Planting Trees to Mitigate Climate Change: Contested Discourses of Ecological Modernization, Green Governmentality and Civic Environmentalism

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In 1976 the scientist Freeman J. Dyson proposed a worldwide emergency plant-growing program as a temporary response to the rising levels of carbon dioxide in the atmosphere. In line with a growing number of climate scientists at the time, Dyson envisioned that fast-growing trees could be used as a "carbon bank" holding carbon in reserve until a societal shift from fossil fuels to renewable or nuclear fuels was completed.[1] Some 30 years later this biological carbon bank is about to be turned into policy practice through the UN Framework Convention on Climate Change (UNFCCC). Since COP 7 in Marrakesh in 2001, an international trade in carbon credits generated by forest plantations in developing countries is an integral part of the Kyoto Protocol through the Clean Development Mechanism (CDM). In this paper we employ a discourse-analytic framework in order to critically analyze the policy rhetoric that has emerged around this "international plant-growing program." We specifically focus on the prevailing policy discourses surrounding ongoing pilot projects aiming at sequestering carbon in tropical ecosystems, as well as the political narratives employed in the negotiations on carbon sinks in the CDM. We advance discourse analysis as a useful tool since it enables an analysis of the power relationships and conflicting knowledge claims underlying dominant narratives on how to manage the global threat of anthropogenic climate change.

A central proposition in this article is that forest sequestration projects in developing countries represent a microcosm of competing and overlapping discourses that are mirrored in debates of global environmental governance: local

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1. Dyson 1976.

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is pitted against global, North vs. South, public vs. private, modern science vs. indigenous knowledge, sovereign rights vs. post-sovereign governance, decentralization vs. centralization. Hence, we connect what we conceive of as three central meta-discourses of global environmental governance—ecological modernization, green governmentality and civic environmentalism—with the micro-discourses permeating the forest sink arena. A key argument emanating from the analysis is that we need a more critical debate on the merits, problems and complex value trade-offs associated with international sink projects, moving beyond simplistic and dichotomous *a priori* framings of forest plantation projects as either positive-sum or zero-sum. Instead a reflexive debate on the power, interests and values defining the dominant discursive framing of the sink arena is needed in the design of sustainable CDM projects in the coming decade.

The *first* section presents the key tenets of our discursive framework by conceptualizing the power-knowledge relationships at play in the articulation of global environmental discourses. The key characteristics of each of the three overarching discourses in global environmental governance are outlined. In the *second* section we trace how these overlapping and competing discourses are mirrored in the debate on pilot forestry projects within the Activities Implemented Jointly (AIJ) and the CDM framework. Treaty texts, NGO and business policy papers as well as scientific reports of ongoing pilot projects serve as entry points to the discursive landscape. In the *third* section we critically examine to what extent these discourses have been institutionalized in policies, as well as the dynamics of interaction, overlap and conflict between these evolving discourses. In the concluding section the broader implications for global environment politics are examined by connecting the meta-discourses of environmental governance with the micro-discourses of forest sink projects.

Discourses of Environmental Governance

Discourse analysis has gained ground and proliferated in the analysis of global environmental change in sociology, political ecology and policy studies.[2] A central insight of this disparate work is to identify power relationships associated with dominant narratives surrounding "environment" and "sustainable development." Four dimensions of discourse analysis that are prominent in the literature and relevant for our study are highlighted. First, discourses are conceived of as a shared meaning of phenomena. Global environmental change in general and the role of terrestrial carbon sinks in particular are permeated by a struggle over meaning and symbolic representation. In line with Hajer we understand discourses as "specific ensembles of ideas, concepts and categorization that are produced, reproduced and transformed in a particular set of practices."[3]

Secondly, the exercise of power is closely tied to the production of knowl-

2. Hajer 1995; and Litfin 1994.
3. Hajer 1995, 45.

edge, which in turn can sustain a discourse. Hence, discourses are embedded in power relations, "as historically variable ways of specifying knowledge and truth—what is possible to speak at a given moment."[4] Discourses as "knowledge regimes" bring us squarely to the role of science. In expert-driven global environmental change research especially, modern scientific knowledge, techniques, practices and institutions enable the production and maintenance of discourses. Thirdly, in line with argumentative discourse analysis, we subscribe to a conception of discourse that bridges the gap between the linguistic aspects and institutional dimensions of policy-making. In this vein discourse analysis can be brought to the forefront of the analysis of power and policy. Policies are not neutral tools but rather a product of discursive struggles. Accordingly, policy discourses favor certain descriptions of reality, empower certain actors while marginalizing others. The concept of discourse institutionalization is useful as it refers to the transformation of discourse into institutional phenomena.[5] Fourthly, we align ourselves with a discourse analysis that includes a notion of agency. Recent studies have advanced concepts such as "discourse coalition" and "knowledge broker" to highlight how agents are embedded in discourses.[6] In this perspective, discourses are inconceivable without discoursing subjects or agents that interpret, articulate and reproduce storylines congruent with certain discourses. We use the concept of discursive agent and argue that political power stems from the ability to articulate and set the term for the discourse.

To conclude, we employ a discourse-analytic framework that sheds light on how discourses are deeply embedded in scientific practices and techniques, institutionalized in global policy arenas and articulated by agents spanning the public-private and local-global divide. In the sections below we present each of the three discourses that arguably underpin policy practice and academic debates of environmental governance. They provide rough maps for understanding the discursive framing of contemporary global environmental politics. However, as will be demonstrated, each discourse is heterogeneous and thus in a constant change and redefinition. Consequently, there are overlaps and conflicts between the discourses when making sense of environmental governance.

