International governance in a new key: discourse, participation and rationality in an emerging virtual policy network.

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1. Introduction

The growing importance of non-state actors in global and transnational politics is a persistent theme in the global governance literature. It provides a key motivation for going beyond the older international regime framework, with its stress on intergovernmental negotiation leading to the creation of hard international law and durable international organizations. For every effort at global coordination that proceeded according to the regime model, it seemed there were many more that achieved significant results in other ways. And, as the climate change “regime” clearly demonstrates, even where the model of negotiation, framework convention and protocol was followed to the letter, it is sometimes hard to discern much progress on the ground. Dissentient voices, unhappy at the mainstream policy choices, proceeded with their own initiatives, altering the calculus of cost and benefits for the main regime actors and introducing new modes of coordination based on their own rules and procedures. The “governance” idea is intended to capture such developments (Okerere et al. 2009).

However, as critics have observed, the global governance framework is better at describing these new arrangements than it is at explaining how they work. Global governance, it is said, still operates with a zero-sum conception of power implied by the simple distinction between state and non-state actors, where reduced involvement by one implies more power to the other (Borzel and Risse 2004). The category of non-state actors is a conceptual grab bag of heterogeneous objects, ranging from international organizations, through transnational corporations to a variety of non-governmental organizations, large and small (Auer 2000). The introduction of the category of non nation state actors, adds other levels of government without

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1 The authors acknowledge financial support from the Canadian Sustainable Forest Management Network of Centres of Excellence and the International Union of Forest Research Organizations and the research assistance of Angela Scott.
materially reducing the potential for conceptual confusion (Betsill and Bulkeley 2006). Above all, the global governance framework is actually less successful in explaining how coordination takes place than the old international regime framework that it aspires to replace, since the latter could appeal, however unrealistically, to the idea of imperative coordination through international law.

In this paper, we address these three criticisms by appealing to the coordinative role of ideas or, more accurately, discourse in transnational policy networks. In the next section, we recall the early connection between policy network theory and global governance ideas and suggest reasons why it was premature to abandon the explanatory mechanisms implied in this connection. In section three, we introduce the idea of the global policy Web and the virtual policy networks (VPN) that can be observed there. Section four examines the cases of the international forest governance network and the emerging network on forestry and climate change, and notes the parallelism between the structure of the major actors observed in conventional studies of these policy communities and the VPNs. In section five, we analyse the structure of the VPNs more closely and isolate the governance mechanisms at play, stressing the role of networks in structuring information flows. Finally, we conclude that the structure of the two VPNs both underlines the continuing importance of states and international organizations in global governance and provides some support – albeit a kind of negative confirmation – for the thesis that non-state actors are incorporated into networks to the extent that they possess expertise relative to governing.

2. Internationalized policy environments and network governance

2.1 Comparative public policy and the intellectual roots of the global governance idea
The global governance perspective has multiple intellectual roots, including traditional international relations, comparative politics and comparative public policy. It is worth remembering that shifts in governance modes were observed within nation states long before there was any talk of “global governance”. Arising out of debates in the 1970s and 1980s about the inability of centralized, top-down institutions to respond to the scope and scale of social demands, it became commonplace to refer to a shift away from “state centric” modes of coordination: “This process of transition has been characterised by the decentralisation of powers, the greater distribution of authority, the blurring of the borders between public institutions and private organisations, and the inclusion of new stake-holders, self-governing mechanisms and so on” (Capano 2009). As Capano goes on to argue, perhaps the most serious mistake that was made in trying to understand these developments was the tendency to juxtapose “old government” with “new governance” as if the former simply disappeared as the latter advanced. In a striking parallel to the debates about the diffusion of authority in international relations, the relationship between government and governance was conceptualized as a zero sum and most often operationalized as a simple transfer of power and authority from state to non-state actors (Rhodes 1996; de Bruijn and Heuvelhof 1995; van Kersbergen and van Waarden 2004).

Eventually, theory and cases studies established that the relationships were much more complex. While maintaining the original insight that “governance” implies a concern for horizontal coordination between entities that do not understand each other to be related in terms of a hierarchy, studies of governance increasingly emphasize that public institutions still exist and continue to pursue public goals. However, the public institutions of the state now operate in a different policy context, alongside a variety of new actors and institutions, and have to adopt a
range of new strategies to achieve their goals (Tenbensel 2005; Hill and Lynn 2004). Significantly, as we shall argue in the case of global governance, these strategies are equally as likely to appeal to traditional policy instruments used in new ways as they are to devise and adopt new instruments entirely.

