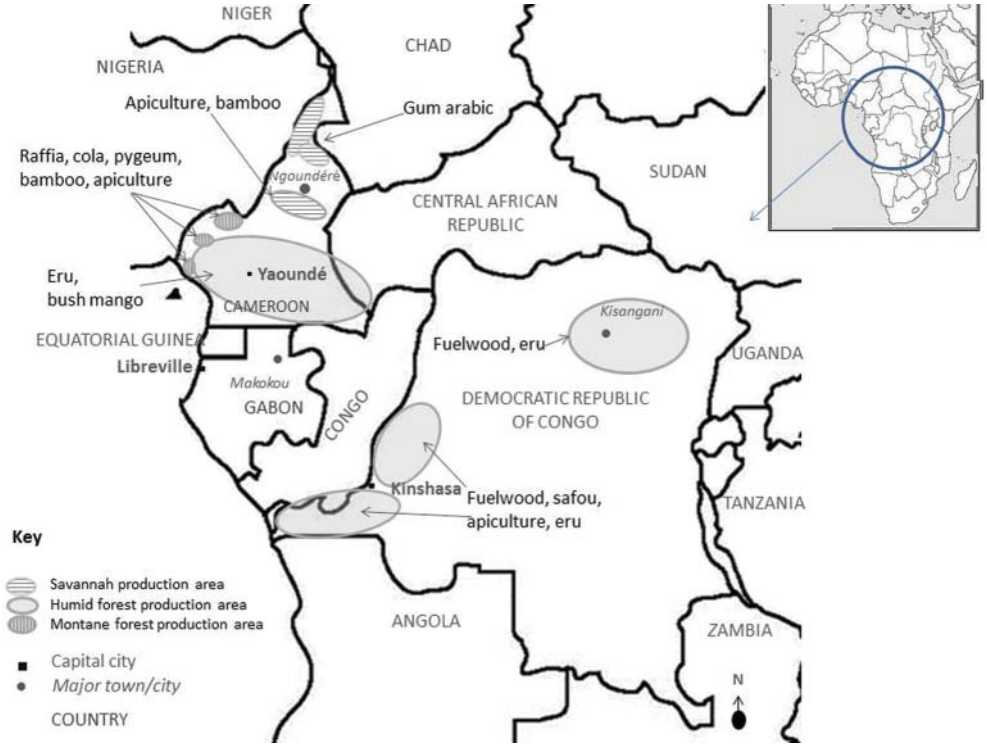
This study draws on value chain analyses conducted between 2006 and 2010 of ten NTFPs, detailed in Table 1. These products were identified as high economic, social and environmental value priority in both Cameroon and DR Congo and in the Congo Basin (Ingram *et al*. 2012a). Eight of the value

TABLE 1 *Characteristics of NTFPs studied*

Species	Life form	Parts used	Product name(s)	Uses	Forest type	Production locations	Market locations
*Acacia senegal, A. polyacantha, A. seya*l	Tree	Resin, bark, leaves, timber	Gum, gum arabic	Material, cosmetic, food, medicinal, forage, timber	S	ExN, N, Cameroon	Local Europe & USA
Gnetum africanum, G. buchholzianum	Vine	Leaves	Eru, okok	Food, medicine	H	SW, L, Cameroon	Local & cities Nigeria, Europe
			Fumbwa			O, DRC	Local & cities, Europe
Apis mellifera adansoni	Insect by-products	Honey, Comb, propolis	Honey, Beeswax, propolis	Food, medicine, cosmetic, material	M, S	NW, Ad Cameroon	Local & cities, CAR, Nigeria, Europe, USA
					H	BC, K DRC	Local & cities
Prunus africana	Evergreen tree	Bark, seeds, leaves, timber	Pygeum, African cherry, red stinkwood	Medicine, carving, timber, fuel	M	NW, SW Cameroon	Local & cities Europe, USA, China
Cola acuminata, C. nitida, C. anomala	Evergreen tree	Seeds, bark	Cola nuts, abel, goro	Stimulant, medicine, cultural	M, H	NW, L Cameroon	Local & cities Chad, Nigeria
Irvingia gabonensis, I. wombulu	Evergreen tree	Fruit, seed, bark, timber	Bush mango, ndo'o, andok	Condiment, oil, dye, medicine, construction, fuel	H	C, S, L, SW, E Cameroon	Local & cities Equatorial Guinea, Nigeria, CAR, Gabon
Raphia farinifera, R. vinifera, R. hookeri, R. Regalis	Palm	Stems, sap, leaves, seeds	Raffia, cane, mimbo	Material, construction, tools, craft, wine, food	H	NW, Cameroon	Local & cities
Yushania alpina, Oxytenanthera abyssinica	Bamboo	Stems	Bamboo, kok-ko, cane	Material, construction, tools, craft, paper, fuel	M, S	NW, Ad Cameroon	Local & cities
Dacryodes edulis	Tree	Fruits, leaves	Safou, plum	Food, medicine	H	BC, DRC	Local and cities
			Atanga	food			
Multiple species	Tree	Wood	Fuelwood and Charcoal	Energy	H	O, K, DRC	Local and cities

Forest type M = montane forests S = savannah H = humid forests
Region: K = Kinshasa Eq = Équateur BC = Bas Congo O = Oriental N = North NW = Northwest SW = Southwest C = Centre S = South E = East Ad = Adamaoua ExN = Extreme North L = Littoral

FIGURE 1 *Map of research sites showing chain origin locations*



chains originate in Cameroon: eru, apiculture products originating from the African bee, pygeum, cola nuts, bush mango, raffia products, bamboo products and gum arabic; and four originate in the DR Congo: fumbwa, apiculture products, safou and fuelwood (the term refers to firewood and to charcoal from multiple tree species). In the two countries, products originating from the same species (such as eru and fumbwa) have different local names.

All the chains originate in at least one of three ecoregions (World Wildlife Fund and Saundy 2008, de Wasseige *et al*. 2009): humid lowland, montane and humid savannah forests, with the main production locations shown in Figure 1.

The value chain analyses commenced with interviews with representatives of research institutes, government staff and international organizations, and a literature review to provide information on product characteristics and to identify major harvest areas, types of actors, routes, markets and trends. Structured questionnaires were developed and tested. These included questions on household and the interviewee's characteristics, seasonal activity calendars and qualitative and quantitative economic, social, governance and environmental aspects of involvement in chains over the last three years. The questionnaires were adapted to each chain and to main groups of direct actors (harvesters, intermediaries, retailers and, where relevant, exporters and consumers). Respondents were identified by rapid assessment and interviews with informants, from which the snowballing technique was used to encounter an estimated 25% of people in the main groups, starting from the selected main production area for each chain. The interviews per stakeholder group, chain and location are shown in Table 2. In total 2 195 stakeholder interviews were held in Cameroon, 5 555 in the DR Congo, and 61 focus groups in villages in the production areas and markets in Cameroon. Seven situation analysis and value chain workshops with actors from the chains were held in Kinshasa (DR Congo), Yaoundé, Buea and Bamenda (Cameroon) in the period 2006 to 2010. Participatory action research was conducted with honey, pygeum and fuelwood stakeholders. Interview data was entered into databases (SPSS and Excel) and analysed. Preliminary research findings were verified with stakeholders in 21 meetings and workshops and cross checked with stakeholders in the chains, government representatives, national research organisations, and collaborating partners (the UN Food & Agriculture Organisation (FAO), Centre for International Forestry Research (CIFOR), World Agroforestry Centre (ICRAF), Netherlands Development Organisation (SNV) and the Centre for International Agricultural Research for Development (CIRAD)).

Based on the results of interviews and the value chain analyses of each chain, six governance arrangements were identified and the intensity with which they govern a chain was scored using the governance intensity framework. This combines twelve indicators of the characteristics of governance arrangements and their functioning, based on ten institutional design principles (Ingram *et al*. 2015), summarised in Table 3. The existence and intensity of governance arrangements were rated along a continuum from strong (10) to non-existent (0), with gradations in between if some of the criteria were met. The indicator scores were averaged for each arrangement and summarised diagrammatically to enable comparison across chains.

TABLE 2 *Interviews in NTFP chains in Cameroon and DR Congo*

Country	Cameroon								DR Congo							Total
Value chain	**Gnetum**	**Api.**	**Prunus**	**Irvingia**	**Acacia**	**Bamboo**	**Cola**	**Raphia**	**Gnetum**	**Safou**	**Api**	**F.wood**	**Charcoal**	**F.wood**	**Charcoal**	
Region[1]	**SW, L**	**NW, Ad**	**NW, SW**	**SW,C,S, L, E**	**N, ExN**	**NW, SW, E, W**	**NW**	**NW**	**Eq**	**BC**	**BC**	**O**	**O**	**K**	**K**	
Number																
Villages	21	46	9	36	16	16	28	33	30	23	19		15		6	298
Markets	9	6	5	27	2	4	30	31	21	28	7	5	5	20	20	220
Nurseries	4	9	36	1	5		1								1	57
Plantations		3	22		18		2							1	1	47
Harvesters	76	340	132	203	24	39	91	77	130	116	96	73	409	200	392	2,398
Processors	3		8		5	38										54
Intermediaries	6	40	9	2									267		496	820
Retailers	66	70	4	193	3	31	63	45	241	166	17	97	456	98	470	2,020
Wholesalers	14	6		60	2				40	112	3			70		307
Exporters	12	10	4	11	2											39
Consumers		30	2			41			60	277	263		413		593	1,679
Restaurants	5															5
Community forests			8													8
Importers	10	4	2													16
Support/NGOs	4		6		15											25
Nursery workers	3	1	36		44		2									86
Stakeholders			98	10	12	112										232
Focus groups	11	17	13	19		1										61
Total	210	518	322	498	107	262	156	122	471	671	379	170	1545	368	1951	7,751

Key: Region: K= Kinshasa Eq = Équateur BC= Bas Congo O= Orientale NW = Northwest SW = Southwest C= Centre S= South E= East Ad = Adamaoua ExN= Extreme N= North L = Littoral. F.wood = Fuelwood Api = apiculture. Empty cells indicate no data collected.

TABLE 3 *Existence and intensity scoring of governance arrangements*

Indicators	Score				
	Strong 10	**Clear 8**	**Moderate 5**	**Weak 2**	**Non-existent 0**
1. Existence of an institution and rules/norms known and named	Well known by all actors; clearly stated	Stated by majority of actors	Named, some rules known	Not clear, few rules discernible	Not stated or known
2. Boundaries of rights known by chain actors	Well known & stated by all actors	Known by most	Known to some	Little known	Not known
3. Monitoring and compliance with rules	Frequent	Occasional	Infrequent	Low	None
4. Frequency of use of sanctions and enforcement	Frequent	Occasional	Infrequent	Low	None
5. Use of conflict resolution mechanisms	Well used	Occasional	Infrequent	Little used	Not used
6. Use of individual & collective action to develop and modify rules	Well used	Occasional	Infrequent	Little used	Not used
7. Nesting horizontally (within particular scale) and vertically (value chain)	Well-nested, both horizontally & vertically	Partially horizontal & vertical	Some horizontal/ and/or vertical	Low horizontal or vertical	None
8. Level of accountability and dependence on actors	High level	Moderate	Low	Minimal	None
9. Moral grounding & (democratic) legitimacy of power	High level	Moderate	Weak	Very weak	No
10. Location of decision making clear to actors	High level, clear to actors	Known	Uncertain	Vague/unclear	No
11. Longevity of institution	Long lived	Long to medium term	Medium to short term	Temporal	None
12. Participation of actors	Frequent	Occasional	Infrequent	Low	None

The value chain studies were conducted under the auspices of three projects (see acknowledgements), using similar value chain analysis methodologies, adapted to the context of each specific product, chain and country. Consequently data are not consistent across all chains for every stakeholder group (indicated by blank spaces in tables). By comparing products originating from the same species (fumbwa and eru from *Gnetum* spp., and apiculture products), and products from the same areas, the variety and impacts of governance arrangements are highlighted.

