Global forest governance — Bringing forestry science (back) in

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ABSTRACT

The progressive internationalization of forest politics poses a considerable challenge for forestry science as a non-state actor that aims for inserting its expertise into political processes. Rather than finding a coherent entity, one discovers a diversity of forest related processes on the international level. The paper examines central forest relevant processes on the international level, their effects on the policy field, and their repercussions for forestry science by using two different theoretical models of internationalized forest politics.

It will be argued that an understanding in terms of 'governance' that is based on a reflexive understanding of the policy field's set-up and emerging state- and non-state actors is better suited than a 'classical' conceptualization of interest-led intergovernmental politics. Drawing upon this diagnosis, the paper offers some propositions about the possible role(s) of forestry science within processes of 'forest governance'.

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1. Introduction[1]

Forestry science operates in a changing socio-political environment: forests are of growing concern on the international and global political level. Although the adoption of a legally binding instrument focusing solely on forests failed at the UN Conference on Environment and Development in 1992, forests form central aspects of a multitude of processes on the international level. What are the implications of this development for forestry science – or the system of forest sciences – as an application-oriented fundamental science that basically deals with the question of how to render forests utilizable for people (Cf. Zundel, 1990)?

Scientific communities are considered as non-state actors that aim for inserting their expertise into political process. At the same time, global environmental problems are complex issues. Political decision makers increasingly depend on scientific advice. Thus, one should expect growing influence for forestry scientists in the policy field. Paradoxically, forestry science does not seem to profit from this development but rather appears to become marginalized. This case study[2] investigates the implications of these developments for forestry science. It is conducted against the background of two different theoretical models

of international politics that are subsequently used as heuristic frameworks to (re-)arrange the globalized forest policy field. The first conceptualization focuses on processes of inter-state bargaining and takes unitary governments that pursue their 'national interests' as central actors. As will be shown, this interest based approach seems to be capable of explaining the ineffectiveness of the Core Forest Process, but is no longer adequate to capture the entire range of international and transnational forest politics that developed since the Rio Conference. In order to grasp the whole realm of international forest-related processes and institutions, this article will draw upon an alternative, broader conception of 'global forest governance'.

After pointing out the implications of the internationalization of forest politics, the final section of the text provides conclusions about the consequences for forestry science and its possible role within its internationalized socio-political environment. It will be argued that the multiplicity of forest relevant international processes and institutions results in the relocation of norm setting procedures from the domestic to the trans- and international level. This alters channels and preconditions for governmental and non-governmental actors to influence forest relevant decision making procedures. Forestry science is weakly represented in these processes of redefining norms and principles and thus runs the risk of becoming marginalized.

2. Theoretical models of international forest politics

Internationalized forest politics can be conceptualized according to two different theoretical models that are based on divergent understandings of international politics. These models will be outlined in this chapter. According to the first conceptualization, international forest politics is understood mainly in terms of a

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problem of international (re-)distribution. States, i.e. unitary governments acting as rational utility maximizers, pursue what they perceive of as their national interest within clearly bounded policy fields. In this regard, the purpose of scientific advice would be to help governments to become clear about their own utility functions in international negotiations. Such a 'rational' conceptualization of international forest politics will be found in what I label the Core Forest Process, where forests are framed as sovereign resources. The second, alternative approach to international forest politics can be conceived of in terms of 'global governance'. This understanding supersedes the state-centric perspective of rational unitary governments being the only actors in world politics. It turns its scope from (non-)co-operation between self-interested states towards coordinated attempts to produce "global public goods" (Cf. Ruggie, 2004; Young, 1994) and comprises "the broad range of political, economic, and social structures and processes that shape and constrain actors' behaviour towards the environment" (Levi and Newell, 2005a,b: 2–3). According to this conceptualization, forests are rather – although by no means exclusively – framed in terms of a 'common concern of mankind'.