Ecological Modernization

From the 1980s and with the Brundtland report "Our Common Future," a discourse of ecological modernization gained ground in Western industrial societies, which challenged the notion that modern civilization is facing "limits to growth" as suggested by the Club of Rome in 1972.[7] The distinct feature of ecological modernization is the compatibility of economic growth and environmental protection, a liberal market order and sustainable development. The

4. Ramazanoglu 1993, 19.
5. Hajer 1995, 61.
6. Hajer 1995; and Litfin 1994.
7. Meadows et al. 1972.

radical green demand for fundamentally restructuring or displacing the state and the market in response to the environmental crisis is in this discourse rejected in favor of a gradual transformation of the state and market to promote green regulation, technology, investment and trade. In this perspective, ecological degradation is decoupled from economic growth; capitalism and industrialization can be made more environmentally friendly.[8] This win-win storyline underpins the experience of advanced industrialized countries and builds upon innovative technologies for integrated pollution control, market-driven strategies to internalize environmental costs and a changing role of government towards more flexible, decentralized, cost-effective and collaborative policy-making. This technocratic greening of industrial production has been silent on the experiences of developing countries in equity and poverty issues. The predominant focus is on flexible and cost-effective environmental problem-solving rather than social justice.

However, this diverse discourse represents a continuum of strategies between weak and strong ecological modernization.[9] The weak version is a technocratic and neo-liberal economic discourse that does not involve any fundamental rethinking of societal institutions. In contrast, the strong and "reflexive" version of ecological modernization adopts a critical approach to the limits of dominant policy paradigms and modern institutions in addressing environmental threats. For the purpose of this paper, we equate the discourse of ecological modernization with the weak version, since it arguably represents the predominant discourse in global rhetoric and practice. In contrast, the emerging reflexive version originates from an academic debate on risk society and the limits of state-centric and top-down environmental regulation. Strong ecological modernization entails greater institutional reflexivity, democratization of environmental policy and a focus on the justice dimensions of environmental problems. It moves beyond a Euro-centric perspective on clean production towards an international perspective on sustainable development and justice.[10] Strong ecological modernization envisions a broader participation by societal actors in sustainable development, encapsulating the notion of "ecological democracy."[11] In this sense, strong eco-modernism overlaps with the global dialogue on sustainable development where the environment-development nexus has been brought to the fore. It is also closely related to the discourse of civic environmentalism that will be discussed in subsequent sections.

Green Governmentality

Alongside the market-oriented approach to environmental problem-solving proposed by ecological modernization, a discourse of green governmentality predominates in industrialized societies. This discourse epitomizes a global

8. Hajer 1995.
9. Christoff 1996.
10. Carter 2001, 214; and Eckersley 2004, 75.
11. Barry 1999, 113; and Dryzek 2000.

form of power tied to the modern administrative state, mega-science and big business. It entails the administration of life itself—individuals, populations and the natural environment.[12] According to the original account proposed by Michel Foucault in the late 1970s, governmentality is associated with a multiplicity of rationalities, authorities and agencies that seek to shape the conduct of human behavior. By affecting the choices, aspirations and lifestyles of individuals and groups, these disciplining practices involve the power over and through the individual.[13] Knowledge and various forms of expertise are intrinsically linked to this bio-political fostering or management of life. In the late 18th century Europe, when governmentality was associated with the administration of human health, biology, criminology and medicine represented authoritative areas of expertise.[14] In more recent years global environmental threats have given rise to a new set of "eco-knowledges" that extend government control to the entire planet.[15]

The current green twist to governmentality is manifested through a notion of stewardship of nature and an all-encompassing management of its resources.[16] In the name of sustainable development and environmental risk management a new set of administrative truths have emerged that expand biopolitics to all conditions under which humans live. These new eco-knowledges and practices organize and legitimize common understandings of the environmental reality and enforce "the right disposition of things" between humans and nature.[17] The numerous scientific expert advisors that have emerged on the environmental arena during the past decades play an authoritative role in the construction of these eco-knowledges. Resting upon a notion of sound science, these well-trained environmental professionals provide credible definitions of environmental risks as well as legitimate methods to measure, predict and manage the same risks.[18] Since the growth of "big" science in the mid 20th century, a world-wide techno-scientific infrastructure has developed that today enables environmental experts to monitor and, in many cases, even manage the Earth's biogeochemical cycles, hydrological flows and human patterns of pollution and environmental degradation. In the field of climate change, this physical manifestation of the green governmentality discourse is particularly pronounced. Satellite supervision of the Earth's vegetation cover, advanced computer modeling of atmospheric and oceanographic processes, a global grid of meteorological stations and carbon flux towers exemplify the resource-intensive infrastructure used by expert groups to study, monitor and predict the trajectories of human-induced climate change.

12. Moss 1998, 3.
13. Gottweis 2003, 255; and Dean 2004, 19.
14. Rutherford 1999, 42; and Dean 2004, 22.
15. Luke 1999a, 104.
16. Rutherford 1999, 58.
17. Luke 1999b, 134, 146.
18. Rutherford 1999, 60.

In its technocratic expression green governmentality can be understood an elitist and totalizing discourse that effectively marginalizes alternative understandings of the natural world.[19] Through a detached and powerful view from above—a "global gaze"—nature is approached as a terrestrial infrastructure subject to state protection, management and domination.[20] In the attempt to rationalize human and natural conditions of life, this instrumental control over the natural world forms the basis of a large-scale "terraforming" project that is in the process of reshaping the Earth into a planetary order of complex sociotechnical systems.[21] However, a more reflexive vision of green governmentality aims to replace grandiose ideas of planetary management and the hubris implicit in the power/knowledge nexus with an attitude of humility and self-reflection.[22] Detached neutral experts are in this vein re-embedded in their social context and made conscious of the cultural assumptions they bring to their knowledge. Global policy elites also acknowledge local complexities and invite local actors in the creation of just and credible institutions.[23] This idea of a reflexive green governmentality captures some of the democratic participation ideals expressed in the civic environmentalism discourse below.