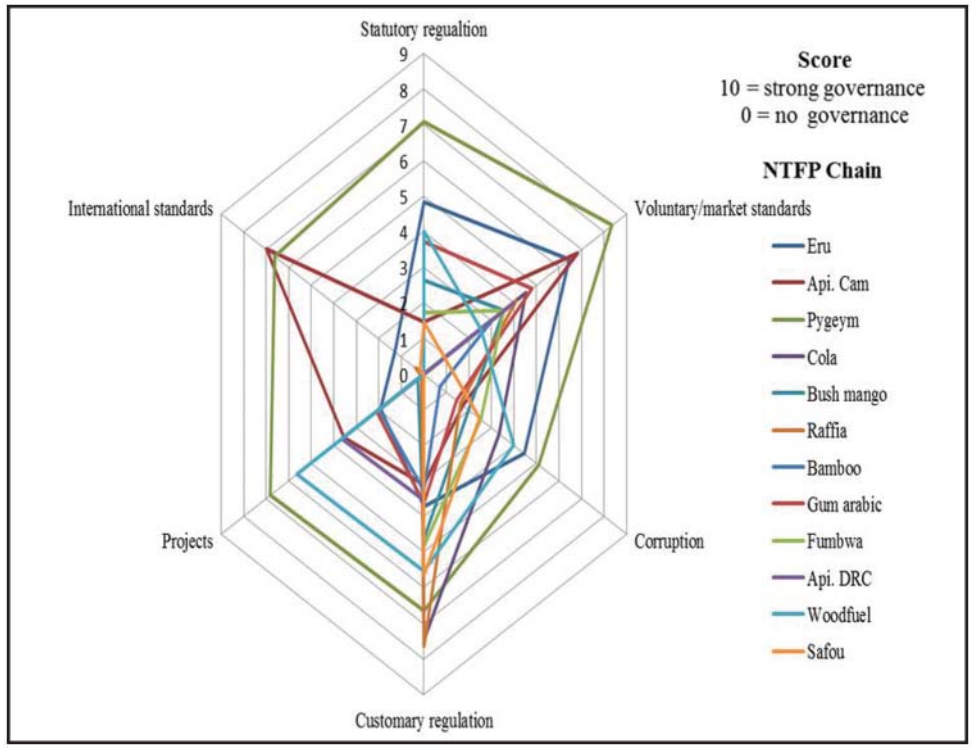
RESULTS

Based on the interviews and value chain analysis six types of governance arrangements were found to control access to forest products in the sites of product origin and their markets in Cameroon and the DR Congo. They include market based collective action, projects, customary regulation, statutory regulation, and international standards, and corruption. These are presented and illustrated with examples below. In all the chains, multiple governance arrangements were found, shown in Figure 2, with their intensity and the degree of plurality differing in each chain.

Market based collective action

Institutions controlling demand and supply transactions and interactions in markets are termed market-based governance. Unions and associations regulate access to markets by making membership conditional for trading, and traditional *tontines* or *njangi* groups as they are known in Cameroon, control access to credit. Market based arrangements govern prices, activities, types and timing of transactions, and quality. These arrangements generally concern access to markets, using mechanisms to enhance access or control by specific actor groups and/or enhance their power, whilst limiting or excluding access for others. Voluntary, market-based arrangements were pervasive in all the chains. On average 90% of bush mango retailers, and 42%, 21% and 32% of retailers in the eru, honey and bamboo chains in Cameroon respectively belong to such groups, and in DR Congo 42% of fumbwa,

FIGURE 2 *Intensity and presence of governance arrangements in NTFP chains in Cameroon and DR Congo*



36% of safou, 10% of honey retailers. These associations and unions setting trading norms and prices, provide support and credit. Around 40% of traders, exporters and retailers of eru in Cameroon were union members, with strong rules governing market access, prices and practices. For raffia palm wine, access to markets is subject to well-established, traditional market rules concerning product quality, the location of markets and trading rules. The four main gum arabic exporters all belong to a national trade association. In the montane production area of Cameroon 41%, of beekeepers were members of processing and trading groups (around half initiated by producers, the rest by projects), and 21% in the savannah ecoregion. Harvesters were less engaged in collective action. In the DR Congo 2% of fumbwa harvesters, 4% of safou harvesters and 56% of beekeepers were group members. In Cameroon, 39% of bush mango collectors and 18% of beekeepers were in groups, and in the other chains 7% or less of harvesters were members of associations or cooperatives. Higher rates in the apiculture chain were due to NGO and government-led beekeeping projects encouraging group creation and membership. Voluntary arrangements commenced in 2011 as beekeeper-processing groups planted and protected savannah bamboo, important in constructing beehives.

Market based action includes chain-wide initiatives. Cola traders use trust-based, informal trading rules and networks to facilitate the long distance, trans-national commerce, dispute settlement, financial support and information sharing. In the Cameroon apiculture chain, quality standards have been discussed by stakeholders since 2008, but are not yet formalised. In 2006, a Geographical Indication was commenced, a voluntary certification scheme regulated by EU Directives promoting the quality and authenticity of products based on their geographical location and culture. EU Organic and The Body Shop Community Trade certification were set up by a honey and wax producer to gain access to niche, high value markets. Certification sets out rules governing the entire chain. Companies also collaborated with the government to develop regulations to fill voids in honey and beeswax quality standards, to ease exports and avoid corruption. In response to declining production and quality issues an *interprofession*[1] was set up in 2006 with support from projects – resulting in a still functioning multi-stakeholder platform.

Projects galore

Projects and programmes refer to activities planned to achieve a particular aim, constituted by teams within or across organisations to accomplish tasks within a specific timeframe. They have ranged from product-specific, short-term to decades of interventions covering large geographical areas. Often financed by grants or loans from international donors and charities, they have been implemented by international and

[1] A value chain wide platform organisation recognised by the Cameroon government.

local NGOs, consultants and government agencies, often with little coordination with government activities. In Cameroon this resulted in regular meetings of a Consultation Circle of Partners of the Ministry of Forestry and Wildlife (CCPM), as projects proliferated and state knowledge and control of their activities became difficult. As each donor and implementer had its own objectives and associated rules, multi-layered governance arrangements – the linkages and nesting between various scales of governing bodies at local, national, and global level (Mwangi and Wardell 2012) – occurred, particularly in the pygeum and honey chains in some of the production areas studied. Project rules, due to the highly geographically specific project activities, were known and recognised only by some stakeholders, many mistaking them for statutory regulations. Project based governance was strongest in the pygeum, apiculture and gum arabic chains.

Sometimes projects compensated for deficiencies in government services, particularly monitoring and enforcement in protected areas. Projects active for long time periods meant that the state had little incentive to engage in governance. Projects created new community and council forest institutions in Cameroon. Some built on customary rules, created new formal regulations and protected areas, such as Mt Cameroon and Takamanda National Parks (Republic of Cameroon, 2006, GFA Consulting 2007), and the Oku Plantlife sanctuary (BirdLife International and The Ministry of Environment and Forestry Cameroon 1998) in Cameroon. By doing so, they aided the pygeum, bush mango and honey value chains, stimulating innovations in harvesting, aiding cultivation, developing inventory and harvesting norms, supporting more efficient processing and commercialisation, and enterprise development. But project-developed rules also negatively affected trade, such as in the bush mango chain, where the project pushed that trade was prohibited in newly created protected areas. Many projects promoted the cultivation of eru, large-scale planting of pygeum building on customary practices. These projects acted as demonstration models for cultivating NTFPs – but the slow adoption rates of cultivation and changes in access to resources mean that a long-term view of the impacts of project-based governance is needed. The quantities originating from cultivated species in these chains represent only a small proportion of the estimated total supply. Whilst projects led to higher levels of cultivated pygeum, decades of inventories, cultivation, monitoring and promoting harvesting techniques were not able counteract wide scale exploitation that led to a three-year trade suspension imposed by the EU due to failure of Cameroon to meet CITES obligations in 2007 (Commission Européenne 2011). Nor were projects able to push through legislation that distinguishes between wild and planted pygeum, which might have avoided the suspension. New legal arrangements were created after chain stakeholders and projects engaged with CITES and EU regulators. At least fifteen projects over the last twenty years supported collective action, hive building, processing, forest regeneration and setting up community forests in the highlands of Cameroon, affecting the honey and pygeum chains (Ingram 2014). In the gum chain, projects intervened to address tenure issues, promoting customary harvesting in Waza National Park, creating community forests, and developing sustainable harvest and management guidelines, but with fleeting or limited success (Madi 2011).

In the DR Congo, projects intervened far less in the chains, due mainly to the conflict and difficult operating environment. However, as recognition of the role of woodfuel in climate change, energy provision and deforestation has become more prominent, projects commenced in the last decade (Dubiez *et al*. 2012). Projects have focused on reducing woodfuel demand through (re)introducing improved cooking stoves and increasing sustainable supply through plantations and agroforestry. These successful systems are gradually being replicated by local entrepreneurs, as the scarcity of timber due to forest degradation creates a market opportunity for cultivated fuelwood. However supply from cultivated sources is currently negligible (Schure *et al*. 2011).

Customary arrangements still strong

Forests and access to their products are largely customarily governed in Cameroon and the DR Congo, generally on traditional clan, family and individual ownership lines, and according to whether the inhabitants are native '*autochthone'* or strangers '*allochthone'*. Use rights are governed through complex systems of short and long-term leases, loans, gifts and inheritances, which differ by the ethnic group and historical traditions dominating access to resources. These norms determine who owns and may access resources; where and in which quantities harvesting may take place; who benefits and how. Harvesting NTFPs on land held by a clan or family generally occurs only with the family's permission. For example, individual trees of species preferred for charcoal are frequently sold by chiefs and families to charcoal-making groups in DR Congo. Cola and raffia products – especially wine – have strong cultural significance and are generally owned, managed and traded according to tradition, by elder males. On communal lands, any community member can generally harvest the NTFPs studied for subsistence use, but for high value products (such as pygeum, eru and bush mango), approval is often needed from the chief or village council. As NTFPs such as bush mango and safou increased in value and commercialisation expanded in the last decade, some families appropriated trees in village forests, tacitly creating new ownership rights from common pool resources. Outsiders generally require permission to harvest, paying in-kind or cash compensation. In some communities, conflicts occurred when such proceeds did not benefit the wider community. In the cola nut chain, customary arrangements dominate access to resources and customs around owning, harvesting and managing the tree, arising from at least two centuries of high economic and cultural value.