For the purpose of this paper, the concept of 'global governance' will be used as a heuristic framework in order to capture the changing socio-political environment in that forestry science acts; and not in its meaning as a normatively grounded political project. The case study will investigate three aspects of 'global governance': (1) processes of denationalization (Cf. Zürn, 1998; Czempiel, 1999) and the "emergence of a global public domain beyond the sphere of states" (Ruggie, 2004: 509); (2) the changing role of non-state actors in this new realm, and the emergence of non-hierarchical modes of steering that do not rely on states' formal authority and thus (3) demands different forms of legitimacy. Governments may not necessarily be contested as central actors in international politics, but at least are supplemented through civic, non-state actors such as NGOs, lobbyists, knowledge brokers, and scientists. The range of forest relevant processes reaches from legally binding international conventions such as the Convention on Biological Diversity or the United Nations Convention on Climate Change, to non-binding intergovernmental negotiation contexts like the United Nations Forum on Forests, up to private norm setting initiatives like the FSC and PEFC.

Non-state actors are not backed by formal authority, they seek "private authority", (Cutler et al., 1999). According to Suchman (1995:574), legitimacy

"…is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions".

Hence, legitimacy is not an inherent quality but a reflexive concept that depends on the correspondence of an actor's behaviour with prevailing norms, understandings, and problem definitions in the policy field. Actors can use such 'patterns of legitimacy' (Müller, 1993) as strategic resources for strengthening their position in the policy field. As such, they are not stable but the result of purposeful social constructions. Global governance thus implies struggles about appropriate problem definitions and competition about "whose knowledge counts and which forms of knowledge are marginalized" (Newell, 2005: 26).

The argument brought forward in the subsequently presented case studies will be that although there has been momentum towards the establishment of a comprehensive forest regime on the international level, the process that *exclusively* deals with forests – the Core Forest Process – still remains ineffective. On the other hand, international *environmental* agreements that are considered within the conception of forest governance seem much more effective in dealing with forest relevant issues; forests are understood as forming part of global environmental systems. The variance in the effectiveness of forest related processes is mainly due to diverging problem definitions that were brought forward by different scientific communities and knowledge brokers within the respective processes.

3. Note on Methodology

In order to assess the internationalized forest policy field, the paper draws upon political science literature on international environmental politics – where international forest politics still is underrepresented – and an analysis of primary sources such as official documents of international organizations, the 'Earth Negotiations Bulletin', or policy papers issued by interest groups and environmental NGOs. Additionally, the author conducted qualitative interviews with members of German delegations to international forest relevant negotiations. The empirical data on forestry science referred to in the last chapter originate in a survey that was conducted in the course of the *enforchange*-project in July/August 2007. The survey population included 155 forestry scientists from the National Research Programme 'Sustainable Forestry', funded by the German Federal Ministry of Education and Research. The questionnaire inquired into four broader aspects: (1) the kind of knowledge forestry science produces, (2) forestry science's perception of political processes and actors, (3) the engagement of forestry scientists in political processes, and, (4), forestry scientists' attitude towards whether forestry science should play an active role in political processes. The questionnaire was sent by mail and simultaneously made available online with password restricted access. We received 61 answers with 32 questionnaires returned per mail, 29 online; the response rate was approximately 40%. A more detailed analysis will be available in late 2008.

4. The Core Forest Process

At the United Nations Conference on Environment and Development (UNCED) in 1992, the Earths' forests were given a place on the global political agenda. However, contrary to the other issues dealt with at the conference (climate change, desertification and loss of biodiversity) no binding international convention on forest management could be agreed upon at UNCED. Merely a non-binding forest declaration (hereafter: Forest Principles) with its indeterminate call "to contribute to the management, conservation and sustainable development of forests to provide for their multiple and complementary functions and uses" could be listed as result of the Rio-process.