Civic Environmentalism

The civic environmentalism discourse is associated with the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, where the language of participation and "stake-holding" entered the global environmental agenda. The premise of the "democratic efficiency" storyline is that in order build more effective environmental multilateralism groups who are affected by environmental problems, or have a legitimate interest or stake, should have a voice in finding solutions. This "bottom-up" approach to environmental problem solving has been a catch phrase since Rio in both policy practice and academic debates.[24] Attention has been given to the "participation gap" in global environmental politics where the inclusion of so-called marginalized groups (women, youth, indigenous people, etc.) is seen as critical in realizing sustainable development. While the sovereignty norm and the legal notion of states as exclusive decision-making authorities in international negotiations remains, the active participation of major groups and nonstate actors, such as business and NGOs, has created more polycentric, complex, "glocal" and multifaceted governance arrangements. The civil society forum at the Rio Conference emerged as a template for subsequent summits on environment, development and poverty. The partnership initiative (entailing

19. Fogel 2003.
20. Litfin 1997.
21. Luke 1999a, 117.
22. Litfin 1997; and Jasanoff 2003.
23. Fogel 2003, 120–122.
24. Elliot 2002, 60.

public-private voluntary agreements) and "multi-stakeholdership" launched at the World Summit on Sustainable Development in Johannesburg in 2002 have increasingly served as a model for collaborative problem solving in issues such as sustainable development, energy, water and climate.

However, the civic environmentalism discourse is neither homogenous nor uncontested. A fault-line exists between a reform-oriented and a radical resistance version, which are differentiated by sharply diverging views on the role of the sovereign state and the capitalist economy. The reformist civic environmentalism discourse, which can be conceived of as "participatory multilateralism"[25] stresses how the vital force of a transnational civil society complements state-centric practices. The public accountability and legitimacy of multilateral institutions can be enhanced by increased access and openness for stakeholders outside the community of legitimate decision-makers (i.e. states). Increased civil society participation brings specialized expertise to international negotiations and links global agendas with local concerns.[26] This reformist discourse promotes a pluralistic global environmental order and affirms the rise of public-private partnerships between NGOs, business and governments as they hold the promise of result-based environmental problem-solving. While there is disbelief that the market alone can generate an equitable distribution of resources or halt environmental degradation, cross-sectoral cooperation between market, state and civil society actors is encouraged. Civil society participation is predicted to raise the green profile of the global economic order. Moreover, the plethora of partnerships between business and NGOs will speed up the greening of the business agenda.

In contrast, a more radical edge of the civic environmentalism discourse is deeply skeptical of the promise of stakeholder governance. Drawing on a neo-Gramscian perspective, this discourse highlights how relations of power and powerlessness are at the core of international institutions and negotiation processes. It is informed by a radical ecology agenda that advocates a fundamental transformation of consumption patterns and existing institutions to realize a more eco-centric and just world order. This radical version of civic environmentalism contests the structures of global environmental governance that revolves around the liberalization of markets and free trade. Multilateral financial institutions and UN agencies have a neo-liberal bias by promoting market-oriented policies, privatization and deregulation at the expense of environmental protection. Enduring power structures, such as sovereignty, capitalism and patriarchy generate and perpetuate the environmental crisis.[27] Hence, the radical resistance discourse challenges the reformist discourse of civil society participation as the route to stronger environmental protection.[28] Instead global social movements should challenge and resist inequitable power structures, which define the

25. Elliot 2004.
26. Wapner 1996.
27. Paterson 2000.
28. Kütting 2000; and Lipschutz 2003.

global institutional framework. Partnership agreements and stakeholder participation represent the retreat of the state, the rise of transnational corporate power, and mask relationships of power and domination underpinning global environmental politics.

When comparing the three meta-discourses described above green governmentality overlaps with weak ecological modernization in its managerial approach to environmental problem-solving. Together these two discourses represent expert-driven and technocratic measures to counter environmental threats. The civic environmentalist discourse is skeptical of the optimistic win-win rhetoric of ecological modernization and stresses the fundamental trade-offs between economic, ecological and social sustainability. It also resists the top-down approaches to nature and local communities underpinning the green governmentality discourse. However, as will be further illustrated in this article, we see clear parallels and bridges between the pragmatic and reform-oriented ideals in the civic environmentalist discourse and the reflexive ambitions of strong ecological modernization and green governmentality.

Tree-Plantation Projects in Developing Countries—A Discursive Minefield

To mitigate climate change through forest conservation and plantation efforts in developing countries represents one of the most disputed ideas in climate governance. During the past decade this idea has engaged scientific experts, policy elites, negotiators and NGOs have been engaged in a scientifically complex and politically heated debate involving a multitude of conflicting knowledge claims. In the following sections we will examine how each of the three meta-discourses of environmental governance outlined above is mirrored in this contested terrain. However, before embarking on the key discursive narratives, a brief account of the evolution and consolidation of tree planting projects in the climate treaty is given below.

From Forest Pilot Projects to Sinks in the CDM

The notion that forest conservation and plantation efforts in the South can help to limit atmospheric greenhouse gas concentrations was broadly discussed when the multilateral climate negotiations were initiated outside Washington D.C. in February 1991. Scientific studies from that time had estimated that the high rates of deforestation in tropical areas had contributed to 20–40 percent of the world-wide emissions of carbon dioxide each year during the 1980s. Consequently, forest conservation and reforestation measures in the tropics were portrayed as central to an effective management of climate change.[29] Although the forest issue was negotiated separately from climate change in the UNCED pre-

29. Woodwell et al. 1983; and Houghton 1990.

paratory process, several provisions in the UNFCCC encourage countries to monitor, conserve and enhance sinks and reservoirs of carbon in forest ecosystems.[30] Building on a notion of "net emissions" (sources minus sinks), the treaty text indirectly promotes forest conservation and reforestation measures as means to meet the ultimate objective of the convention; i.e. to "prevent dangerous human interference with the climate system."[31]