Failing and emerging statutory regulations

Value chains with high trade volumes and values, and especially exported products, have been a favoured target for regulation. NTFPs were recognised explicitly as a type of forest

resource and product in the Cameroon 1994 Forestry and Wildlife Law 94/01 and implementing Decree 95/53-PM of 1995. Timber dominates focus of the regulations, and has inspired many of the approaches regulating NTFPs. Since 2010, the 1994 law has been subject to an extensive consultation process with a multi-stakeholder group focussing on revisions concerning NTFPs, which have been seen as inadequate (FAO 2010). However, the highly political revision process is still ongoing as of January 2016. Pygeum, eru and gum arabic were among the sixteen 'special forestry products'[2] listed annually since 2006[3]. These and few other high trade value products, such as bush mango, are regulated through annual demand-based quotas, exploitation permits, export authorisations and transport waybills. Despite provisions to define harvesting and inventory norms for these special products, none has been implemented. Many other products are unregulated, for example bamboo in general, cola and raffia. Alpine bamboo was subject to a 1993 prefectural order forbidding harvesting young shoots, which were revised and enforced by both projects and customary rulers (Birdlife International 2007), but since the 1980s, whilst regulated formally on paper, has been unregulated in practice.

The statutory framework is however largely dysfunctional, being poorly defined, inconsistently applied and randomly monitored and arbitrarily enforced with few sanctions. For example, despite eru being declared an endangered species by the Cameroon government in 1995, a ban was considered but never implemented (Fondoun and Tiki Manga 2000). Trading and exporting eru without permits is common. A plethora of local and national regulations have sought to control pygeum bark harvest since 1974 (see Ingram 2015 for details), but to little effect. Large-scale exploitation occurred in conjunction with industrial processing activities taking off in Cameroon, and as exports from other African states decreased. The apiculture chain and its products (honey, wax and propolis) were not regulated in Cameroon until 2007 (see Ingram and Njikeu 2011 for details). Laws relating to processing existed but were not enforced, largely because these focus on cultivated, rather than wild, semi-domesticated insects. In the last few decades, the beekeeping sector has been variously under the authority of Ministries responsible for Livestock, Fisheries and Animal Production, Agriculture and Forestry, with little inter-ministerial cooperation, no shared competences but rather competition, particularly for donor funded collaborative projects. Traders developed standards with the government to allow permit based exports. Voluntary in name, compliance is essential to enter the European market. In the gum arabic chain in Cameroon, although listed as a special forestry product, a substantial proportion of annual production was reported as being exported illegally for decades, crossing the porous borders to neighbouring countries. The legal status of the several unmanaged, degraded state plantations is also ambiguous, creating a tenure limbo, resulting in a lack of management, which lowers gum yields. The legal status of the now unmanaged, degraded plantations is ambiguous.

In the DR Congo, the Forest Code (Law 11/2002 of 29 August 2002) governs NTFP exploitation. It distinguishes between free and open user rights, and paid, authorised rights to exploit and trade non-timber forest resources. Freedom to exercise user rights is limited to NTFPs used according to local customs and traditions. Permits and rules for hunting are set out in two 2003 decrees (N°066/CAB/MIN/FIN-BUD and N°067/CAB/AFFET/2003). Commercialisation of NTFPs gathered under user rights is not authorised, except if the provincial governor decrees a list of products that maybe traded under a one year permit. In practice, provinces had not produced lists, the law was not known by harvesters or traders, and the majority of interviewees did not have permits. In the fuelwood chain, a permit system exists for transport and retailing but was widely unknown and little applied: less than 1% of the charcoal entering Kinshasa and Kisangani had been produced with an official permit.

Community forests are an example of hybrid governance. Community forests have been promoted by a series of international NGO projects collaborating with the Cameroon government (Topa *et al*. 2009). They became enshrined in Cameroon law in 1994, building on customary and collective traditions. But in practice, the community forests resulted in undermining traditional customary rules over the NTFPs in the Cameroon study sites, as the new community management institutions had more power, finances and support from influential organisations as long as projects supporting them lasted. In the DR Congo, community forests were also promoted by donors and projects as a route to sustainable forest exploitation, including NTFPs, modelled on and learning from Cameroonian experiences (Assembe-Mvondo *et al*. 2011, ConForDRC 2007). Community forests had not been implemented in DR Congo at the time of the study.

Standards and international agreements intervene

International standards incorporated into national law and voluntarily complied with by states, have often created new rules for chain actors. They are often spatially and temporally dynamic, reflecting a species or areas status. As species endangered rating on the IUCN Red List of Threatened Species increased, this triggered conservation actions from NGOs, governments and researchers in the pygeum, eru and honey chains. Although eru is IUCN Red data listed, this listing has not affected its trade. The Geographic Indication process delineated honey production forests in Oku, Cameroon. This was promoted both a conservation and marketing tool. The Convention on Biological Diversity, ratified by Cameroon in 1994 to conserve biological diversity and ensure fair and equitable sharing of the benefits arising from the utilisation of genetic resources led to donors and researchers

[2] Article 9 of 94/01Law.

[3] Decision N° 0336/D/MINFOF 6 July 2006 'Setting the List of Special Forestry Products representing a particular interest to Cameroon'.

to reflect on the status of pygeum but despite numerous studies and recommendations, it has not been implemented in Cameroonian law. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), significantly affected trade in pygeum (as an IUCN Red listed and CITES Appendix II listed product), leading to a trade prohibition and requirement for a national management strategy. A national response was forthcoming only after imports to the European Union were banned in 2007. In the DR Congo, international standards have had less effect, due to the much lower levels of enforcement. For example, six tree species on the IUCN Red list are used to produce charcoal. In the pygeum and apiculture chains, international agreements were used to enhance statutory and project-based governance arrangements. However, they were poorly known outside except by project partners.

Rife corruption

Corruption – the exercise of power for private gain – shows a lack of respect by the corrupter and corrupted for rules governing their interactions. Corruption creates another governance arrangement than that intended, for example by regulations or customs. Corruption influences all the chains, varying in intensity per chain. In chains where formal regulations and bureaucracy were unknown, unclear, or unenforced – mainly in remoter harvest areas and on trade routes and key bottlenecks such as ports – corruption was most prevalent and the sums paid the highest. Although the rules of corruption were generally well known, they were unpredictably and erratically applied. This in turn affected when and where, and the level of costs in chains, as well as physically affecting how activities take place. For example, honey exporters in Cameroon relocated processing operations and changed the expedition agents to avoid corrupt officials. Most charcoal is transported at night to avoid the bribes essential to pass through the multiple roadblocks, even when valid official permits are held, demonstrating how strong corruption is in the fuelwood chain.

In high volume, high value, well-recognised products and statutorily regulated chains such as pygeum, eru, bush mango, safou and charcoal, corruption shadows formal laws and customary institutions, and is largely run by the same governors, such as customary chiefs and government officials. Corruption however also operates in chains where no statutory framework is present, such as the Cameroonian apiculture and cola chains. This is attributed to the systemic nature of corruption in Cameroon and the DR Congo. In the lower economic value, local raffia and bamboo chains, the extent to which corruption was reported as a constraint to harvest and trade was lower. *Dash*, the Cameroonian pidgin term for bribery, known as *tracasserie* in the DR Congo, governs both access to markets (transport to markets and ports, and obtaining market places) and access to resources (obtaining land titles, permits and waybills; operating without such permits, and gathering in protected areas). Traders bribed officials, and outsider harvesters paid traditional authorities to access resources and permits, despite anti-corruption campaigns. Transporters and exporters especially in the pygeum, bush mango, safou, fuelwood, charcoal and eru chains reported paying 'to get things done' and 'get past' officials and elites. In the eru chain, obtaining permits and bribes during transport across the border accounts for 25% of wholesaler's and transporter's costs, 24% in the bush mango chain and 4% of trader's costs in the safou chain, mainly incurred during permitting and transport, especially at border crossings. Cola traders reported similar problems. In the woodfuel chain, deeply ingrained systems of bribery were prevalent at the permitting, transport and retail stages, accounting for 5 to 15% of costs, with corruption mentioned as a significant issue by 20% of fuelwood retailers in Kisangani and 8% in Kinshasa. Corruption has enabled rapid, uncontrolled deforestation within a 135 km radius of Kinshasa (Schure *et al*. 2013).

DISCUSSION

"New" and multiple governance arrangements

The notable finding that all the chains are governed by multiple governance arrangements, although their intensity and the degree of plurality vary widely, indicates a reality far from the common political understanding, where regulations, and sometimes, customary rules, are seen as the only forms of governance. Table 4 summarises the results and illustrates the multiple layers. The pygeum, apiculture and eru chains were the most intensely governed. However, voids in regulatory frameworks occurred in both countries in the bamboo, raffia, cola and safou chains. The intensity and level of pluralism reflect the specific environmental and socio-economic context of each chain, the product values and characteristics. Regulatory, project and market-based systems arrangements were often combined, with legitimation for new arrangements sought by juxtaposing laws with pre-existing customary arrangements. Stakeholders also created new arrangements through a process of bricolage, adapting and reshaping customary, voluntary and legal arrangements. Alternatively, statutory arrangements were circumvented by complying with corrupt systems. These processes occurred as direct and indirect stakeholders responded to changes in the social and economic context in which the chains are located, particularly market opportunities, to dynamics in product value and demand, with the overriding aim commonly to secure access to resources and markets, and therefore a livelihood for the stakeholders concerned.

The most prevalent arrangement, in all the twelve chains, was customary rules, operating with varying intensity. Whilst this finding is not new for forest governance in general (Alden Wily 2006), it is for NTFP governance. The second most common were market-based arrangements, of which two types were found. One was the increasing adoption of voluntary standards covering the entire chain and introduced to avoid regulation or due to ethical considerations. Such standards were found to have been initiated by conservation,

environmental or social-minded enterprises, civil- and non-government organisations and by governments in consumer and origin countries when regulations governing process based characteristics were difficult to implement, but demand and private sector enthusiasm existed. Certification was found to be used as a marketing and conservation strategy. This reflects how it has been developed as a win-win approach to forest governance in the region (Rametsteiner and Simula 2001). The second type of market-based governance was collective action, an old strategy (Ostrom 1990, Markelova and Mwangi 2010), but one little recognised by policymakers in the region as a form of governance. Unions, cooperatives, platforms and interprofessions were used by harvesters, retailers and exporters in different degrees to control prices, quantities and quality, reflecting local cultural norms and support from government and projects to work collectively. Statutory regulations were the third most prevalent arrangement, covering eight of the chains. Five chains however were only nominally statutorily governed, in practice regulations were largely not known, enforced or monitored. Projects influenced seven of chains. The role of projects in governing timber, forest livelihood and conservation focussed activities in Cameroon is well known (Sharpe 1998, Topa *et al*. 2009). Apiculture was seen by projects as a win-win product that can be sustainably produced and combat poverty (Asanga 2002), although in the chains studied, this has not been the case (described in detial in (Ingram and Njikeu 2011). The pygeum chain also experienced numerous projects, drawn by its vulnerable ecological status and high volume trade. Whilst corruption touched all the chains, its influence was strongest in the high value, high volume, long distance chains. This mirrors the corruption found in the high value timber chain (Cerutti *et al*. 2010, Cerutti and Lescuyer 2011). Corruption was found in highly regulated chains, mirroring formal regulatory activities and control points. Projects and international standards were the least pervasive, being highly product and location specific – resulting from the historical and current preferences and policy and political focuses of the stakeholders involved.