Nevertheless, based on the Forest Principles, an international negotiation process developed in the second half of the 1990s and was conducted in a sequence of intergovernmental fora — the Intergovernmental Panel on Forests, the Intergovernmental Forum on Forests, and since 1999 as the 'United Nations Forum on Forests' (UNFF). In 2007, UNFF 7 adopted a "Non-Legally Binding Instrument on all Types of Forests" (NLBI). As one of the few outcomes of the Core Forest Process, the concept of 'sustainable forest management' (SFM) is now recognized in the context the Convention on Biological Diversity as a possible means to *implement* the ecosystem approach to forests (Cf.: CBD COP7 Decision VII/11). The concept is an evolution of the 'traditional' sustainable yield perspective on forests and was developed within forestry institutions and university forest departments (Sayer/Maginnis, 2005:2).

Despite the adoption of the NLBI, and the four 'Global Objectives' in 2006, the Core Forest Process still remains mostly ineffective: first and foremost, the instrument is not legally binding, i.e. participation and compliance are voluntary and the 'Global Objectives' are not quantifiable. More fundamentally, the Core Forest Process has yet to affect "changes in the behavior of actors, in the interests of actors, or in the policies and performance of institutions" (Young and Levi, 1999: 5).

A review of the literature on the international forest negotiations at and after UNCED offers insights why this is so: the framing of forests as

sovereign resources allowed domestic economic interests to have a strong voice in many key states and throughout the intergovernmental negotiations (Gulbrandsen, 2004:83). Accordingly, many forest rich key states adopted utility functions that favored undisturbed timber production over the international regulation of forest management (Cf. Humphreys, 2001; Rosendal, 2001; Dimitrov, 2006; Chaytor, 2001; Hönerbach, 1996; Davenport, 2005). The Core Forest Process duplicated the 'traditional' (i.e. sovereign) forest discourse and domestic actor coalitions on the international level. The interest-based approach to international forest politics seems appropriate to explain the ineffectiveness of the Core Forest Process. However, it fails to answer the question why forests are treated rather effectively in other contexts like the climate regime, the Convention on Biological Diversity, or private certification schemes.

5. Global forest governance

Despite the ineffectiveness of intergovernmental forest negotiations, forests are dealt with in a range of further processes that can – in their collectivity – be considered as "global forest governance". Forest governance not only comprises international conventions and intergovernmental negotiations, but also a multitude of transnational processes with state- and non-state actors such as national bureaucracies, NGOs or scientific communities involved. The most important processes will briefly be outlined below.

5.1. The Convention on Biological Diversity

The Convention on Biological Diversity developed from the 'scientific agreements' that the current rate of global species extinction exceeds the natural rate by far and that "biological diversity is being significantly reduced by certain human activities" (CBD, Preamble). Conservation biologists and ecologists had been central scientific actors in bringing biodiversity conservation onto the global policy agenda (Cf. Epstein, 2006; Takacs, 1996). Scientists did not act on their own but formed coalitions with other non-state actors in order to gain influence and to promote a "comprehensive, ecosystem approach" to nature conversation on the international level (Raustiala, 1997). Accordingly, the CBD's "Programme of Work on Forest Biological Diversity" makes reference to the 'ecosystem approach' in order to contribute to the conservation and sustainable utilization of forest biodiversity. Evidently, this perspective is based on a forest image that fundamentally differs from the understanding carried by traditional forestal actors – that deems purposeful interventions into natural processes necessary in order to realize forest owners' objectives (Cf. Plachter and Volz, 2000; Zundel, 1990). With decision VII/11 of CBD COP7, the differences between the 'ecosystem approach' and 'sustainable forest management' have been settled: it declares that "sustainable forest management […] can be considered as a means of applying the ecosystem approach to forests". SFM, that originates in the concept of 'sustainable yield forestry' and refers to "meeting present needs for forest goods and services, while ensuring their continued availability in the long term" (FAO, 2003: 47), is subordinated to the CBD's 'ecosystem approach' that backs a conservationist agenda and stresses the importance of broad societal participation. It emphasizes

"the integrated management of land, water and living resources, which promotes their conservation and sustainable use in an equitable way. Accordingly, forest ecosystems should be managed for their intrinsic values and for the tangible benefits they provide to humans" (FAO, 2003).