The internationalization of many policy domains became apparent during the 1980s and 1990s, adding to the complexity of domestic policy making, and playing an increasingly prominent role in explanations of the changing faces of government and governance. Early attempts to account for the international dimension in domestic policy making often appealed to the, then fairly novel, idea of policy networks. A decade ago, for example, Coleman and Perl (1999) explicitly linked the growing importance of horizontal coordinating mechanisms to internationalization and proposed the development of the network concept to explain the different governance modes that resulted. Coleman and Perl distinguished between two dimensions of governance relationships – the different degrees and patterns of interaction between the actors involved (policy communities) and the different ways in which public and private power is shared between the actors (policy networks). While variants of this basic two-dimensional space are found throughout the comparative public policy governance literature (Knill and Lehmkuhl 2001), Coleman and Perl’s version is helpful for a number of reasons. First, as they noted, the idea of patterns of interaction focuses attention on boundary drawing between those who belong and those who don’t and emphasizes the role of discourse in creating and maintaining boundaries. Second, the idea of networks sharing public and private power in different ways – through the exchange of information, expertise and political support amongst network members – immediately breaks away from the assumption that this is a zero sum relationship. As they noted, in internationalized policy domains public actors operate at different
levels where the meaning of “public” power will also differ, “thereby blurring somewhat the traditional public-private distinction”.

Third, in an understandably tentative way, Coleman and Perl began to draw out the implications of the policy network concept for the role of ideas and discourse. Boundary drawing and maintenance has an obvious discursive dimension which they elaborated in terms of a number of concepts, including framing (Schon and Rein 1994), and the establishment of policy paradigms (Hall 1993) or référentiels (Jobert and Muller 1987). In policy networks, information and expertise are part of the currency of network exchange. Perhaps most significantly of all, however, they concluded that the heightened complexity and greater interdependence created by the internationalization of policy domains would inevitably create situations where multiple policy communities would end up addressing the same policy problems and improved horizontal coordination would be needed. “Mediation” between different communities and the “translation” of policy ideas from one community to another were proposed as horizontal governance mechanisms and they speculated that the impact of the core variables – degrees of integration and the relations of public and private actors in the network structure – on mediation and translation would turn out to be an important part of a future research agenda.

2.2 The international policy web and Virtual Policy Networks

The global governance literature has been slow to take up Coleman and Perl’s challenge. Use of the network concept is often descriptive or straightforwardly managerial (Reinicke and Deng 2003) rather than explanatory. As Sending and Neumann (2006, 668) argue, while global governance studies make a conventional appeal to the idea of “multilayered and polyarchic networks that comprise states, NGOs, IGOs and transnational corporations”, these studies typically conclude that network governance makes nonstate actors more powerful at the expense
of states (or could do so if only their networks were better organized). The original insight of the comparative public policy literature that network governance typically changes the role of government vis-à-vis nonstate actors (and may even strengthen it or strengthen both simultaneously vis-à-vis the objects of government) has been lost along the way.

To illustrate this contention, we have chosen, as a critical case, one of the least promising developments in global governance for the role of public authorities, the rapid expansion of the policy Web. Unlike the physical structure of the Internet, on which it rests, the organizational structure of the Web is determined by the networked arrangement in which webpages are connected through hypertext. Network structure is unimpeded by hard wire or territory – the network is purely virtual, in the sense that communication is mediated by software and computer networks with no temporal or geographical boundaries.

Policy communities are currently using the Web to supplement their existing policy-related activities. We assume that the international policy Web may be divided into various sectors or domains, each of which will attract a larger discourse community that is attentive to policy activity (and distinguishes itself from outsiders, as Coleman and Perl argue) as well as a core policy network with opportunities to shape decision-making (Coleman and Skogstad 1990; Montpetit 2005). Online, these sectorally based virtual networks are created by Web-enabled policy communities whose political organizational forms have been transposed into the network structures of the Web (Rethemeyer 2007). Participants in such networks vary considerably but include international organizations, national government departments and agencies, interest groups, nonprofit and for profit organizations, political parties, professional associations, think tanks, universities and individuals.
The growing use of the Web by international policy communities may be observed by studying virtual policy networks. Virtual policy networks (VPN) are the informational networks produced by groups of actors and institutions engaged in policy making activity both online and off (McNutt 2006). The webpages that populate these networks of information are connected through hyperlinks providing observable patterns of relations among policy actors on the Web.