A bricolage of governance arrangements

'Institutional bricolage' refers to the cross-cultural borrowing of institutional arrangements and their underlying norms, values and social relationships, and the crafting of new arrangements (Cleaver 2002). The resulting institutions and arrangements may foster cooperation and advance livelihoods, individually and collectively. Stakeholders in the apiculture and pygeum chains become adept bricoleurs, creatively changing arrangements to secure their livelihoods. The numerous projects in these chains also meant that stakeholders had access to support and services, in contrast to the cola, raffia and safou chains. The ability of these stakeholders to bricolage solutions to changes in the availability of some resources appears a determining factor. Differences in financial and political power for example, affected the ability of pygeum traders to purchase permits and invest in inventories required by regulatory systems to a concession type harvest unit. In the honey chain, support collective action contributed to high levels of social capital which enabled beekeepers to create solutions when hive construction materials became scarce, such as planting bamboo species, using wooden hives as alternatives to grass hives, and finding new high value markets for products, such as organic certified wax and propolis.

Incomplete coverage of the value chain

Most of arrangements did not cover the whole value chain, exacerbating the disconnect between how policymakers perceive chains are governed with the actual practice. The control of access to resources and access to markets (see Wiersum *et al*. 2014) was generally governed by different arrangements and different governors. Only the pygeum and apiculture chains developed coherent arrangements governing the entire chain, due either crisis, stakeholder efforts (such as certification) and/or regulatory changes. This fragmentation of governance arrangements along the chains created both positive and negative impacts on the livelihoods. For example in the Cameroonian apiculture, pygeum and eru chains when production expanded, the number of people involved, incomes and profits grew but the forest resource base was degraded (see Ingram 2014 for more details). Cultivation created an alternative, economically attractive supply but is as yet insufficient to meet market demand.

Clearly defined, well-known, enforced and functioning arrangements appear to provide a secure framework for stakeholders to operate. This is important as NTFP chains inherently have risks that require governance. Many species are prone to overharvesting due to their ecology, seasonality, parts used and harvest method, such as pygeum, eru/fumbwa, gum arabic and raffia. Fruits, nuts and seeds tend to be less at risk (Ticktin 2004), confirmed by stakeholders in the safou, bush mango and cola chains. These factors make it difficult to assess the quantity that can be sustainably harvested. None of the species studied was surveyed, except for a gradual inventory of pygeum over the study period. A lack of widely known sustainable harvesting norms or ignorance of these when they exist, exacerbate the vulnerability of these species to overharvest. Well-defined and known, customary arrangements governing access in the cola and raffia chains, market-based collective action in the apiculture and bush mango chains and certification all aim to prevent unsustainable harvesting. Project arrangements in the apiculture, woodfuel and bush mango chains have sought to address species vulnerability to over-exploitation, but were generally of too short a duration or too geographically limited to make a significant impact on the entire chain. In contrast, project and market-based governance arrangements (such as certification) which explicitly aim to balance demand and supply, control access, define harvesting techniques and non-tangible product characteristics, and add-value, led to sustainability becoming a selling point and an securing long term supply in the apiculture chain.

TABLE 4 *Overview of NTFP chain governance arrangements*

Country and chain		Governance arrangements					
		Regulations	**Customary**	**Projects**	**International agreements**	**Corruption**	**Voluntary, market-based**
Cameroon	Eru	Permits	Ownership, harvest access	Cultivation	IUCN Red list	Bribery- transport, export	Harvester groups, exporter unions
	Apiculture	Standards, exports, community forests, phytosanitary	Ownership, harvest access	Protected areas, hive technology, harvester groups, marketing, certification	IUCN Red list (forage species)		Harvester groups, interprofession, certification
	Bush mango	Permits	Ownership, harvest access	Protected areas, processing, market information	-	Bribery- transport, export	Harvester & trader groups
	Pygeum	Quota, permits, inventory community forests,	Ownership, harvest access	Protected areas, cultivation, management plans, inventory, harvest techniques	IUCN Red list, CITES, Convention Biological Diversity	Bribery- transport, permits	Harvester & trader groups, chain platform,
	Gum arabic	Quotas, permits	Ownership, harvest access	Cultivation, harvest guidelines, tenure,	-	Bribery- transport, export	Harvester & exporter groups
	Cola	-	Quality, ownership, harvest access management	-	-	Bribery- transport, export	Harvester & trader groups, market standards
	Raffia	-	Ownership, harvest access, management	-	-	-	Processor groups market standards
	Bamboo	Orders	Ownership, harvest access	Trader groups, marketing	-	-	Processor & trader groups
DR Congo	Fumbwa		Access	-	-	Bribery- transport markets	Retailer groups
	Apiculture	-	Access	Processing, harvester groups,	-	-	Harvester groups
	Safou	-	Ownership, harvest access	-	-	Bribery- transport, markets	Retailer groups
	Fuelwood	Permits	Ownership, harvest access	Cultivation, cooking stoves,	-	Bribery- transport, markets	Trader groups

Weakly-enforced governance arrangements can be seen as counterproductive to sustainable livelihoods. The inconsistent and arbitrary enforcement of regulations created an uneven playing field for access to and trade of the NTFPs, stimulating short-termism and over-exploitation. Profitable livelihoods in the short term – for example in eru (Ingram *et al*. 2012b) and pygeum (Ingram and Nsawir 2007) resulted in increasing species vulnerability and scarcity. Solutions were to control resources by cultivating the species or introducing or enforcing governance arrangements better. Examples include the fuelwood, safou, eru, pygeum, raffia, cola and apiculture chains. Project arrangements that were not well-nested in statutory and customary arrangements created more layers and generally weakened pre-existing customary arrangements, illustrated by community forestry. When projects were of short duration and un-institutionalised by stakeholders, the governance arrangements they introduced stopped or mutated when projects ended, causing uncertainty, confusion and additional costs for stakeholders.

Novel, hybrid governance arrangements emerged during the period of study. Hybrids occurred as the species upon which chains are based became scarcer, generally the result of

unsustainable over-exploitation, for example, in the pygeum chain. The devolution of powers to community forests had the opposite effect than intended, as unstable, inexperienced governors, low rule enforcement and sanctions, and lack of monitoring eased access to resources and markets, resulted in overexploitation. This reflects a trend towards new, multilevel governance with more sustaining co-ordination and coherence among a variety of private and public actors with different purposes and objectives, embracing complexity, and the presence of multiple stakeholders (Papadopoulos 2007).

Exclusive chains tend to be more sustainable

The lessons learned from these twelve chains are that unless governance arrangements ensure that the resource sustained, long-term livelihoods and chains are unlikely. Economic booms and busts occurred as abundant resources were harvested and deteriorated due to over-exploitation, creating livelihood shocks and stresses. The examples of the pygeum, gum arabic, eru and fumbwa chains mirror experiences of other NTFPs in the region, such as rubber (Geschiere 2007). The apiculture, cola and raffia chains however have maintained livelihoods and chains over long periods of time, albeit with lower trade values, being governed by stable arrangements. These stakeholders in these chains however made only a modest living and were not pathways out of poverty. These more productive chains had governance arrangements characterised by well-established customary arrangements, restricted tenure and resource access, and cultivation. In contrast to the largely NGO and development organisation-led approaches seeking inclusive, equitable access to chains, resources and markets (Vermeulen *et al*. 2008, SNV 2009, Higgins and Prowse 2010), these chains are exclusive. Inclusive chains refer to taking into account stakeholders engaged who may be marginalised, lack material resources and rights. such as smallholders, and the environment (Ros-Tonen *et al*. 2015, Laven 2010). Exclusion regulated access to scarce resources, controlled supply, and ensured species and therefore chain sustainability. Particularly when species were governed as common pool resources and the ten institutional design criteria were not met (Ingram *et al*. 2015), arrangements that exclude appear more sustainable. As Ros-Tonen and colleagues (2015) state, avoiding adverse inclusion in value chains is a more relevant concept than focusing on inclusion alone.

Chain-wide governance arrangements appear more sustainable

The pervasiveness of market-based arrangements suggests that they are popular ways to fill governance voids and secure livelihoods, especially when they control access to markets. However, as most voluntary market arrangements do not also control access to resources, the evidence suggests that voluntary market arrangements are insufficient to ensure resource and long-term chain sustainability. Faced with weak regulatory governance and strong anthropogenic and climatic pressures, many of the chains with high levels of collective action still have not been able to counter these pressures. The Highlands apiculture chain is threatened by rapidly increasing forest degradation and deforestation (Nsom *et al*. 2007, Stewart 2007, WHINCONET 2005, Mzeka 2008, van der Waarde *et al*. 2006, Enchaw 2010, Solefack 2009). In the Adamaoua apiculture chain, the small scale of voluntary and market actions to date appear sufficient to maintain production levels as long as other threats do not endanger bees or forage sources. The fuelwood chain in DR Congo is the most dramatic example of how disconnected arrangements governing resources and markets enable high profits (Schure 2012), whilst undermining the long term resource base (Dubiez *et al*. 2012). As certification schemes have only been recently introduced in the apiculture chain the impact of this market based governance arrangement is not fully clear, however a tentative conclusion is drawn that the chain-wide governance approach inherent in certification appears more sustainable.

On the wild side….origin matters

The results show that NTFPs originate from a continuum extending from natural forests, to enriched, mixed arboriculture and agricultural systems, plantations and agricultural systems. Products were often harvested in several of these production systems in the same ecoregion. Discourses, policy and practice in both countries (Tobe 2006, Ingram *et al*. 2009) have however confused wild and cultivated products and focus largely on the forestry policy. The reality of how the chains work means that agrarian and livestock policies are also pertinent. Whilst distinguishing an NTFP's origin is often impossible (Wiersum *et al*. 2014), and chain traceability is notoriously difficult (Shanley *et al*. 2008), origin does matter. Inappropriately governed value chains that do not recognise or distinguish between a product's wild or cultivated origin, can result in grave environmental consequences, well-illustrated by the pygeum chain.

CONCLUSION

The aim of this study was to analyse how NTFP value chains are governed by providing empirical evidence about the impacts of these governance arrangements on the livelihoods of people involved in the chains and on the forest resources upon which these chains are based. This understanding is critical to the future management and governance of forest resources and their value chains in the Congo Basin, given that forested landscapes still dominate the region and generate livelihoods for both rural and urban inhabitants.

These value chains provide examples of how stakeholders have adopted and adapted new environmental and development governance arrangements. These arrangements have resulted in debates about the value of certifying forest products (wax and honey), the effectiveness of development aid and collective action (in the gum arabic, pygeum, eru and apiculture chains), the role of international conventions and standards (pygeum, eru and honey), balancing livelihoods

and conservation (eru and pygeum) and the impact of trade on deforestation and degradation (fuelwood).