The framing of forests under the CBD still is aligned with a conservationist agenda. It refers to *all* forms of forest property, including private forests, and claims a global orientation – not only in geographical terms but also according to participation. Basically,

forests are cognitively detached from their primary local context and are relocated within a 'global ecosystem'.

5.2. The United Nations Framework Convention on Climate Change

Flora and soils have been integrated into scientific global carbon cycle models since the 1970s (Cf. Lövbrand and Stripple, 2006). Scientists pointed to the importance of forests for the global climate system and thereby established the global dimensions of forests and forest management for the first time. Human activities, such as forestry, influence "the natural rate of exchange of carbon between the atmosphere and the terrestrial biosphere" (Watson et al., 2000). The United Nations Framework Convention on Climate Change (UNFCCC) refers to 'forests' by calling upon its signatory states to "promote and cooperate in the conservation and enhancement […] of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans […]" (Article 4 (1d)). In the successive negotiation rounds, the terrestrial biosphere's capacity for carbon storage became politicized and even gained an international re-distributional dimension: the accountability of 'sink activities' that can be counted against states' emission targets became a source of conflict between the parties to the convention. In particular forest rich states pushed for a comprehensive approach that included land based sink activities. With the accountability debate, the forest issue has ultimately left the 'pure' scientific realm and became a matter of interstate bargaining (Lövbrand, 2007). The IPCC's conclusion that about 20% of annual global carbon dioxide emissions stem from tropical deforestation (IPCC, 2000) brought the issue of 'Reducing Emissions from Deforestation and Degradation' (REDD) in developing countries onto the political agenda. The attention given to the forests' carbon storage potential is already well mirrored in forestry science's research agenda. One can argue that the 'economization of carbon storage' that was brought forth in these processes, has set the stage for integrating these functions into forestry sciences' research agenda. The framing of forests as carbon sinks, its extended economic importance as source of renewable energy, and the accentuation of its exposure to external threats and the demand for adaptation measures are compatible with the 'traditional forestal conception'.

5.3. Private norm setting — FSC and PEFC

The Forest Stewardship Council (FSC) was established one year after the Rio Conferences' failure to pass a forest convention. Although the initial funding was provided by the WWF, founding members not only originated from the environmental realm but also comprised stakeholders from forestry, the timber industry, non-governmental organizations, and local communities. The Council grew out of the concern over extensive forest harvesting and forest degradation and can be understood as an answer to the flawed intergovernmental forest negotiations at the UNCED. The FSC explicitly distanced itself from the stalled intergovernmental processes; states and governmental actors were explicitly excluded as members, and the FSC refrains from influencing international negotiations, e.g. through participation or co-operating with international organizations. FSC's organizational structure comprises a General Assembly that consists of three equally weighted chambers with stakeholders from the environmental, social, and economic realm. The chambers are staffed with equal numbers of members from developed and developing countries. Since membership is voluntary, the FSC cannot rely of coercive power over his members. The council derives its legitimacy from the voluntary recognition of its standards on behalf of his members. While, according to Benjamin Cashore (2002), environmental groups within FSC grant "moral legitimacy", participating firms provide "practical legitimacy" that builds upon their calculations of self-interest ("improved marked access"). Organizationally, the FSC
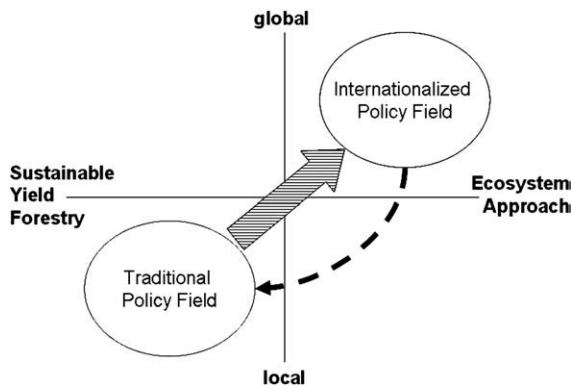
Fig. 1. The shift of the policy field.