While the policy Web produces direct impacts on policy makers and decision-makers in terms of learning and information diffusion, it also provides various interests with the opportunity to share ideas, to frame policy debates, and to advance organizational agendas. As a result, policy dynamics originating in the offline world will presumably shape information flows on the Web. Early indications suggest that participation in web-based information policy networks mimic the networked communication and organizational patterns of offline policy communities (McNutt 2006; van den Bos 2006).

Within states, the use of ITs as external organizational instruments and the application of networked technologies in public sector administration has contributed to the flattening out of government, where interagency information sharing and communication are common and multi-stakeholder collaboration considered the new administrative norm (Kernaghan and Gunraj 2005; Hood and Margetts 2007). On the service side of administration, ITs are used to improve transactional efficiency (Roy 2006). Each of these developments contributes to new modes of governance without in any sense implying the disappearance of public authorities or the use of traditional governing instruments.

In other words, the loss of hierarchical control associated with information sharing and multi-stakeholder collaboration is highly characteristic of new modes of governance but states nonetheless continue to possess resources that allow them to govern through the policy Web,
notably what Christopher Hood (1983) referred to as “nodality”. In his original fourfold classification of the “tools of government”, Hood argued that the central position of government conferred a strategic advantage in the dissemination of information. By retaining nodality on the policy Web, states can continue to exploit this advantage, which becomes ever more advantageous as coordination shifts towards greater use of information and procedural instruments (Howlett 2000; Hood and Margetts 2007). Early empirical studies suggest that states are increasingly aware of the importance of web nodality and are taking steps to retain it (Escher et al. 2006).

While a state’s ability to manage information flows and frame policy debate may be challenged by the entry of non-domestic actors in the national policy web space, threatening loss of nodality (McNutt 2008), what of the other side of the coin? It is tempting to suppose that the global policy Web, like a social network, is an organized anarchy, in which timing is the key to understanding outcomes (Cohen et al.1972). If, on the other hand, there are global policy domains and global policy networks, then the global policy Web will show evidence of network structures and of the political struggle for nodality within them.

The method used to analyze the structure of VPNs is referred to as hyperlink analysis, a technique used in both computer science and the social sciences to collect and analyze data embedded in webpages and hyperlinks (Park 2003). Webpage hosts will publish various topical pages that provide links to alternative sources of information on the same subject. Among government organizations, corporations, NGOs and policy institutes, there has been a strong tendency to publish partnership/membership lists that contain critical information concerning the ties among policy actors and the larger policy communities. These processes of social
organization and web-based communication patterns leave observable patterns of change, coalition building, and information flows in virtual policy networks.

In this paper, linking behavior is considered a form of political activity with a hyperlink deliberately chosen by an actor. Studying linking behavior in this way does not assume that the Web author agrees with the information being published, it suggests that the cited webpage is relevant to the topic and that the author views the content as related to the information they themselves are publishing. Hyperlinking is a strategic action with a hyperlink conferring informational authority (source credibility) on an alternative website’s informational content (Smith, Newman, and Parks 1997). Hyperlink analysis is organized around two primary activities: crawling (data collection) and connectivity-based ranking (data analysis). Crawling refers to the process of collecting webpages using a computer-based algorithm designed to visits pages and retrieve information that is recorded in a large database while the connectivity-based ranking is a measurement used to evaluate the dependability of information in online environments.

Data for the two VPNs was collected using the IssueCrawler web analysis packages. Issue Crawler is both a Web engine and an analysis package used to map Web-based networks (Rogers 2006). The Web engine is a topic-specific crawler that collects relevant hyperlinks from webpages hosting content on a particular subject. To locate a VPN the researcher enters a set of seeds (URLs) into Issue Crawler, which then begins mapping the Web graph from the outgoing links of the initializing Web addresses. The analysis package provides a number of functions including network renderings, site interlinkages, adjacency matrices, and ranked actor lists (Bruns 2007; McNally 2006; Rogers 2006). Data collected by IssueCrawler is studied using co-link analysis which determines inclusion in the network through the pairing of hyperlinks to a
target webpage (Thelwall 2006). Thus while the function of the algorithm is to collect relevant webpages, the purpose of the analysis package is to identify key actors and trace the structure of communication.