The evidence shows that just one type of governance arrangement (mono-governance) of NTFP value chains does not occur. All the chains have multiple governance arrangements, in varying intensities. This is in contrast to dominant discourses, which focus on regulations and customary governance as governing NTFP resources and their trade. The focus of many governance narratives on statutory instruments appears wishful thinking. In some chains hybrid governance was found, with dynamic, overlapping and multiple layers of institutions – such as the pygeum chain with six governance arrangements. There are also gaps with no governance of access to resources or markets. Arrangements have however emerged, sometimes rapidly, to fill gaps, exemplified by Cameroonian apiculture (wax) export chain. Regulations have not been successful in regulating NTFPs, due to major differences in the nature of the products and their chains. The regulatory framework has also proved unable to balance livelihoods, trade and development. Stakeholders directly involved in the chains, such as harvesters and traders, generally have not been involved in policy discourses. They are silent 'stars', to use the expression coined for actors in the era of silent movies, often having little or no voice in formal governance, instead acting to bricolage their own 'messy' governance arrangements that work better for them. This has resulted in the arrangements which *do* govern access to the forest resources and markets being overlooked. The fate of the chain actors and those who exert (undue) control over NTFP resources and markets is also generally ignored by the governments, donors and NGO projects. This is critical, given the importance of NTFP derived incomes to the livelihoods of those involved along the chains, as discussions about inclusive chains and environmental unsustainability do not match reality in the Congo Basin.

Exclusive chains appear more sustainable, but inequities raise concerns about adverse exclusion. As many stakeholders do not have a voice in formal governance arrangements – but act (sometimes counterproductively) to create their own bricolaged arrangements. Discourses about the origins of NTFP chains are discordant with the reality that many products originate from a range of agrarian, agroforest and forest regimes.

The implications of the wild or cultivated origins of a species are not addressed in policies and formal regulations. A greater degree of inter-ministerial collaboration and uniting of stakeholders across the chains is needed. Such multi-stakeholder partnerships require long-term facilitation, not short term projects, to work well (WWF 2010).

In the short and long term, overlaps and incongruences between multiple government arrangements appear detrimental to the sustainability of products, and therefore, to the livelihoods of those in the chains who depend upon trade in these products. The disconnect between policy, academic and development narratives and the reality on the ground, shows the importance of taking an evidence and practice based approach to policy making (Arts *et al*. 2012). The practice based approach highlights that knowledge and discourses have power to create social practices, which can sustain, change and even resist the production of new knowledge.

This paper provides new understandings which can be used by governors: land owners, the state, private sector, unions, traditional authorities, project managers and indirect stakeholders such as NGOs and researchers – to more consciously steer through the complex landscape of governance arrangements concerning NTFP value chains in Central Africa and be aware of the implications of multiple, and different, governance arrangements.

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Forest ecosystem services, corporate sustainability and local livelihoods in industrial plantations of China: building conceptual awareness on the interlinkages

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SUMMARY

The concept of ecosystem services is emerging within the global environmental and development discourses as a leading contemporary narrative, together with related strategies, agendas, tools and practices. In addition to its role in public policy, this concept has implications for the private sector as well. Little knowledge exists, however, on the linkages between the private sector and ecosystem services, especially from the viewpoint of company stakeholder groups and/or ecosystem services beneficiaries. In this paper, we compared managers', experts' and village leaders' perceptions of plantation forestry in case of China. We observed a fairly high level of similarity between the opinions of managers and village leaders in comparison to those of managers and experts (i.e., policy advisors, local authorities, industry associations and consultants and non-governmental organizations). This could mean that managers and village leaders who, sharing local contextual knowledge, have more common ground than, for instance, managers and experts who share similar technical expertise. The overall observed differences in stakeholder perceptions open up possibilities to discuss the potential and limits of the ecosystem services narrative in legitimizing corporate sustainability strategy, and in deepening corporate sustainability agendas and practices in the context of an emerging economy such as China.

Keywords: ecosystem services, plantation-based forestry, China, corporate sustainability, community

Services d'écosystèmes forestiers, durabilité d'entreprise et revenus des populations locales dans les plantations industrielles chinoises: construire une prise de conscience conceptuelle sur les liens communs

TOPPINEN, A., D'AMATO, D., LÄHTINEN, K., REKOLA, M., WAN, M., CAI, D. et WEN, Z.

Le concept de services d'écosystème est en train d'émerger au sein des discours sur le développement et l'environnement globaux comme un discours contemporain de pointe, avec ses stratégies, ses agendas, ses outils et les pratiques lui étant associés. Ajouté à son rôle dans la politique publique, ce concept comporte également des implications pour le secteur privé. Peu de connaissances existent cependant quant aux liens entre le secteur privé et les service d'écosystème, particulièrement du point de vue des groupes de parties prenantes des compagnies et/ou des bénéficiaires des services d'écosystème. Nous avons comparé dans cet article les perceptions sur la plantation forestière des gestionnaires, des experts et des chefs de villages dans le cas de la Chine. Nous avons observé un degré assez élevé de similarité entre les opinions des gestionnaires et celles des chefs de village, comparées à celles des gestionnaires et des experts (c.a.d. les conseillers de politique, les autorités locales, les associations industrielles et les consultants et les organisations non-gouvernementales). Cela pourrait signifier que les gestionnaires et les chefs de village ont davantage en commun, partageant la connaissance locale contextuelle, que les gestionnaires et les experts, lesquels partagent des expertises techniques comparables. L'ensemble des différences observées dans les perceptions des parties prenantes ouvre des possibilités de discuter les potentiels et les limites du discours des services d'écosystème dans la légitimisation de la durabilité de la stratégie d'entreprise et d'approfondir les agendas et les pratiques de la durabilité d'entreprise dans le contexte d'une économie émergeante, comme la Chine.

Los servicios de los ecosistemas forestales, la sostenibilidad empresarial y los medios de vida locales en las plantaciones industriales de China: fomento de la conciencia conceptual sobre los vínculos

TOPPINEN, A., D'AMATO, D., LÄHTINEN, K., REKOLA, M., WAN, M., CAI, D. y WEN, Z.

El concepto de servicios de los ecosistemas está surgiendo a escala mundial dentro de los discursos ambientales y de desarrollo como una narrativa contemporánea que marca la pauta, junto con las estrategias, agendas, herramientas y prácticas relacionadas. Además de su papel en la política pública, este concepto tiene también implicaciones para el sector privado. Existe poco conocimiento, sin embargo, sobre los vínculos entre el sector privado y los servicios de los ecosistemas, en particular desde el punto de vista de los grupos de accionistas de empresas y/o beneficiarios de los servicios de los ecosistemas. En este artículo se han comparado las percepciones de gerentes, expertos y líderes de aldea sobre las plantaciones forestales en China. Se observó un nivel bastante alto de similitud entre las opiniones de los gerentes y líderes de aldea en comparación con las de directivos y expertos (es decir, asesores políticos, autoridades locales, asociaciones y consultores del sector y organizaciones no gubernamentales). Esto podría significar que, a la hora de compartir su conocimiento sobre el contexto local, los gerentes y líderes de aldea tienen más puntos en común que, por ejemplo, los gerentes y expertos que comparten experiencias técnicas similares. Las diferencias observadas en general en las percepciones de las partes interesadas abren posibilidades para discutir el potencial y los límites de la narrativa sobre los servicios de los ecosistemas en cuanto a legitimar las estrategias de sostenibilidad corporativa, y a profundizar en los programas y las prácticas de sostenibilidad corporativa en el contexto de una economía emergente como la de China.

INTRODUCTION

The concept of ecosystem services (ES) has recently emerged in the global environmental and development discourses as a contemporary leading narrative, providing new strategies, agendas, tools and practices for research and policy making (Braat and de Groot 2012, TEEB 2010). This concept emphasizes the dependence of human society and economy on natural systems (Daily 1997), where ES are the benefits that humans obtain from nature (Haines-Young and Potschin 2010). By definition, the existence of any ES is conditional to that of one or more beneficiaries. Thus, ES are not fixed, universal items, but they depend on the geographical, natural, social, economic and cultural contexts, in which they are being observed. In addition, the perceptions of ES vary among individuals and groups (Brondízio *et al*. 2010, Kumar and Kumar 2008, IPBES 2014).

Since biodiversity and ES are public goods, their governance and management ideally requires the engagement of all beneficiaries[1]. This is often not the case, especially when trade-offs occur at different scales, when some services are more tangible than others, and when some beneficiaries are not aware or not empowered enough to make their opinions attended. Importantly, the ES approach can inform decision-makers by highlighting ES flows between beneficiaries groups at different scales (Bennett *et al.* 2015). Nonetheless, as perceptions and values related to ES among beneficiaries can be diverse and also conflicting, it can often be challenging to select a guiding principle for making decisions in land use policy and natural resource management.

As an example, fast-growing industrial plantations are proposed as a solution to meet the increasing demand for wood fibres by engaging a limited amount of land (Schirmer *et al*. 2016a). Plantations currently contribute to about 50% of the global industrial wood and fibre supply, occupying as small as 7% of the world's forest cover (Bauhus *et al*. 2010; FAO 2015). On the other hand, intensive management of timber production inevitably leads to trade-offs with other ES such as water purification and regulation, nutrient cycling, soil maintenance, genetic diversity maintenance and recreational and spiritual values (for a review, D'Amato *et al*. 2015).

Forestry enterprises rely on natural systems for the success and continuity of their business activities, while simultaneously exerting (positive and negative) impacts, also based on their business model and forest management practices. Therefore, the management of planted forests and related trade-offs must take into account the values of different ES beneficiaries, including companies, customers, local communities and broader civil society (Zahvoyska 2014). The ecosystem services concept may offer insights for expanding corporate sustainability goals and strategies, especially in light of growing expectation for the private sector's role in global environmental governance (Bernstein and Cashore 2007, van den Burg and Bogaardt 2014), and the increasing companies' interest in corporate sustainability and stakeholder management (Li and Toppinen 2011). Little knowledge, however, exists on the linkages between industries and ES supply and demand, especially from the viewpoint of various company stakeholder groups and/or ES beneficiaries (TEEB 2012).

In this study, we focus on stakeholders' perceptions of plantation-based forestry and ES in an emerging economy, China. Covering 38% of the national forest area, China's plantation area is the largest in the world (FAO 2015). In the last decade, China has attracted investments from domestic and international companies, with the consequent internationalization of the forest industry operating in the country (Zhang *et al*. 2014). Previous literature has pointed out some controversial outcomes of land use conversion to industrial plantations to surrounding ecosystems and communities (e.g. Zhai *et al*. 2013, Li and Wang 2014, Kröger 2014), but this result seems to be partly dependent on the prior land use and socio-economic context.[2]

[1] In ES literature, the people benefiting from ES are often defined as ES "stakeholders". In this paper, we prefer to use the term 'beneficiaries', while our interviewees are referred to as company stakeholder groups.

[2] Communities' dissatisfaction has been mainly due to issues with land pricing, transparency of transactions with local authorities, and related impacts on livelihoods (Gerber 2011, Li and Wang 2014).

The main goal of this study is to highlight and discuss the plurality of opinions and perspectives in the context of plantation forestry in China. It aims at doing so by comparing: 1) the corporate managers' and expert stakeholders' familiarity with key sustainability concepts; and 2) the perspectives of company managers, experts and local community representatives regarding positive and negative impacts exerted by plantation-based forestry on local ecosystem services and development.