(2007) claims authority that derives from its comprehensive and democratic structure:

"FSC has been recognized as an international organization that provides a system for different stakeholders interested in forest issues to work towards responsible forest management. Through the FSC system, the forest owners, managers, forest product manufacturers, local communities, non-governmental organizations and other interest groups are given equal access, voice and vote to a mechanism that is: Democratic, Inclusive (this will include empowering groups in forest area), Transparent."

As a reply to the establishment of the FSC, what they deemed was dominated by ecological and social interest groups, national forest owners and timber industry associations set up their own certification schemes. From the perspective of a large part of the forest sector, the FSC lacked legitimacy: Lars Gulbrandsen emphasizes that particularly environmental NGOs were portrayed as "self-appointed judges in a field where they have inadequate understanding, limited experience and no legitimate right to regulate in the first place" (Gulbrandsen, 2004: 92). It is noteworthy that the claim to represent a broad array of different actors is used as a source of legitimacy from one side, while this very argument is used to delegitimize the FSC from the other side. While the FSC aims at – and claims to derive its legitimacy from – representing a broad set of stakeholders from the social, the economic and the environmental realms, PEFC membership de facto is limited to actors from the forestry sector that ultimately set up their own norms.

6. Consequences: the changing forest policy field

The case study has revealed that the ineffectiveness of the Core Forest Process can be explained in terms of interstate-bargaining that is induced by a specific framing of forests: unitary national governments act according to their perceived national interest within a clearly bounded policy field. Forests are first and foremost framed as national resources, and transboundary implications of forest management are 'systematically ignored' (Cf. Dimitrov, 2006). Thus, there is no incentive for governments to coordinate their behaviour in a way which sacrifices a degree of sovereignty over their national resources. The stalemate of the Core Forest Process during the 1990s left a vacuum in global forest politics, which was filled by alternative processes, and ultimately led to a 'globalization' and 'environmentalization' of forest politics. Still, the Core Forest Process remains of minor political relevance on the ground.

While interest-led interstate bargaining seems adequate to explain the ineffectiveness of the Core Forest Process, it ignores the dimensions of problem definition and agenda setting that are considered in the broader conception of global forest politics. As shown in the case study, problem definitions are not externally given but are socially constructed. Since forests are found forming part and

parcel of many internationalized environmental issues, one can witness the emergence of an – albeit still fragmented – globalized forest policy (Fig. 1).

The case study proved the 'classical' assumption of 'rational' governments acting as unitary entities inappropriate. Rather, as Graham Allison (Allison and Zelikow et al., 1999: 143) pointed out, governments must be understood as

"large organizations, among which primary responsibility for particular tasks is divided. Each organization attends to a special set of problems and acts in quasi-independence on these problems. But few important issues fall exclusively within the domain of a single organization."

National administrative departments carry "a variety of only partially compatible conceptions of national goals, organizational goals, and political objectives". The specific structure of the globalized forest policy field helped actors from environmental departments to have a stronger voice within their governments. For example, in Germany, the Federal Ministry of Food, Agriculture and Consumer Protection, which represents Germany at UNFF and that has traditionally been more accessible for traditional forestry actors (Cf. Hofmann, 2002), lost its exclusive position as representative of German forest foreign policy: the Federal Ministry for the Environment is responsible for international biodiversity and climate change negotiations and this exerts greater influence on local forest management than the UNFF. As Lars Gulbrandsen points out, scientific communities tend to maintain their own sectoral affiliations with administrative and non-state actors (Cf. Gulbrandsen, 2002). (Governmental) organizations selectively use knowledge according to their "initial conceptions of problems [...] within the agencies and the professional community with which they interact" (Norgaard, 1992: 104). Scientific findings are not used due to their 'objectivity' and 'truth' but due to their usefulness in pursuing interests and their convergence with ideas and normative beliefs: the crucial benchmark for scientific influence is not the degree of reliable information about a given problem, but the socially constructed appropriateness of specific knowledge forms (Cf. Boehmer-Christiansen, 1989; Litfin, 1994).