To use the *IssueCrawler* the researcher must first choose seeds and then set the network parameters according to the underlying research questions. The seeds are a preselected set of URLs which act as the initializing nodes for the crawler and it is from these seeds that the structure of each network is traced. As Bruns (2007) suggest the seeds are “equivalent to a set of coordinates around which geographical terrain is to be mapped, and it is therefore incumbent on the researcher to consider the implication of their seed choices.” In this project all initializing nodes were gathered from Google with various content filters applied. The top returned Web addresses from a Boolean string search that names the policy field under consideration are used as the initializing seeds in each crawl. After the seeds have been entered into the engine, *IssueCrawler* begins tracing the network by following several layers of outgoing links with the organization of hyperlinks determining which sites are visited and the course the crawl will take.

### 3. The global forest policy and forestry/climate change cases

The cases presented here – the mature VPN on global forestry and the emergent international VPN for forestry and climate change – have been chosen for a number of reasons. First, the forestry/climate change network exists at the intersection of a number of fairly well defined sets of international governance arrangements, a phenomenon predicted by Coleman and Perl as the inevitable corollary of complexity. Second, the main “parent” governance arrangement is strikingly different. Although the global forest policy community, in spite of a decade or more of effort, has been unable to conclude a legally-binding international convention
on forests, the successive rounds of negotiations have produced a mature policy network. Third, the very recent emergence of the forestry/climate change network provides insight into the basic processes of network formation.

3.1 The development global forest governance

The idea of global forest governance has been on the agenda at least since the creation of the Committee on Forest Development in the Tropics by the FAO in 1967. Initially proposed with a focus on the development (i.e. income generating) potential of tropical forests in less developed countries, NGOs soon added conservation to the mix and the tension between these two goals is apparent in the increasingly acrimonious debates around the International Tropical Timber Agreements of 1983, 1994 and the much-delayed agreement negotiated in 2006.

In the course of these negotiations, a fault line emerged that would define the global politics of forests for the next half century. On one side stood most of the tropical timber producing countries, whose governments tended to take a “sovereignist” position about forests and who saw the ITTAs as essentially trade agreements providing development assistance and access to markets. On the other, stood a variety of NGOs and some consumer countries – especially those like the US, the UK and Germany where environmental NGOs are well organized, well funded and well connected – who began to elaborate a discourse of forests as a global commons in need of global governance arrangements that would link trade to forest practices (Humphreys 2004).

The appearance of the sustainable development idea and the convening of the United Nations Conference on Environment and Development (UNCED) in 1992 provided a new occasion to air these differences. The producer countries, with the general support of their G77 colleagues, accepted that deforestation posed a serious threat to sustainable development but
continued to insist that the social, economic and environmental consequences of deforestation and forest degradation are local ones that would be addressed by them in the context of their own goals, interests and priorities. “Interference” by the North would be tolerated only if linked directly to development assistance and technology transfer. The North resisted this linkage and pressed, ultimately in vain, for a legally binding forest convention with a focus on conservation and sustainability. What they got instead was the delightfully Orwellian *Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests*, aka the “Forest Principles” (Humphreys 1996).

Further efforts during the 1990s, featuring shifting constellations of governments and some interesting international diplomacy, all failed to reach the elusive legally-binding forest convention, although these efforts were not altogether without consequences. In the course of the negotiations, many developed countries with significant forest cover, including the US, Canada and some EU member states, began to acknowledge that all was not entirely well with their own forest management practices and promoted a unified discourse of Sustainable Forest Management (SFM) that would apply to all producer countries. Significant progress was made elaborating SFM practices through criteria and indicators for different forest types.

With the help of the SFM idea, the Forest Principles were translated into Action Plans to which most governments readily signed up, happy in the knowledge that implementation and reporting requirements were minimal or non-existent. In an important discursive move, forest economists interpreted these implementation deficits as the consequence of a general market failure to value ecosystem services and to ensure, through transparent government and a system of secure property rights, that those who invested in long term forest management would see
some return on their investment. Economists’ efforts at translating SFM into the prevailing
discourse of neoliberalism resonated strongly with many international financial organizations,
which began to form an increasingly important part of the forest policy network.