THEORETICAL BACKGROUND

The concept of strong sustainability requires taking into account trade-offs between ES from two perspectives (Neumayer 2003): people's preferences (phenomenology) and ecological threshold values (positivism). Trade-offs may occur within the same sustainability dimension (Morrison-Saunders and Pope 2013). For instance, within the ecological dimension, Maes *et al*. (2012) showed that at the European scale, provisioning services impose trade-offs with other types of ES such as water provision and cultural services. In addition, trade-offs may exist between economic, ecological and social dimensions (e.g. economic development versus nature conservation), which may have different importance for different stakeholder groups at different points of time (e.g. Lähtinen *et al*. 2014), or they may be inherently a reflection of political necessity (see e.g. discussion in Schirmer *et al*. 2016b).

In our study, we particularly focus on stakeholder perceptions of trade-offs across different sustainability dimensions. However, taking into account people's values is particularly challenging because values are multiple and context-specific, as determined in "biophysical, socio-cultural and institutional contexts" (Brondízio *et al*. 2010). Furthermore, people do not always measure all values based on the same standard (O'Neill 1993, Sagoff 1988, Vatn and Bromley 1994). Therefore, perceptions of values are not absolute but are subject to change over time and space among individuals, and also within individuals (IPBES 2014). For example, individuals can express different value statements according to the role they perform in a specific context, such as consumers, citizens, professional experts or other (Sagoff 1998). Different values cannot always be reduced to a single metric (Rekola 2001), and values can be complementary, as well as contrasting. Therefore, decision makers frequently need to consider the pluralistic dimension of values through deliberative processes (Vatn 2005, IPBES 2014). Furthermore, ES is a concept likely to be interpreted and employed in vastly different ways in various contexts and by different actors (see for example Brody *et al*. 2006, D'Amato *et al*. 2016a).

Global awareness is increasing about corporate impacts on natural systems and the services they provide (Hanson *et al*. 2012, Houdet *et al*. 2012). Companies traditionally address their environmental and social impacts by implementing their respective corporate sustainability (CS) agenda, which is generally defined as an appropriate corporate behaviour towards social and environmental issues (Montiel 2008). CS activities may include, for instance, voluntary disclosure on company operations and impacts, or some form of benefit sharing between the company and its local (or global) community.

Companies engage in voluntary CS activities for several reasons: to anticipate more stringent regulations, to secure their access to valuable resources and continuity of operations, to attract responsibility-driven customers, financers and employees, or in order to maintain a good reputation and social license to operate among their stakeholders (Tuppura *et al*. 2014). Company stakeholders include both internal (e.g. employees and owners) and external stakeholders (e.g. communities, governmental bodies, political groups, trade unions and media) (Etzion 2007). Influential company stakeholders have an effect on corporate goals, strategies and actions as they provide or undermine the legitimacy of company operations (Brody *et al*. 2006, Dare *et al*. 2014, Li and Toppinen 2011, Näsi *et al*. 1997). In particular, building trustful relations with local communities is a key element of gaining and maintaining company social license to operate at the local level (e.g. Dare *et al*. 2014).

Concerns of equity and benefit sharing between enterprises and communities have emerged at the local, regional and global level, especially in the context of natural resource-based industries such as the forest sector (Prejer *et al*. 2014). In particular, forest ecosystems consistently contribute to human well-being and local livelihoods in different manners and measures all over the world (MA 2005). Provisioning services from natural areas may or may not be traded in markets, but may function as a source of water, food, timber, fibres, medicines and fuel for local communities (e.g. Chong 2005, Hussain and Badola 2010, Pyhälä *et al*. 2006). "Diversity of species, food sources and landscapes often serve as 'saving banks' and 'buffers' to enable people to cope with changes during the adverse time. Further, biodiversity creates employment and income through sales of ecosystem products and creates jobs arising from tourism and related economic activities" (Folke *et al*. 2005, p. 271). Spiritual and cultural values of ecosystems can also be an influential part of local community identity (Infield and Mugisha 2013).

Power relationships (e.g. gender, ethnicity, education, social status, land or resources rights) among ES beneficiary groups, however, mediate the access to and flows of a range of ES. Thus, inequalities may exist in the distribution of benefits of ES to different beneficiaries (Fisher *et al*. 2013). This can be due to, for example spatial interactions (e.g. upstream-downstream) or the asymmetric power relations among different beneficiaries. Beneficiaries mediate ES access as well as the status and flows of ES for other beneficiaries, and this condition is determined by issues such as access rights, governance and land stewardship (Felipe-Lucia 2015). Due to these inequalities in ES access and distribution, when making decisions on natural resource management, it is insufficient to evaluate sustainability only according to the principles developed in global political processes such as the Sustainable Forest Management. Profound consideration of specific local circumstances and employment of locally valid metrics for sustainability assessment is of crucial importance,

when aiming at not only enhancing the acceptability of operations among stakeholders, but also fulfilling local sustainability agendas (Lähtinen *et al*. 2014).

DATA AND METHODS

Our analysis is based on interview-based data collected during 2014 and 2015 in China (Tables 1 and 2). Such data consist of 45 personal interviews conducted with forest companies' stakeholders, including 20 interviews with company managers, 20 interviews with companies' expert stakeholders and 5 interviews with local community representatives (i.e. village leaders) (Table 2). Qualitative research was considered the most suitable method to access informants' perspectives in this context (Gioia *et al*. 2012, Mayring 2000).

In selecting the company stakeholders, we referred to previous theoretical and empirical classifications of relevant groups, especially in the context of the forest sector (e.g., Etzion 2007, Gordon *et al*. 2013). The interviewed stakeholders can be further divided into three main groups (Table 1): 1) corporate managers, 2) experts and 3) representatives of local communities (i.e. village leaders). The selection of our three stakeholder groups was motivated by their technical or experiential knowledge of plantation-based forestry in China and their complementary perspectives at national-, regional- or local-level (Figure 1).

Group 1 includes companies' internal stakeholders, specifically managers from international and domestic forest industry companies operating with a plantation-based business model. The interviewees were selected from five plantation forestry companies operating in three provinces in Southeast China. Individual managers have both knowledge of the local area and technical expertise on plantation-based forestry. Forest companies are located in the south-eastern provinces, where the rainy and warm sub-tropical climate offers a suitable environment for plantation forestry. Therefore, the collective knowledge of all interviewed managers represents a regional perspective in Figure 1.

Group 2 includes companies' external stakeholders with technical expertise. These stakeholders include policy advisors, local authorities, forest industry associations and consultants as well as non-governmental organizations (NGOs). These groups are relevant actors in informing and contributing to the decision-making about forest sector governance in China. Interviews with experts were conducted in 7 different cities (6 provinces): the location are related to their work or living place, which is generally not in proximity to plantation sites. The interviewees were selected based on their knowledge of forestry and the forest policy. Collectively, they provided a national-level perspective on plantation-based forestry.

Group 3 includes local community representatives, i.e. leaders of villages nearby private industrial plantations. Interviewees were selected from several villages within Guangxi province in southern China. Like experts, they are also companies' external stakeholders. Their education level is lower than that of experts or managers and their knowledge is experiential and related to the local context.

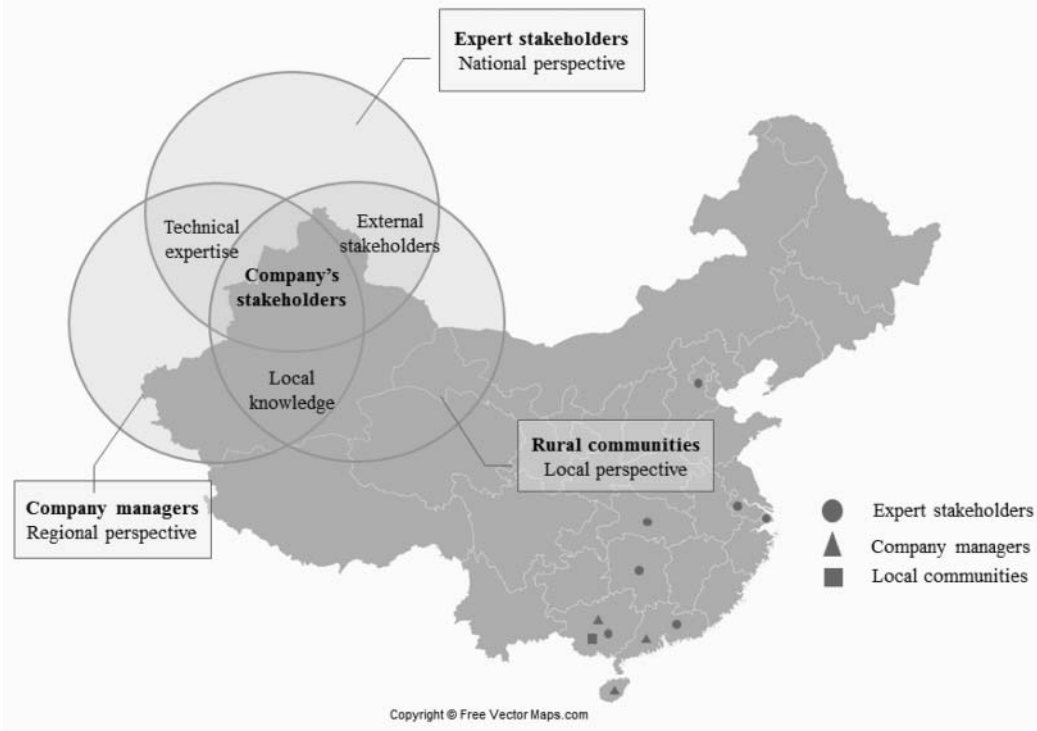
It must be noted that social research in developing countries poses severe challenges ranging from lack of census information to respondents' unfamiliarity with the questionnaire's vocabulary and statistical logic (Bulmer and Warmwick 1983). The choice and limited sample size of local community representatives was therefore dictated by our resource constraints, and by their availability to undertake the interviews and their knowledge of the village and the nearby industrial plantations. Overall, these three stakeholder groups comprise technical and experiential knowledge of plantation-based forestry in China, and provide multi-level perspectives (national, regional, local). Interviewees were selected in a process combining both purposive and snowball sampling,

TABLE 1 *Composition of interview data collected in 2014–2015 in various locations of China*

Stakeholder groups	Type of interviewees	Number of interviewees	Data collection period	Location
Group 1 Company managers	International company A	4	March 2014	Guangxi
	International company B	4	March 2014	Hainan
	Domestic company C	1	July 2014	Guangxi
	Domestic company D	7	July 2014	Guangxi
	Domestic company E	4*	July 2014	Guangdong
Group 2 Expert stakeholders	Policy advisors	9	March, July 2014	Beijing, Guangdong, Jiangsu
	Local authorities	4	March, July 2014	Hunan, Guangdong
	Industry associations and consultants	4	March, July 2014	Guangdong, Guangxi, Shanghai
	NGOs	3	March, July 2014	Guangdong, Hubei
Group 3 Local community representatives	Village leaders	5	September 2015	Guangxi

* Conducted as a group interview.

FIGURE 1 *Similarities between stakeholder groups based on their knowledge/expertise (left) and their perspective (national, regional, local) (right)*



where initial interviewees would suggest other possible candidates from among their acquaintances.