According to the emerging conception of forests as advanced through the internationalization of forest politics, 'forest' is (1) globalized, i.e. taken out of its local, site-specific context and understood as being part and parcel of *global* ecosystems; and (2), framed as an *environmental* issue, i.e. the orientation on owners' objectives and local services that is inherent in the traditional conception of forestry science becomes complemented by conceptualizations that highlight global environmental implications of forests. The 'traditional' understanding of forests and forestry is contested and complemented through a global, environmentally shaped view that benefits new forms of knowledge — and generates pressure for legitimating forestry science. The internationalization of forest politics leads to a problematic incongruity of predominant forest conceptions on different political levels (Fig. 2):
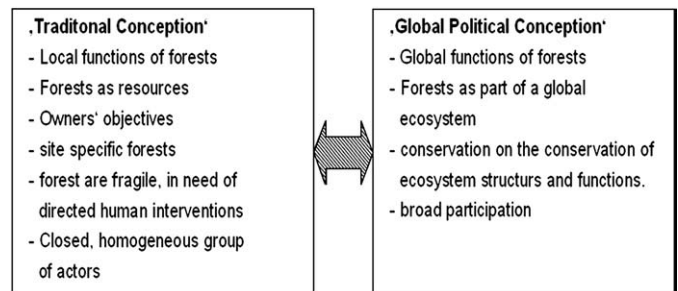
Fig. 2. Diverging forest conceptions.

In particular, the paper points to three different aspects of forest governance that were addressed in the introduction. First, 'forest' becomes an increasingly denationalized political issue. It is placed within the broader context of *global* environmental and developmental concerns. Forests are framed as forming part of *global ecological* systems and no longer predominantly as national resources. Simultaneously, the strict distinction between the domestic and the international political realm becomes inappropriate. Forest politics became an example for what Ernst-Otto Czempiel (1989) calls 'internationalizing politics': external repercussions of states' foreign policies are taken into account and influence domestic objectives and politics; i.e. the international and domestic political agendas increasingly become interlinked.

Second, new governmental as well as non-governmental actors – inter alia environmental administrations, NGOs, or private norm setters – influence forest policy at different stages of the policy process. Scientific knowledge is not only used to determine national utility functions (as in the rational model), but also in framing problems for international negotiations. These new actors deploy findings from different scientific disciplines and thereby challenge forestry sciences' authority as exclusive problem definer and provider of expert knowledge.

Third, forest conceptualizations are not stable — neither in time, nor cross-level. Accepted knowledge and the authority of scientific disciplines are contingent upon policy processes, prevailing actor coalitions and dominant 'forest discourses'. Forestry science does not seem to have acquired the status of an authoritative knowledge provider within most of these processes and vis-à-vis most of the 'new' actors.

7. What role for forestry science?

In this final part, I will rotate the perspective and ask how forest science can respond to these outlined developments. 'Global governance' looks upon international political processes not exclusively in terms of inter-governmental negotiations, but understands international politics as attempts to resolve (global) problems (Ruggie, 2004: 509). It focuses not only on interstate-negotiations (where, as the case study has revealed, forestry science with its maligned – i.e. inherently local – problem definition is structurally underrepresented) but also comprises the implementation of political decisions. The strength of forestry science as an application-oriented research program seems to lie with the implementation of political decisions.