Perhaps most significantly of all, NGOs gradually lost confidence in the idea of a forest
convention when it became clear to them that any agreement was likely to be so watered-down
from their own goals – goals that now encompassed biodiversity conservation, protection of the
rights of indigenous forest-dwelling peoples, and the provision of global ecological services,
such as carbon sequestration – as to amount to little more than the justification of business as
usual. What they regarded as the unholy alliance of Malaysia and Canada promoting a new forest
convention was probably the last straw, and NGO efforts moved towards a twin-track strategy of
conserving native forests through other global governance arrangements, such as the
Conventions on Biological Diversity, Wetlands and Desertification, and influencing trade in
forest products through private governance arrangements, such as certification and labeling. On
this latter track, they have also supported international efforts to police the trade in forest
products through CITES and the EU’s FLEGT and worked to prevent a forest products trade
agreement at the WTO. With private governance, at least, NGOs have been more successful than
many originally supposed, both directly through their own certifying body, the Forest
Stewardship Council (FSC), and indirectly through the many competing certification standards
that FSC has spawned. Thus, NGOs tended to withdraw from the international forest policy
network in favour of their own specialized issue networks.

By 2001, when the main institutional actors in global forest governance set out to address
the disappointing progress in implementing the Action Plans, the structure of the policy network
was deeply marked by the forest politics of the previous decade. The United Nations Forum on
Forests (successor organization to the two previous interim bodies created to negotiate a forest convention) brought together 14 convention secretariats, research and technical bodies, and financial organizations to form the Collaborative Partnership on Forests (CPF).² CPF is formally charged with enhancing cooperation and coordination among its members, and supporting the work of the UNFF, especially contributing to development of the UNFF’s plan of action and implementing those of its predecessors. Although the CPF carried on a dialogue with various NGOs and representatives for a number of years, these meetings have gradually died out through mutual lack of interest. CPF presently functions “almost as a gentleman’s club”³, working on issue identification and policy development in response to the agendas of its member organizations and its ultimate responsibility to report to UNFF.

The global forest policy VPN shows clear evidence of the basic structure of the global forest policy network as we have described it.

On August 16 2008 the web engine crawled 42,884 webpages identifying 89 websites in the network that received at least 20 inbound links from the policy community. Of the total 45,196 hyperlinks into the global forest policy VPN in 2008, CPF members received 33.8 percent of the inbound links. United Nations organizations (including CPF members) received 40.8 percent of the links, governments (mainly the UK, EU and US) 32.9 percent, other international organizations, 6.7 percent and NGOs just 2.1 percent. In addition to the 14 CPF members and 18 other UN organizations, there were 19 other international organizations in the VPN, six of which were financial organizations (plus the World Bank, a CPF member but accounting for only 1.6

² For the membership and history of CPF, see . http://www.fao.org/forestry/CPF/en/
³ Interview with UNFF official, January 2009.
percent of links in this VPN). There were 10 NGOs, with the Ford Foundation the most significant with around 1 percent of links. The top ten websites are listed in Table 1, below.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Website</th>
<th>Inlinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>European Union Online</td>
<td>6918</td>
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<tr>
<td>2</td>
<td>United Nations Environment Program</td>
<td>5089</td>
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<tr>
<td>3</td>
<td>United Nations</td>
<td>4104</td>
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<tr>
<td>4</td>
<td>Forestry Commission of Great Britain</td>
<td>3036</td>
</tr>
<tr>
<td>5</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
<td>2784</td>
</tr>
<tr>
<td>6</td>
<td>United Kingdom Government</td>
<td>2301</td>
</tr>
<tr>
<td>7</td>
<td>Food and Agriculture Organization of the United Nations</td>
<td>1506</td>
</tr>
<tr>
<td>8</td>
<td>World Agroforestry Centre</td>
<td>1472</td>
</tr>
<tr>
<td>9</td>
<td>United Nations Framework Convention on Climate Change</td>
<td>1264</td>
</tr>
<tr>
<td>10</td>
<td>United Nations Systems of Organizations</td>
<td>1171</td>
</tr>
</tbody>
</table>

3.2 The emergence of a global forestry and climate change network

The growing salience of global climate change policy has inevitably had an impact on forest governance and politics. The sense among some international organizations, NGOs and academics that climate change mitigation might be the single issue needed to promote the genuinely integrated approach to sustainability that has so far eluded most governance arrangements at all levels (taking over this role from biodiversity conservation) is especially important. Climate change has introduced new actors, ideas and institutions at the same time as providing new strategic opportunities for longstanding members of the global forest policy community.