All interviews were made face-to-face based on semi-structured questionnaires (available from authors upon request). Interviews with company managers and external experts were conducted using the same questionnaire, aiming to investigate their perceptions of forestry impacts on ES. At the beginning of the interview, we also asked interviewees to self-rank their familiarity with the following concepts: sustainability, biodiversity, ecosystem services, ecosystem approach. This data were processed as the percentage of interviewees who were fully, partly or unfamiliar with the key concepts. This was not meant to be an in-depth investigation of the interviewees' knowledge of the concepts. Rather we wanted to ensure that all topics and concepts were sufficiently clear before the interview.

The questionnaire administered to village leaders differed slightly since it was designed to assess how the establishment of private industrial plantations at the location had affected the provisioning of local ES and impacted local community livelihoods. In addition, we inquired about interviewee expectations for the future livelihood development and engagement with the local large-scale forest industry company. We did not inquire about villagers' familiarity with the ES-related concepts, due to their lower and less technical education level compared company managers and experts.

The interviews lasted an average of 60 minutes for managers and experts, and about 20 minutes for village leaders. In-depth details on the data and methods can be found in D'Amato *et al*. (2016a), Wan *et al*. (2016) and D'Amato *et al*. (2016b). Transcribed interview data were analysed through content analysis, which involves identifying codes based on the presence or absence of specific words, phrases, and concepts, and consolidating them into themes (Gioia *et al*. 2013, Gummesson 1991).

Overall, we adhered to methodological approaches developed in similar studies on stakeholders' views (e.g. Gordon *et al*. 2012) and took several precautions at different phases of data gathering and analysis to ensure sufficient validity and reliability of the findings. The research purpose and key terminology was explained prior the interviews. The questionnaires were pre-tested with international and Chinese researchers, and with other Chinese individuals, e.g. urban citizens to rural villagers. Managers and experts included both Chinese-speaking and international interviews. Thus, depending on interviewees' preference, questionnaires and interviews were administrated either in English or in Chinese. Village leaders were exclusively interviewed in Chinese, with the support of local translators to mitigate difficulties with local dialects. When allowed by the interviewees, the interviews were also recorded and the interview data were triangulated with other sources of information such as scientific literature or corporate reports. The data collection in Chinese and translation to English was performed by experienced researchers who are fluent in both Chinese and English and familiar with sector-specific terminology. The quality of translation is a key issue in qualitative research (van Nes *et al*. 2010). Our research, however, does not touch upon feelings or

TABLE 2 *Methodology and research questions used for different data sets*

Stakeholder group	Data collection	Language of interview	Research questions	Sample size	Unit of analysis	Analysis
Group 1 Company managers	Interview-delivered questionnaire (on average 60 minutes)	Chinese or English	- What is the level of managers' familiarity with the ES concept? - What are their perspectives of plantation forestry impacts at company level?	20	Individual interviewee*	Qualitative
Group 2 Companies' expert stake-holders	Interview-delivered questionnaire (on average 60 minutes)	Chinese or English	- What is the level of expert stakeholders' familiarity with the ES concept? - What are their perspectives of plantation forestry impacts at sector level?	20	Individual interviewee	Qualitative
Group 3 Local community representatives	Interview-delivered questionnaire (on average 20 minutes)	Chinese	- What are local communities' perspectives of changes in ES and local development after the establishment of Eucalyptus plantations?	5	Individual interviewee	Qualitative

*Four managers from one company were interviewed in a group.

emotions, but rather on views and perspectives on a narrowly framed topic, for which formal Chinese-English translation of technical jargon is well established. We are thus confident that the translation process did not cause fundamental loss or distortion of information. Finally, a team of international and Chinese researchers worked closely together with the analysis of data and direct quotes from the interviews are also reported in the text to authenticate the findings.

Main challenges and limitations are identified as follows. First, even though interviewees were assured anonymity, we cannot exclude the possibility for some degree of social desirability bias (Börger 2013). Due to our limited resources for conducting field work, the sample size of village leaders resulted to be smaller than that of managers and experts. Furthermore, a certain level of discrepancy in willingness to disclose is bound to exist between stakeholder groups, based on their individual skills, experience and attitude to communication. Therefore, the views of company managers and experts versus those of local village leaders are not intended to be fully comparable, also due to inherent differences in the content of questionnaires and interviewees' social, cultural, economic and educational background. Given the geographically and numerically limited sample, our empirical results cannot be generalized beyond the data set. Second, ex post, we conclude that qualitative research coupled with snowball sampling was the optimal method choice for our purpose. Qualitative research allows to explore new topic areas which may be otherwise overlooked; to further investigate interviewees' answers; to inquire about hypothetical situations; and to verify informants' familiarity with the topic. Snowball sampling is useful when it is not possible to obtain a comprehensive list of the target population, and it is difficult to approach the potential interviewees directly. Despite the limitations related to the representativeness of the sample, this sampling technique presents the advantage of gathering the most relevant informants for the research purpose. It also facilitates an atmosphere of trust for informants' disclosure, which is key in a country like China where people may be less willing to reveal personal views, especially in rural areas. Third, sample size in qualitative research is generally small, since data saturation can typically be achieved after 20 or 30 interviewees (Marshall *et al*. 2013), especially if the research topic is narrowly-framed like ours. The small sample size in qualitative research allows for a deeper and more detailed analysis of an unexplored phenomenon.

We thus consider the data to be sufficiently in-depth for the purpose of qualitative analysis in the context of an explorative study approach, and we were able to draw inferences by combining the three different datasets.

RESULTS

Section 4.1 includes a descriptive, numerical analysis of company managers' and expert stakeholders' familiarity with concepts of sustainability, biodiversity, ES and ecosystem approach[3]. Section 4.2 includes a qualitative, comparative summary of managers', experts' and village leaders' opinions regarding corporate impacts on ES.

[3] The terms 'sustainability' and 'biodiversity' have become keywords in the international political agenda in the 80's and 90's, respectively with the Brundtland's report (Brundtland 1987) and the Convention on Biological Diversity. The 'ecosystem approach' is "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way" adopted by the Convention.

Stakeholder familiarity with key sustainability-related concepts

Based on the interview data, managers working in both international and domestic companies shared a similar level of familiarity with the concepts of biodiversity and sustainability (Table 3). All managers were found to be familiar with the concepts of sustainability and biodiversity. Managers from international companies, however, had higher level of familiarity with the concepts of ES and ecosystem approach, while managers from domestic companies were only partly or not at all familiar with these concepts.

Familiarity with key concepts was found to vary between policy advisors and other expert stakeholders. Most of the policy advisors were fully familiar with the concepts of sustainability and biodiversity. On the other hand, interviewees from local authorities, industry associations and consultants as well as NGOs were either fully or partly familiar with sustainability, but only partly familiar with biodiversity. Policy advisors were also generally more aware of the concepts of ES and ecosystem approach, compared to other experts.

Stakeholder perceptions of plantation forestry impacts on ecosystem services

Only a few company managers specifically discussed companies' impacts on ES, either positive or negative. No clear differences emerged between managers from domestic and international companies operating in China. Examples of negative impacts expressed by company managers included loss of biodiversity, provisioning and regulating services. In particular, these referred to air quality, nutrient cycling, soil, water quality and quantity. According to some managers, however, other land uses, such as agriculture, can also result in reduced environmental quality at landscape level. It is therefore difficult to prove the causality between negative environmental impacts and companies' activities.

When discussing companies' impacts, some managers coupled negative environmental impacts with positive social impacts. The observed difficulties in land leasing arrangements and related conflicts with local communities were mentioned by several managers. According to the interviewees, irregularities were found in the land leasing contracts, due to the interference of dishonest intermediaries that hampered the rightful rental payment to individual households. Regarding positive impacts, managers stated that the establishment of plantations maximizes domestic timber production and positively contributes to carbon sequestration.

Expert stakeholders pointed out that forest companies operating in China have different environmental impacts according to their business model, i.e. whether they are forestry companies, pulp and paper companies or more value-added forest products companies. Opinions on the impacts of plantation-based forest companies were found to be divergent among expert stakeholders. Some interviewees stated that plantation forestry in China is an effective way to maximize fibre production, and it can have positive effects on landscape beauty, forest cover, water and soil conservation, carbon sequestration control pests, and prevention of forest fires. Instead, other interviewees stated that plantations have negative impacts on biodiversity, water quality and quantity, soil degradation, and spreading of diseases or pests. Expert stakeholders, however, did not bring up any prior conflicts between plantation companies and local communities. The main negative impacts of pulp and paper companies and wood products companies were considered by the experts to be emissions from waste disposal by the experts.

Three out of five interviewed village leaders stated that the establishment of industrial fast-growing plantations has led to the emergence of some negative environmental impacts, especially decreasing water quality and quantity, and soil degradation. Also, the establishment of industrial plantations have induced some neighbouring farmers to switch from agriculture to plantation forestry because the land that surrounding industrial plantations was found to be no longer suitable for agriculture. Several farmers, therefore, had planted their own Eucalyptus trees, also because this activity was found to be less labour-demanding and generally to

TABLE 3 *Familiarity with key concepts among the interviewed managers and expert stakeholders in China*

	Sustainability			Biodiversity			Ecosystem services			Ecosystem approach		
	Fully	**Partly**	**No**	**Fully**	**Partly**	**No**	**Fully**	**Partly**	**No**	**Fully**	**Partly**	**No**
Managers from international companies	**100%**	0%	0%	**83%**	17%	0%	33%	**67%**	0%	17%	**83%**	0%
Managers from domestic companies	**92%**	8%	0%	**83%**	17%	0%	0%	50%	50%	0%	33%	**67%**
Policy advisors	**78%**	22%	0%	**89%**	11%	0%	**67%**	33%	0%	22%	**67%**	11%
Local authorities, industry associations and consultants, NGOs	50%	50%	0%	25%	**75%**	0%	25%	**75%**	0%	0%	**100%**	0%

* Managers from domestic companies (N=12); managers from international companies, N=6 (two respondents did not answer this question); policy advisors (N=9); other expert stakeholders, including local authorities, industry associations and consultants, and NGOs (N=4) (seven respondents did not answer this question).

TABLE 4 *Comparison of perceived positive and negative impacts of plantation forestry according to different stakeholders groups*

Stakeholders	Main perceptions of negative impacts	Main perceptions of positive impacts	Exemplifying quotes
Group 1: Company managers	Air quality, biodiversity, nutrient cycling, soil, water quality and quantity.	Efficient timber production, carbon sequestration, employment opportunities and local development.	"The impacts of forest enterprises can be positive or negative. From an ecological perspective, the impacts are negative. From an economic perspective, fast-growing plantations enable high output rates." "The environmental impact comes from Eucalyptus. Their fast growth require fertilisers, which impact the soil and water"
Group 2: Expert stakeholders	**Plantation forestry:** biodiversity, soil quality, spreading of diseases and pests, water quality and quantity; **Pulp and paper and wood products companies:** emissions from waste disposal.	Landscape beauty, forest cover, water and soil conservation, carbon sequestration, fibre production, controlling pests; preventing forest fires.	"Forest companies' plantations can beautify the environment, conserve soil and water, enhance carbon sequestration and improve the efficiency of fibre production." Expert (Policy advisor) "Improper operations of plantation-based forest companies negatively impact local ecosystem services, such as biodiversity, water and soil conservation capacity as well as resistance against natural disasters." Expert (NGO)
Group 3: Local community representatives	Water quality and quantity, and soil.	Limited, case-specific employment opportunities. Some support for local development and infrastructure from the company.	"The fallen leaves will lead to the colour change of the water. Farmers are forced to plant eucalyptus if there are [other plantations] nearby." "The income has increased, because previously quite some villagers cannot get any money because they left their lands uncultivated. The company provided some road maintenance work [and] part-time working opportunities".