'Global forest governance' offers chances for forestry science. Non-state actors, such as scientific communities, gain greater influence on politics. However, it also contests previously established problem definitions and channels of influence, weakens 'traditionally allied' actors while benefiting other 'competing' scientific communities, and thus potentially questions forestry science's authority as knowledge provider within the policy field (Cf. Morisse-Schilbach and Werland, 2006). Thus, forestry science has to recognize the increasing politicization of 'the forest' and the shift that has occurred within 'its' policy field. An intensified consideration of social sciences can be deemed helpful in order understand the changes in forestry sciences' socio-political environment.

The case study indicates a problem of scale for forest management: the growing international concern for forests seems to benefit global conceptualizations and confronts the traditional conception of forests and forestry with its inherent local orientation. This leads to discontinuities between the levels of norm generation and norm implementation: neither are previously existing domestic actor constellations reproduced on the international level, nor are the demands that derive from international processes well understood on the local level of implementation.

Forestry science occupies a strategic position within the policy field – between politics and implementation. The recognition of SFM as a means of *implementation* in the context of the CBD offers a promising example. Its preferential access to the 'forestry community' offers the possibility to communicate the increasing importance of international processes in a setting that otherwise is not easily accessible for environmental actors (Hofmann, 2002). Forestry science's strategic position in processes of implementation, i.e. for the effectiveness of forest governance, needs to be better communicated towards non-silvicultural governmental and non-governmental actors.

The previously self-contained grouping of traditional silvicultural actors – forest owners, foresters and the local and regional forestry administration – with its close ties to forestry science is losing its monopoly in formulating forestry relevant political norms. In order to maintain its authority within the policy field, forestry science should seek strategic coalitions with non-forestry actors. First approaches in this direction can be found for example in the context of CBD (Pistorius et al., 2008). However, as a survey conducted within the *enforchange*-project indicates, forestry scientists still seem to regard the 'traditional forestry actors' as primary recipients of their expertise and in large part ignore 'environmental actors' (Werland and Morisse-Schilbach, in press).

Vis-à-vis the forestry community, forestry science should actively engage in promoting an image that frames forests and forestry management as not exclusively passive victims of detrimental external influences, but in terms of what Volker von Prittwitz (1990) call 'helper's interests'. One crucial point in this view is to develop feasible concepts for local implementation, for example through the development of evaluation criteria for lost benefits from the reduced utilization of forests for timber production, and the development of adequate compensation schemes — one crucial point within the REDD-discussion.

The *politically derived* framing of forests as providers of renewable energy and sustainable sources of raw material, as well as the role of forests within the Kyoto-Protocol and in the context of REDD can exemplify this development. Remarkably, this framing does not seem to stem from the forestry sector or from forestry science, but from the political realm.

Is forestry science, therefore, restricted to the ex-post implementation of political decisions and excluded from setting the international political agenda on forests? What can forestry science offer the 'new' actors in the policy field? The fragmented structure of international and transnational forest governance provokes contradictory objectives and demands – not only between global and local levels but also between different international conventions, e.g. between certain objectives of the climate regime that may conflict with the aims of CBD (for example the recognition of plantations as carbon sinks). These contradictions are potential sources of inefficiency for global environmental politics. From this perspective, forest science faces the task of reconciling diverging demands on the global level as well as between global and local necessities. Since the other mentioned sciences act on fundamentally different levels of analysis, the inter-science relationship would best be considered complementary rather than opposing each other. In the context of the international climate negotiations it can be found that the regimes' primary focus seems to shift from enhancing the scientific basis ('knowledge about the problem') to the development of adaptation and mitigation strategies, what renders local forestry scientific knowledge 'usable' and appropriate in the climate policy field. Even though forestry science has been largely underrepresented in setting the 'global forest discourse', the latest developments within the internationalized policy field offer points of contact to insert forest scientific expertise into its modified political environment.

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