In particular, the structure of the climate change framework convention, with its distinction between Annex I and non-Annex I countries, recognizes the different responsibilities between developed countries and the rest of the world that the tropical timber producers have
been trying to institutionalize in global forestry governance since the first ITTA. However, the focus of the climate change arrangements on financial mechanisms has the potential to make a more ambiguous impact on forest governance arrangements. On the one hand, it provides the basis for the technology transfer and financial assistance that less developed countries have been calling for but, at the same time, it is a powerful carrier of the neoliberal discourse that many NGOs still find so suspect when devising governance arrangements for a global commons.

Thus, Annex I Parties are expected to meet their Kyoto Protocol (KP) commitments to reduce Greenhouse Gas emissions mainly through domestic efforts, but they are allowed to “supplement” these efforts through the so-called flexibility mechanisms: joint implementation (JI), the clean development mechanism (CDM) and emissions trading (ET). Through the JI, emissions reduction units resulting from joint projects can be transferred from one Annex I Party to another. CDM provides a similar opportunity for transfers of credits to Annex I countries from projects implemented in developing countries. ET allows trading of credits between Annex I countries. The purpose of the flexibility mechanisms is to increase the cost-efficiency of mitigation activities but also to promote technology transfer and sustainable development in general.

The IPCC currently estimates that about 1.6 billion tons of carbon is released annually from land use changes and forestry, most of which is attributable to tropical deforestation. This is about 20% of global carbon emissions, very close to earlier estimates, and more than the emissions attributable to the global transportation sector. (Kanninen et al. 2007). For this reason, forests have always played a key role in climate change negotiations. In the KP, protection and enhancement of forests, the promotion of sustainable forest management practices, and afforestation and reforestation are all listed among possible policies for achieving Annex I
emission limitation and reduction commitments. The CDM adds the possibility that Annex I parties could meet their obligations by acquiring credits from forestry projects in developing countries but, to date, this has proved very difficult to negotiate. Persistent concerns about setting mutually acceptable baselines, providing reliable verification, the provisional character of land use changes, and the possibility that conservation may simply shift deforestation somewhere else (“leakage”) have resulted in only a single forest project receiving approval under the CDM.

Recently, the negotiations leading up to the arrangements that will succeed the KP after 2012 have put a new emphasis on the activities of non-Annex I countries, including reducing emissions from deforestation. The Action Plan agreed on in Bali included a discussion of Reduced Emissions from Deforestation and Degradation (REDD) that will likely see the employment of significant financial incentives in this connection, and further progress was made at last year’s Conference of the Parties in Poznan. REDD is likely to rely on a market-based approach attached to existing carbon markets where, in addition to credits for avoided deforestation, forestry projects will also include payments for environmental services (PES), such as provision of biodiversity, soil and watershed protection, and SFM at a project and at a broad landscape level (Portela et al. 2008). However, it may also include a fund-based approach such as the Forest Carbon Partnership Facility (FCPF) established by the World Bank in 2006. Under the FCPF there are two funding sources: the Readiness Fund covers preparatory measures for target countries, such as assessing historical emissions from deforestation and forest degradation to allow consensus on baselines; and the Carbon Fund which will contribute to emission reductions based on sound approaches (Simula 2008). They will join a bewildering variety of funds that already exist under the UNFCCC and its KP or are contemplated in the Bali Action Plan.
The effect of the growing convergence between developments in the two sets of governance arrangements has been to bring the “undervalued ecosystem services” frame and the role of incentive-based policy instruments into prominence. As a UNFF official put it, there seemed “no other unifying theme” and, of course, SFM had already been elaborated in this way for a number of years.

As the VPN will clearly show, the principal beneficiary has been the World Bank. The Bank has had a difficult time with forestry, at one point banning Bank lending to projects that involved any tropical forestry components in response to NGO criticisms that its irresponsible lending policies were financing deforestation. During the 1990s, however, proponents of lending successfully argued that the ban simply tied the Bank’s hands, removing the all-important tool of financial incentives to support sustainable forestry and surrendering the field to private lenders or impoverished local communities with even more suspect agendas. After an extensive evaluation of its previous approach to forests, the Bank adopted a revised Forest Strategy in 2002, locating its interest in forests within the three broad policy ‘pillars’ of alleviating poverty, promoting sustainable economic development, and conserving the natural environment to protect local and global environmental services.

The Bank was an early entrant into the climate change and forest policy field, including programmes that assist governments to develop measures that mitigate and adapt to the anticipated impacts of climate change and reduce the vulnerability of the poorest people to its effects under the third pillar of the Forest Strategy (World Bank 2004). The 2002 Strategy includes some broad, quantified targets, a commitment to monitoring progress, and an analysis of the challenges to successful implementation.