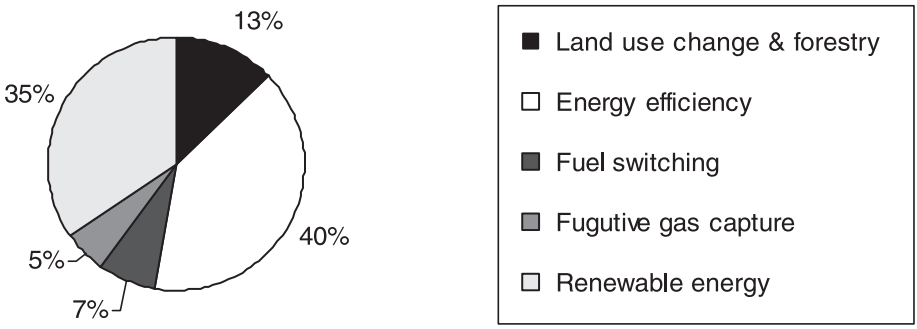
In the negotiations leading up to the signing of the UNFCCC in Rio de Janeiro in 1992, developing countries managed to gain acceptance of the principle that industrialized countries should take the lead in efforts to combat climate change through domestic reductions in greenhouse gas emissions. However, Article 4.2(a) also allows industrialized countries to contribute to the objective of the convention by *implementing* policies and measures *jointly* with other parties. Resting upon the economic principle that carbon should be mitigated where it is least expensive, joint implementation opens up for an international trade in carbon credits between developed and developing countries. When the concept was further elaborated at the first conference of the parties (COP 1) in Berlin in 1995, a five-year pilot phase for Activities Implemented Jointly (AIJ) was introduced. According to the official decision from COP 1 this voluntary program should cover all relevant sources, sinks and reservoirs of greenhouse gases and contribute to a cost-effective mitigation of climate change.[32] Tropical forest conservation and plantation efforts were thereby adopted as eligible AIJ projects. However, projects developed under this pilot phase were only accepted as supplemental to domestic reductions of GHG emissions. Hence, AIJ projects do not generate any credits that can be used to meet the quantitative commitments included in the Kyoto Protocol.

In 2002 157 AIJ projects had been officially registered by the UNFCCC secretariat.[33] The major share of the AIJ foreign investments had at that time been channeled to energy and technology projects (Fig. 1), and only 13 percent were classified as land use change and forestry projects. However, in contrast to the energy efficiency and renewable energy projects, the forestry projects are generally larger in scale and altogether represent 35 percent of the anticipated carbon benefits generated from the AIJ pilot phase. Of the 20 afforestation and forest regeneration projects, 15 were located in Latin American countries and primarily financed by US investors. Only two Asian countries (and no African country) had in 2002 received AIJ forestry investments.

While the AIJ pilot phase has been extended by the parties to the UNFCCC, the market-based logic of joint implementation is today also incorporated into the three flexibility mechanisms of the Kyoto Protocol; international emissions trading (ET), joint implementation (JI) and the clean development mechanism. The CDM is the mechanism that most closely resembles the

30. UN 1992, Article 3.3, 4.1a,d.
31. UN 1992, Article 2.
32. UNFCCC 1995.
33. UNFCCC 2004.

Figure 1
Registered AIJ projects



original idea of joint implementation by opening up for a trade in carbon credits between developed and developing countries. According to Article 12 of the Kyoto Protocol the purpose of the CDM is to help developing country parties to achieve sustainable development while assisting industrialized countries in meeting their quantitative emission reduction commitments. When this article was negotiated at COP 3 in Kyoto in 1997 it was not decided whether land use change and forestry projects would qualify as eligible CDM projects. While many industrialized countries welcomed intensified carbon sequestration schemes in the South, most developing countries strongly opposed the idea that carbon storage on their territory would allow industrialized countries to continue emitting greenhouse gases domestically.[34] The dispute continued after the signing of the Kyoto Protocol, and culminated during the failed COP 6 in The Hague in November 2000 when the parties left the meeting without an agreement. At the resumed COP 6 in Bonn half a year later, "sinks in the CDM" became part of a larger compromise aimed at "saving the protocol" after the US withdrawal from the Kyoto negotiations. Hence, the Marrakesh Accords from autumn 2001 includes afforestation and reforestation activities as eligible sink projects in the CDM. However, the credits gained from these activities are limited to one percent of the investor country's emissions in 1990 for each year of the Kyoto commitment period (2008–2012).[35] At COP 9 in Milan in 2003 most of the technical rules and modalities for how to implement afforestation and reforestation project in the CDM were adopted, and with a final adjustment on small-scale sink projects at COP 10 in Buenos Aires in December 2004, the international sink market is now in place.

34. Grubb et al. 1999, 76–80.
35. UNFCCC 2002.

The Legitimizing Discourse: Cost-efficiency, Market-flexibility and Maximized Synergies

The international carbon market developed through the UNFCCC and the Kyoto Protocol reflects the prominence of the ecological modernization discourse in climate governance. In contrast to the call for a treaty with strict targets and timetables for a stabilization of greenhouse gases, this discourse emphasizes the importance of decentralized and market-driven initiatives that involve a broad range of private and public actors in the quest for low-cost climate mitigation alternatives. Forest projects developed in partnership between Northern corporate investors and local communities in the South epitomize this flexible mitigation logic.

Flexibility and cost-effectiveness are two intertwined storylines articulated in the climate negotiations as a response to the call for significant cuts in GHG emissions in industrialized countries. In the pre-UNCED negotiations these two ideas functioned as the underlying rationale for joint implementation and its proposed trade in carbon credits between developed and developing countries. A central narrative for the proponents of this worldwide carbon trade is that climate mitigation investments in developing countries will result in greater relative greenhouse gas benefits than the same investment in the North. To give industrialized countries the flexibility to purchase emission reductions from countries where these reductions can be carried out at a lower economic cost, is deemed as the most cost-effective way to mitigate the climate problem.[36] As the pressure for quantitative commitments increased after the signing of the framework convention in Rio, the flexibility and cost-effectiveness of market-based initiatives turned into a central discursive framework for the United States and its allies in the JUSCANZ group (Japan, Canada, Australia, New Zealand). At COP 2 in Geneva Senator Tim Wirth, Secretary for Global Affairs at the US State Department, expressed on behalf of the US delegation that:

> The US will seek *market-based solutions* that are *flexible and cost-effective.* (. . .) The US recommends that future negotiations focus on an agreement that sets a realistic, verifiable and binding medium-term emission target (. . .) met through *maximum flexibility* in the selection of implementation measures, including the use of reliable activities implemented jointly, and *trading mechanisms* around the world.[37]

The flexibility and low-cost narrative gained ground during COP 3 in Kyoto, where its dominance was manifested by the three flexibility mechanisms incorporated into the Kyoto Protocol. While initially contested, the global carbon market is now a widely accepted part of "the Kyoto concept" and is today seldom challenged by the negotiating parties. The investments in climate miti-