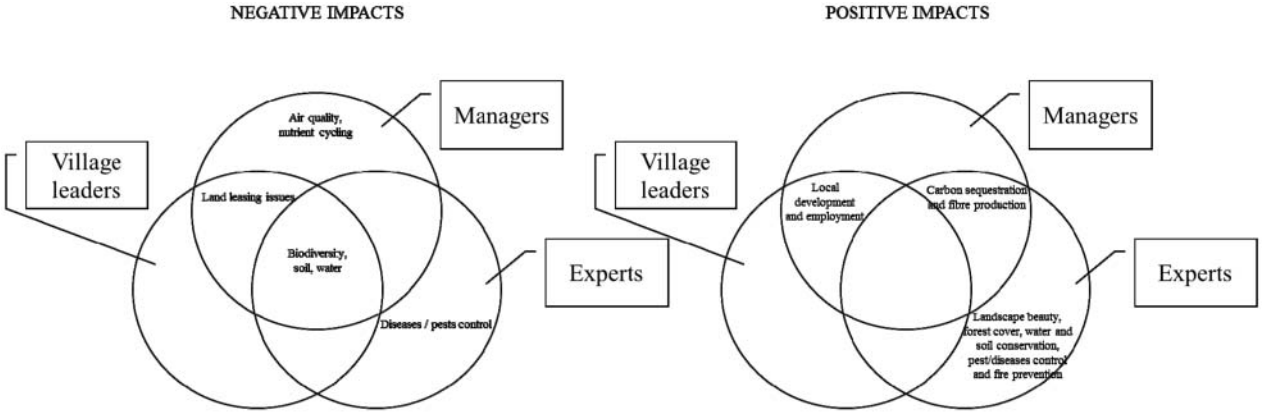
provide higher income. According to the interviewed village leaders, employment opportunities exist with the company and its sub-contractors, even though they are often limited in scope and highly case-specific. For example, one village leader mentioned that jobs are mainly available for people with a high education level. Village leaders also mentioned that the locally operating forestry company provided some support to local development and facilities, for instance in the form of financial support to local schools and roads. According to the interviewed community members, land leasing arrangements was typically not very remunerative because of delayed or missing payments. These payment irregularities had also caused some source of mistrust and even conflicts between the villagers and the company leasing the land.

Figure 2 depicts a comparison between opinions on positive and negative impacts of plantation forestry across three stakeholder groups. Almost all groups were found to recognize negative effects of fast-growing plantations on biodiversity, water and soil. Managers and village leaders also commented on the conflicts between companies and communities arising from poorly handled land leasing issues. Company managers were the only group mentioning negative impacts on air quality and nutrient cycling, while expert stakeholders were the only group indicating the increasing risk of crop diseases and pests. Regarding positive impacts, both company managers and experts stated that plantation forestry is an efficient way to maximise fibre production, while also contributing to carbon sequestration. Both company managers and village leaders pointed out the accrued benefits to the local livelihood and employment possibilities, but the village leaders were found to be less optimistic in this regard. Expert stakeholders were the only ones to state in a wider context that plantations can, in some cases, contribute to landscape beauty, maintaining forest cover, conserving water and soil, controlling pests and preventing occurrence of forest fires.

DISCUSSION

Despite an emerging corporate interest in the ES concept (Hanson *et al*. 2012, Waage 2012), so far only few pilot projects from international firms have explored potential applications, e.g. spatial mapping of ecosystem services. In this study, we reflected on the role of the ES concept in the context of plantation forestry and particularly in addressing corporate sustainability. We do so through the analysis of multiple stakeholder's perceptions of positive and negative

FIGURE 2 *Similarities and differences between stakeholder groups in perceived negative and positive impacts of forest plantations and associated industrial activities*



impacts of plantations on ecosystem services by interviewing three relevant stakeholder groups, including company managers, external expert stakeholders (i.e. policy advisors, local authorities, industry associations and consultants, and NGOs) and village leaders (in one specific location). First, we investigated the familiarity of managers and experts with key concepts of sustainability, biodiversity and ES. Second, we assessed the perceived negative and positive impacts of plantation-based forestry across the three groups. It should be stressed that subjective perspectives may not necessarily allign with the objective reality of e.g. ecological analysis, but withstand own validity and are valuable in providing insights on local issues and possible solutions.

Based on our findings, managers' and experts' awareness of the ES concept or ecosystem approach is only emerging in China, while there is good familiarity with terms such as sustainability and biodiversity. Furthermore, international company managers and policy advisors are more familiar with ES concepts than domestic company managers, local authorities, industry associations and consultants, and NGOs. This reflects the fact that the concepts of sustainability and biodiversity have been key words in the global political agenda for decades, but the concept of ES has only recently emerged (Braat and de Groot 2012) and may be still unknown to the business community and the general public. It is therefore more likely that our interviewed managers and policy advisors may be more informed on current sustainability trends than other interviewees, given their exposure to an international environment and their generally more advanced English skills. These findings reveal the importance of academic and policy-level work in influencing and legitimizing business sectors' language and values.

Interviewee perspectives of plantation-forestry impacts in China were found to vary across stakeholder groups and across their different levels of education and contextual knowledge (e.g. national or regional versus local). The group of expert stakeholders is the most diverse compared to the other stakeholder groups. Therefore, impacts perceived by expert stakeholders differed not only from those of managers and villagers, but also diverged strongly within the group. For instance, some experts stated that in some cases, fast-growing plantations can contribute to landscape beauty, forest cover, water and soil conservation, controlling pests and preventing forest fires. These opinions were not detected in any interviews among company managers and village leaders. Responses by managers and village leaders shared similarities, including acknowledging land leasing issues, and identifying positive effects of plantation-based forestry on local employment and development. The observed similarities between perspectives of managers and village leaders are slightly counterintuitive.

Previous literature dealing with stakeholder perceptions on plantation forestry in other contexts has observed discordance among internal and external stakeholders' opinions (e.g. Gordon *et al*. 2013), due to, for example ideological differences. In our study, we would have rather expected affinity between managers and experts due to their higher education level compared to local community representatives. Such findings can be interpreted in light of two factors. First, our group of experts comprised different sub-groups of external stakeholders, including national-level policy advisors, local authorities, industry associations and consultants, as well as NGOs. Even though characterized by a high level of expertise regarding the domestic and international forest sector, these diverse subgroups may be driven by very different motivations. For instance, since the Chinese central government has strongly promoted the establishment of fast-growing plantations with the 'Forest Industrial Base Development Program' in 2002 (Evans 2009), the strong pro-plantation attitude may be more visible in national level policy experts' opinions in comparison to non-governmental or regional experts. Second, our experts had a national-level understanding of plantation forestry in the context of China. Instead, the knowledge of individual corporate managers and village leaders is inherently local, context-specific and more driven by practical needs. Thus, the interviewees from Groups 1 and 3 might be able to report unique insights from hands-on approaches. For instance, company managers and village leaders were the only ones to mention cases of conflicts between enterprises and local communities over land leasing issues, the existence

of which has also been recorded by previous literature (Cossalter and Barr 2005, Gong *et al*. 2010).

Moreover, environmental impacts of industrial plantations are greatly context-dependent, and they are influenced by company-specific management practices. Thus, the establishment of fast-growing plantations may in theory have a role in sustainable management of natural or semi-natural forest ecosystems (Bauhaus *et al*. 2010, Gerber 2011, Paquette and Messier 2009), as postulated by some interviewed experts. This is, however, highly dependent on how plantations are managed at both local and global level. Furthermore, both managers and experts commented on positive impacts of plantation forestry in terms of efficient fibre production and carbon sequestration. This is understandable, given their technical background, whereas, village leaders would unlikely have a specific education or background to discuss carbon sequestration.

The diversity of stakeholder perspectives observed in our study offer the possibility to discuss the role of the ES narrative in deepening corporate sustainability agendas and practices, especially in the context of emerging economies. Scientific literature on how to operationalize the concept of ES in CS is still scarce (some exceptions include, e.g. Chaplin-Kramer *et al*. 2015, Othoniel *et al*. 2016, Winn and Pogutz 2013). In the context of the forest sector, D'Amato *et al*. (2015) have suggested that an ES approach could support future sustainability reporting practices by encouraging the currently poor and disarticulated discussion on biodiversity, land use and resource stewardship, or by providing a more comprehensive and holistic view on the corporate environmental and social performance.

Based on our analysis, we argue that the ES concept could provide insights to deepen the understanding of business relations to the environment and local communities. A main issue is the analysis of global and local trade-offs. In plantation forestry, global and local values and expectations can often be conflicting. At the global level, for instance, the establishment of plantations maximises fibre production and can contribute to natural forest conservation, while at the local level they might negatively affect ecosystems and communities (see e.g. Dare *et al*. 2014, Kröger 2014). The ES approach can be useful in accounting for both these perspectives, and identifying the distribution of direct and indirect benefits among groups (Bennett *et al*. 2015).The analysis of multi-stakeholder perspectives can be a particularly powerful in this regard since stakeholder opinions and expectations are a strategic resource contributing to company viability and social licence to operate (e.g. Lansbury Hall and Jeanneret 2015, Joutsenvirta 2009). Assessing stakeholder knowledge and areas of concern may provide valuable insights not only for further ecological or sociological investigations, but also bring up insights to those keen on more political economy related questions (Schirmer *et al*. 2016b). Importantly, bridging divergent stakeholder perspectives can contribute to improved societal outcomes (Rist *et al*. 2014). For instance, it could contribute to the development of better benefit sharing practices at the local level, since pilot projects for alternative business models of industrial scale exist, involving for example agro-forestry or out-growers schemes (Bowen *et al*. 2010, Prejer *et al*. 2014, Porter and Kramer 2011). These examples could fuel more inclusive relations with local communities, leading to employment opportunities and livelihood diversification, also in the context of rural China. An ES narrative has potential to feed into these existing practices by introducing concepts such as the holistic approach and multi-functionality of ecosystems. To inform decision-makers about these practices, composition of rich national- or sector-level expertise, such as that of experts (policy advisors, local authorities, industry associations and consultants, and NGO's), is relevant because several of the issues associated with plantation forestry are large scale. On the other hand, the context-specific knowledge, such as that of managers and local communities, is a necessity because it allows to envisage more tailor-made solutions and improves understanding of micro-level impacts.

CONCLUSION

This study investigated the divergence of perspectives regarding the impacts of plantation forestry on ES across different stakeholder groups in case of China. Based on the findings, we discussed how the ES concept, in conjunction with the analysis of multiple stakeholders' perspectives, can contribute to further advance CS agendas and practices, especially in the context of emerging economies. For example it can contribute to account for company trade-offs at both global and local level, and to develop company engagement with local communities and other impacted groups of stakeholders.

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