36. Repetto 2001.
37. Quoted in Grubb et al. 1999, 54. Our highlights.

gation projects in developing countries enabled by the CDM have also been widely embraced by the international business community. CDM projects are commonly portrayed as a market opportunity that can boost competitiveness.[38] The idea to account for carbon sequestered in terrestrial ecosystems is closely connected to this market-flexibility and low-cost storyline. In the pre-UNCED negotiations the concept of "net emissions" was introduced as part of a "comprehensive approach" that would take into account all sources and sinks of greenhouse gases in a future mitigation scheme.[39] While many European and developing countries feared that the inclusion of sinks in the climate convention would detract attention from emission reductions, the US and other members of the JUSCANZ group framed the "net emissions approach" as pivotal to a cost-effective and flexible treaty. When the Ad Hoc Group on the Berlin Mandate (AGBM) invited countries to submit their views on carbon sinks prior to COP3 in Kyoto, Australia concluded that a comprehensive approach is necessary because: "it maximizes the national response flexibility, as anything less than a fully comprehensive approach would unfairly limit flexibility and unfairly constrain the opportunities for cost effective action for some parties."[40]

While the notion of flexible and low-cost climate mitigation has functioned as a central legitimizing argument both for the CDM and the "net emissions approach," the multiple benefits gained from a combination of the two belong to an equally powerful storyline. The decision to adopt the CDM as part of the Kyoto mechanisms is often explained as a last-minute compromise between the developing countries' call for financial and technological transfers from the North, and industrialized countries' aim to lessen domestic pressures.[41] According to the dominant policy rhetoric this "Kyoto surprise" turned into a constructive win-win solution that claims to benefit all actors. In the debate on whether to accept forest conservation and plantation efforts as eligible CDM projects, this win-win rhetoric has been widely employed. The dominant narrative suggests that tropical forest projects provide the opportunity to combine cost-minimal climate mitigation with sustainable forest management, biodiversity protection, poverty reduction and local socio-economic development in the South. By focusing of the many environmental and socio-economic "co-benefits,"[42] "associated impacts,"[43] "ancillary benefits,"[44] "collateral impacts,"[45] and "synergies" between treaties,[46] tropical forest projects have been embedded in a seductive narrative of "maximized synergies."

38. WBCSD 2001.
39. Kjellén 1994, 168; and Soroos 1997, 198.
40. UNFCCC 1997, 3–4.
41. Grubb et al. 1999, 226; and Repetto 2001.
42. Klooster and Masera 2000.
43. Brown et al. 2000, 326.
44. Schlamadinger and Marland 2000, 15.
45. Makundi 1997, 148.
46. Kim 2004.

The Operational Discourse: Scientific Precision and Planetary Carbon Control

While the legitimacy of forestry projects initiated in the AIJ pilot phase and the CDM draws on the win-win rhetoric and the cost-effectiveness logic of ecological modernization, they are also deeply embedded in an operational discourse of green governmentality. Through this discourse a techno-scientific notion of planetary carbon control has gained ground in the climate negotiations. By depicting forests as reservoirs and sinks of carbon the green governmentality discourse has paved the way for expert-oriented narratives focusing on scientifically credible measurement techniques and verification schemes. The idea of precise measurements of changes in carbon stocks has also legitimized the development of a strongly centralized administrative apparatus aimed at standardizing the certification of carbon removals that are claimed by Northern investors and project implementers in developing countries.

At COP 3 in Kyoto it was determined that CDM projects only will generate certified emission credits (CERs) after a third party verifier or a "designated operational entity" (DOE) has ensured that the climate benefits are *real, measurable, long-term and additional* compared to a scenario without the certified project activity.[47] The exact modalities and procedures for this verification process were not agreed upon in Kyoto but forwarded to the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) and to the IPCC for further scientific elaboration. In response to the political call for expert advice the IPCC presented a Special Report on Land-Use Change and Forestry (LULUCF) in the summer of 2000, which largely reflects the technocratic management narrative of green governmentality. The chapter on project based activities highlights the importance of standardized methods and practices for measuring and monitoring sink projects, and introduces a range of data collection techniques necessary for a scientifically credible project management and verification.[48] The chapter is permeated by an expert-driven terminology of effective inventory methods, precise measurements, control sites, error minimization, equivalence factors and baseline uncertainty estimates. In line with the control logic of green governmentality, the IPCC here suggests that changes in carbon stocks and flows are to be monitored and verified on the ground through field inventories and statistical sampling. They should also be investigated from the air through remote sensing technologies, aerial photographs and pulse laser profiling.

The IPCC LULUCF report gained much political recognition prior to the failed COP 6 negotiations in The Hague in November 2000. As a corollary, its technocratic management approach to land-use change activities is widely reflected in the treaty text on sinks from COP 7 in Marrakesh and from COP 9 in

47. UN 1997, Article 12.5.
48. Brown et al. 2000, 289–333.

Milan. In the Marrakesh Accords the importance of basing carbon measurements, monitoring and reporting on sound science and consistent methodologies is repeatedly emphasized. The more exact rules for how to implement this scientific precision are dressed in a highly expert-driven language in the Milan agreement.[49] In accordance with the technocratic logic of green governmentality the Milan treaty text represents forests as carbon pools subject to human management, valued according to their sequestration potential and quantified as tCERs and lCERs (temporary or long-term certified emission reductions). A range of rules are set up to ensure that project "leakage" is limited (i.e. the risk that emissions increase outside the project boundary) and to establish trustworthy measurements of project "additionality" and "permanence." The sense of planetary surveillance adopted by the IPCC in its special report is further reflected in the project verification criteria developed by Société Général de Surveillance (SGS). This is one of the first auditing companies to be accredited as a "designated operational entity" by the climate convention. The verification service provided by SGS Forestry for AIJ and CDM projects encapsulates the ecopolicing terminology of green governmentality. Field inspections and surveillance visits are highlighted as important means to ensure that project implementers are using consistent methodologies and accurate data collection methods.[50]

Closely connected to this techno-scientific expression of green governmentality, an administrative discourse has developed around the CDM project cycle. At COP 9 in Milan a standardized seven-step process was specified for the certification of CDM carbon offsets. This complex process reflects the managerial approach to the international carbon market that has evolved during the course of the negotiations. The project cycle involves the writing of a highly detailed and regulated project document, a standardized procedure for project screening by the host government, repeated monitoring and surveillance visits by independent third party verifiers, such as SGS Forestry, before the final certification by the CDM Executive Board. This standardization logic does not only depict the CDM project implementation as a highly complex administrative endeavor. It also tends to represent local project developers as peripheral, subject to strict government and expert control. As suggested by Fogel,[51] the notion that "standardized" carbon units can be produced through standardized sequestration projects in standardized developing countries is an expression of an instrumental "global gaze." From this detached perspective nature is transformed into a tradable commodity and local people in the South are reduced to homogenous project participants.

49. UNFCCC 2003.
50. Mauro-Costa et al. 1997.
51. Fogel 2003, 111.

The Critical Discourse: Carbon Colonialism, Green Deserts and the Necessity for Local Participation

In opposition to the dominant ecological modernization and green governmentality discourses outlined above, a critical discourse of civic environmentalism is also manifested in the global debate on forests sinks. This discourse contests the win-win rhetoric of "maximized synergies" and instead highlights the ecological and social risks inherent in tree plantation projects developed under the AIJ and CDM framework. Criticism is also expressed toward the elitist and instrumental project verification and implementation scheme licensed by the Kyoto Protocol. The civic environmentalism discourse has a heterogeneous character, and, consequently, includes a multitude of radical and more reform-oriented arguments. An overarching theme is that the inclusion of local stakeholder participation and indigenous knowledge is a necessary precondition for sustainable forestry management, whether part of or outside the CDM framework.

The radical resistance discourse of civic environmentalism revolves around North-South inequalities, ecological and developmental narratives. According to the central North-South storyline, land use and forest projects in developing countries represent a "loophole," i.e. an instrument for rich countries to evade their historical responsibility for the elevated concentrations of greenhouse gases in the atmosphere. In the Kyoto-negotiations this argument was primarily voiced by the G77 countries in opposition to the "comprehensive approach" advocated by the JUSCANZ group.[52] For developing countries the idea of accounting for carbon sequestered in terrestrial ecosystems appeared as another way of weakening the focus on the core problem, namely to reduce greenhouse gas emissions in industrialized countries. In a similar vein the radical NGO discourse portrays forestry projects as "green cosmetics" covering up an ecologically and socially irresponsible extraction and burning of fossil fuels in Western societies. A central critique is that tree plantations represent a short-term solution that does not come to terms with the fundamental changes in modern consumption and production patterns needed to reduce CO_2 emissions in European and North-American countries.[53] Accordingly, planting trees in developing countries will increase the "carbon debt" the North owes the South.[54]

While this fundamental equity problem also was acknowledged by the EU at COP 3 in Kyoto, European negotiators have primarily drawn upon the ecological critique of tropical tree plantations. According to this narrative, the difficulties to quantify and ensure a long-term monitoring of the carbon sequestered in forest ecosystems will risk the "environmental integrity" of the Kyoto Protocol.[55] If the carbon uptake in terrestrial ecosystems is inadequately measured or accidentally re-emitted to the atmosphere as a result of fire, pest at-

52. Grubb et al. 1999.
53. FoE 2000, 3.
54. WRM 2000.
55. Grubb et al. 1999, 79.

tacks, illegal logging or climate change itself, sink projects may result in "fake credits." In the radical narrative land use and forestry projects in the CDM hence represent a ticking "carbon time bomb."[56] This ecological storyline also stresses the disastrous consequences sink projects may have on tropical biodiversity and ecosystem protection. In contrast to the many "environmental co-benefits" highlighted in the ecological modernization discourse, tree plantations initiated through the AIJ and CDM framework are likely to result in monocultures of non-native eucalyptus and pine. These may, in turn, reduce biodiversity, disturb hydrological cycles and intensify the use of chemicals and pesticides to enhance yields.[57] The large-scale Plantar Project in south-eastern Brazil is often used as an example of a sink project with low environmental performance. In its ambition to turn the local pig-iron production carbon neutral, this World Bank financed AIJ-project has planted 23 100 hectares of eucalyptus on former *cerrado* lands. While the plantation could offer considerable climatic gains if the expected carbon offsets of 13 million tons of CO_2 are realized over the coming decades,[58] Plantar has been criticized by local farmers and NGOs for threatening the native flora and fauna and for contaminating the riverbed water with fertilizers and pesticides.[59] In the radical discourse eucalyptus plantations of this sort, or "green deserts,"[60] may also lead to a displacement of local communities, and will most likely pave the way for forest clearance elsewhere (so-called "leakage" in the governmentality discourse) as communities have no option for alternative livelihood.[61] The ongoing (since 1995) US financed AIJ project Rio Bravo Conservation and Management Area in Belize exemplifies this displacement of local people. While the Rio Bravo project has aimed at a balance between carbon conservation measures and socio-economic development of neighboring communities, studies suggest that local forest dwellers have been denied access to their former lands and given no alternative living to their traditional logging and hunting practices.[62] Hence, according to the radical narrative, forest projects in the CDM will reinforce existing inequalities with respect to land tenure, resource access and ownership[63] and culminate in a new form of "carbon colonialism."[64]

Whereas the radical civic environmentalist critique of sink projects had long been widely articulated in the climate negotiations, a turning point came at the resumed COP 6 in Bonn in July 2001 after the US withdrawal from the Kyoto Protocol. As part of the Bonn compromise the previously strong opposition against sinks in the CDM was replaced by pragmatism reflected in the EU

56. Greenpeace 2000, 2001, and 2003.
57. FERN 2001, 12–13; and Tiempo Climate Newswatch 2004.
58. May et al. 2002, 23.
59. WRM 2002.
60. Carrere and Lohman 1996, 63ff.
61. WRM 2000.
62. Brown et al. 2004, 45–47.
63. FERN and Sinkswatch 2004.
64. FoE 2001.

leadership. As a corollary, the negotiating parties adopted the operative language of green governmentality. Even though the trenchant critique of the evolving CDM projects remains within the NGO community, a reform-oriented version of civic environmentalism has emerged that accepts the reality of the global carbon market and instead focuses on the design of participatory CDM projects that can meet social development goals in the South. The reformist discourse diverges from its radical cousin by conditionally embracing the potential benefits of CDM projects. Leaning on positive examples of small-scale agroforestry or soil-carbon projects in Latin America[65] and Africa,[66] sinks under the CDM can, according to this line of argument, serve as a bridge between developed and industrialized countries, generate local development, enhance public-private stakeholder participation and promote sustainable land use practices. However, in contrast to the naïve win-win rhetoric in the ecological modernization discourse, this discourse suggests that multiple benefits only can be realized under certain conditions. The evaluation of ongoing AIJ forest projects in South America indicates that commercial gains from large-scale sink projects often occur at the expense of participatory and developmental goals.[67] Local people are not seen as true partners in the execution of projects but are confined to comment on projects.[68] The Noel Kempff Climate Action Project in Bolivia epitomizes these concerns. When established in 1995, this forest conservation project aimed at preventing carbon emissions from deforestation and local logging activities. However, designed and implemented in a top-down and centralized fashion by the US investors, the Noel Kempff AIJ project failed to include local concerns, which has prompted local resistance and mistrust.[69] Based on these "on the ground" experiences, the reform-oriented narrative calls for close analysis of potential trade-offs between climatic, environmental and development objectives in ongoing and future sink projects. Instead of uncritically adopting the policy rhetoric of "maximized synergies" it suggests that carbon offset projects should be subject to a public deliberation and scrutiny by all relevant stakeholders.[70] Since CDM projects most likely have profound impacts on rural livelihood, it is crucial to include local people and users in the project design and implementation. Hence, the reform-oriented civic environmentalism discourse welcomes a model of participatory stakeholder governance as a way to remedy unsustainable land use change and forestry projects.

Discourse Institutionalization, Overlap and Conflict

As illustrated by the overview of discourses presented above, the framing of tree plantation projects in developing countries constitutes a contested terrain in the

65. Klooster and Masera 2000.
66. Tschakert 2004.
67. Brown et al. 2004, 50; and Cullet and Kameri-Mboto 1998, 393.
68. May et al. 2004, v.
69. May et al. 2004, 78–79.
70. WRI 2000, 4.

climate negotiation process. In this section we seek to clarify and compare the extent to which the competing discourses of ecological modernization, green governmentality and civic environmentalism have been integrated into multilateral institutions, transformed to policy instruments and consolidated into practice. As indicated in Table 1, it is possible to identify important differences and lines of conflict between the three discursive framings. However, beyond discursive conflicts the analysis also indicates many connections and overlaps between central narratives and discursive agents.

Arguably, the discourses of ecological modernization and green governmentality dominate thinking and policy practice in the negotiations on land use change and forestry projects in the CDM. The green governmentality discourse has emerged as a discursive frame for the negotiations by portraying forests as sinks and reservoirs of carbon subject to management and control. Since COP 3 in Kyoto in 1997 the technical parlance found in concepts such as "LULUCF," "carbon monitoring," "leakage" and "additionality" has gradually been adopted as mainstream policy rhetoric by policy-makers, diplomats, scientists, intergovernmental organizations and even critical NGOs. The widespread employment of these highly technical concepts is today consolidated and institutionalized through the many rules and modalities on land use change and forestry activities included in the Marrakesh and the Milan agreements. These treaty texts also demonstrate the operational function of green governmentality. Since the publication of the IPCC special LULUCF report in 2000, the green governmentality discourse has provided the scientific and administrative rationale for measuring, monitoring and certifying carbon removals. In this respect the expert-driven narratives of this discourse have become a prerequisite for a functioning "CDM regime."

In contrast, ecological modernization operates as a legitimizing discourse—a blueprint for action. The salient win-win framing of sink projects in the CDM encapsulates the very idea of the slippery term "sustainable development." Through a "maximization of synergies" between cost-efficient climate mitigation, biodiversity protection and local development the three pillars of sustainable development—economic, ecological and social—can be realized simultaneously. The ambition to bridge the South's call for financial transfers from the North, and North's aim for cost-minimal climate mitigation strategies is also deeply ingrained in global dialogues on the environment-development nexus. Consequently, the ecological modernization discourse has been widely embraced by organizations such as the UNEP, the FAO and the World Bank as a rationale for future action, enabling a new compact between developed and developing countries. The positive framing of the international trade in carbon credits has also been absorbed by the business community in the search for new market opportunities. However, there is an inherent line of conflict between the cost-effective and de-regulated market logic epitomized by the flexibility mechanisms in the Kyoto Protocol, and the top-down control apparatus built into the climate regime. Corporate actors argue that the administrative procedures developed around the CDM project cycle will result in reduced market flexibility and

Table 1
Discursive Framing of CDM Forest Projects

	Ecological Modernization	*Green Governmentality*	*Civic Environmentalism*
Key Function	Legitimizing	Operational	Critical
Framing of Forests	Forests as instrument for low-cost climate mitigation and maximized synergies	Forests as sinks and reservoirs of carbon	Forests as sources of biological diversity, livelihood and cultural values
Key Narratives	• Cost-effectiveness • Market-flexibility • Maximized synergies	• Carbon control • Scientific precision • Standardization	• Carbon-colonialism • North-South equity • Local participation
Degree of Discourse Institutionalization	*High* Flexibility mechanisms in the Kyoto Protocol	*High* LULUCF provisions in Marrakesh and Milan agreements	*Low* Restricted credits and socio-economic requirements for CDM projects
Main Discursive Agents	JUSCANZ group, WBCSD, World Bank BioCarbon Fund, FAO	Science and policy elites, IPCC, auditing community	G77, NGO and research community

increased transaction costs for project developers.[71] According to the International Emissions Trading Association: "the whole process is hugely complex, discouraging its integration in the normal course of business processes."[72] At the same time the attractiveness and legitimacy of the emerging carbon market depends upon clear terms of trade and precise monitoring of the amount of carbon sequestered by forestry projects. Hence, the green governmentality and ecological modernization discourses are in several respects both in conflict and mutually reinforcing. Together they dominate the framing of global climate policies.

The civic environmentalism discourse represents a critical counter-discourse that questions the eco-modernist assumption of the mutually reinforcing benefits of CDM projects as well as the managerial ambition found in the green governmentality discourse. While the radical civic environmentalism discourse has had marginal effect on policy, some critical perspectives on sink projects have nevertheless gained ground in the Kyoto negotiation process. The restricted amount of credits gained from sink projects according to the Marrakesh Accords reflects this critique. Similarly, a special provision for sink projects in the CDM was adopted at COP 9 in Milan that compels project participants to consider and report the social, economic and environmental impacts of the proposed project activity.[73] While the latter provision was advocated in order to secure the environmental and social integrity of sink projects, its effectiveness has been questioned since host countries determine whether the negative impacts are significant.[74] Accordingly, cheap mono-cultivations could potentially turn into eligible CDM projects if they fit with the development priorities of the host government. This concession to developing countries' demands for respect of national sovereignty has substantially weakened the policy implications of the civic environmentalism discourse. However, outside the negotiation context more participatory and community-based frameworks for future sink projects are emerging in line with the reform-oriented narrative. The Latin American "Social Carbon Concept"[75] and the Europe-Aid funded Encofor network[76] both seek to turn the optimistic win-win policy rhetoric of ecological modernization into practice by creating democratic, transparent and participatory projects that consider the needs and aspirations of local communities.

Implications for Environmental Governance

The idea to sell carbon credits gained from forest plantation projects in developing countries on a global carbon market appears as a typical example of the sec-

71. WBCSD 2001.
72. IETA 2004, 3.
73. UNFCCC 2003, Article 12c.
74. Höhne et al. 2004.
75. Rezende and Merlin 2003.
76. Encofor 2004.

ond generation environmental problem-solving. The voluntary and market-oriented partnerships between public and private actors in the North and South enabled through the CDM framework symbolize the hybrid, multi-level and multi-centric governance arrangements that have gained prominence on the environmental arena. The US-led Asian-Pacific Partnership on Clean Development and Climate launched in July 2005 further reinforces the trend toward new non-binding compacts between developed and developing countries outside the Kyoto framework.[77] The climate pact and the emerging carbon market are compatible with the rise of market-oriented and neoliberal governance modes in the global political economy.[78] From both market-liberal and liberal-institutionalist perspectives the Clean Development Mechanism emerges as an innovative instrument for market and partnership-based solutions that enables a transfer of technical and financial resources to developing countries in line with sustainable development goals. CDM projects represent a flexible complement to legally binding state-centric international environmental regimes with the potential to address the global governance deficit.[79] From a civil society perspective community tree-plantation projects in developing countries also appear as an arena for increased NGO influence and emerging NGO-business-government networks. A transnational civil society presence, as partners or monitors, could enhance the accountability and legitimacy of forest sink projects.[80]

However, as indicated by ongoing AIJ pilot projects such as the Plantar project in Brazil, the Rio Bravo project in Belize, and the Noel Kempff project in Bolivia, many forest plantation projects developed to mitigate climate change have so far failed to integrate local communities in the decision-making process. Consequently, the ideals of collaborative problem-solving and stakeholder participation have been less pronounced in policy practice than in official multilateral rhetoric. So far, many Northern investors have been interested in low-cost projects that will offer quick carbon offsets at maximum flexibility rather than projects focusing on poverty reduction and sustainable development in the host country. Hence, from a critical IR perspective the carbon offset market epitomizes continued neo-liberal governance building on a capitalist compact between business and government elites in industrialized and developing countries. Rather than providing a multitude of benefits for all involved, the CDM market appears to be deeply embedded in global power structures that effectively marginalize local actors from global institutions and reproduce patterns of inequity.[81] In a similar vein the technocratic and administrative control and verification apparatus that has been developed for CDM projects contradicts the image of the international climate regime as an expression of a less

77. Brahic 2005.
78. Clapp and Dauvergne 2005, 59ff.
79. Haas 2004.
80. Scholte 2002.
81. Fogel 2003; and Paterson 2000.

state-centric and just market order. Instead of promoting active participation of nonstate actors on equal grounds, the government-regulated and supervised seven-step project cycle of the CDM privileges the managerial perspective of Big Science and policy elites.[82]

When analyzing the arguments and knowledge claims employed in this contested terrain it is tempting to adopt the radical critique of civic environmentalism. Early experiences of the international carbon market offer good reasons to resist the instrumental sense of planetary management and the commodification of nature embedded in the green governmentality and ecological modernization discourses. However, we argue that the reform-oriented version of civic environmentalism is likely to provide more constructive contributions to future climate governance. In contrast to radical critics' unconditional rejection of all policy instruments associated with the liberal market order and existing institutions, the reform agenda ties into the democratic visions of strong ecological modernization and green governmentality that advocate a more pragmatic shift towards more equitable terms of trade and a reflexive scientization. Building on positive experiences from small-scale participatory pilot projects in the South, this discourse envisions a new set of CDM projects that takes into account the needs and knowledge of local people. By accounting for the experiences of people living in the forested areas, we propose that such projects potentially could bridge the gap between global and local, the North and South and hence contribute to a long-term democratization of international climate policy. A participatory approach may also generate important counter-narratives to the disengaged and totalizing "global gaze" of climate science. However, the extent to which this reformist narrative will gain ground outside reflexive academic policy debates depends upon the willingness among policy elites to critically address the conflicting agendas and trade-offs inherent in sink projects in developing countries. In order to build a transparent and accountable trade in carbon credits, it is critical that the assessment process is open to the public and all affected stakeholders. A general insight from democratic theory and practice is that process both matters and takes time. If the process of stakeholder consultation is restricted in name of high transaction costs, tree plantation projects developed to mitigate climate change indeed run the risk of reinforcing the top-down model of global environmental governance. This would counteract the official wisdom from the Earth Summit that stakeholder deliberation is pivotal for the making of effective environmental policies.

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82. Fogel 2003; and Brown and Corbera 2003.

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