[figure 2 about here]
As expected, the Climate Change and Forestry VPN looks rather different from the Forestry VPN. International organizations and governments still dominate but the network more centralized and the nodal actor is clearly the World Bank. On August 9, 2008 the web engine crawled 35,287 pages of information; identifying 81 websites in the network that received at least 20 inbound links from the policy community. Of the total 54,103 hyperlinks into the global forest policy VPN in 2005, CPF members received 53.3 percent of the inbound links. However this startling increase from the 33.8 percent in the forest policy VPN is almost entirely due to the prominence of the World Bank, which alone accounted for 26.3 percent of the inbound links in the forest policy and climate change VPN. United Nations organizations (including CPF members) received 38 percent of the links, roughly comparable to the forest policy network, governments (mainly the UK, EU and US again) were down substantially to 18.1 percent, other international organizations accounted for 8.7 percent and NGOs have fallen to just 0.5 percent.

In addition to the 14 CPF members and 23 other UN organizations, there were 18 other international organizations in the VPN, six of which were again financial organizations (plus the World Bank). There were a mere 5 NGOs, with the World Resources Institute the most significant. The top ten websites are listed in Table 2, below

<table>
<thead>
<tr>
<th>Rank</th>
<th>Website</th>
<th>Links</th>
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<tr>
<td>1</td>
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<td>2</td>
<td>The United Nations</td>
<td>5721</td>
</tr>
<tr>
<td>3</td>
<td>United States Forest Service</td>
<td>4556</td>
</tr>
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<td>4</td>
<td>European Union Online</td>
<td>4275</td>
</tr>
<tr>
<td>5</td>
<td>United Nations Environmental Protection Program</td>
<td>3163</td>
</tr>
<tr>
<td>6</td>
<td>United Nations Framework convention on Climate Change</td>
<td>2888</td>
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<td>7</td>
<td>Intergovernmental Panel on Climate Change</td>
<td>1953</td>
</tr>
<tr>
<td>8</td>
<td>United Nations Systems of Organizations</td>
<td>1866</td>
</tr>
<tr>
<td>9</td>
<td>United Nations Development Programme</td>
<td>1679</td>
</tr>
<tr>
<td>10</td>
<td>World Meteorological Organization</td>
<td>1028</td>
</tr>
</tbody>
</table>

Table Two
Forestry and Climate Change Virtual Policy Network
Inbound Links to Network Websites

In the introduction we acknowledged that claims about new “global governance” arrangements and horizontal coordination are common enough but rarely backed up by detailed accounts of how coordination actually takes place. We have argued that international policy networks play a critical role in global governance by mediating between multiple policy communities whose activities increasingly overlap in complex policy areas and by translating ideas from one context to another. In networks, the exchange of information is a primary incentive for participation, creating opportunities not just to monitor innovative policy solutions but to identify issues and frame policy debate. Discursive exchange, in this context, will be associated with the network’s volume of information and how much any one actor is able to influence the direction and flow of information in the network. This, in turn, is a function of network structure.

A first cut at describing network structure is provided by Mark Granovetter’s (1973; 1974) “strength of weak ties” thesis, originally designed to explain innovation. Granovetter suggests that every actor in a network will possess both acquaintances and friends. Acquaintances are weak ties, individuals with whom social contact is infrequent. In contrast, friends are strong ties, members of one’s egocentric clique with similar individuals sharing stronger ties (1973, 1362). In policy networks whose structure is characterized by homophily, strong ties are very dense with fewer opportunities for policy innovation, while networks with numerous bridging opportunities are characterized by loosely knit structures and the presence of multiple weak ties. Actors lacking policy acquaintances and weak ties will lack opportunities to
access new ideas and locate novel information, impairing the innovation process. As Granovetter, (1983) explains ‘The macroscopic side of this communication argument is that social systems lacking in weak ties will be fragmented and incoherent. New ideas will spread slowly, scientific endeavors will be handicapped’ (202). However, the process of innovation and associated idea generation may be expedited by bridging unexplored opportunity structures (Granovetter 2005).

Bridging, in turn is the subject of Ronald Burt’s (1992) structural holes thesis. Burt argues that network innovation is the product of brokering (mediating) opportunities across gaps in social structure or ‘structural holes.’ Networked actors who engage in locating ideas, diffusing information and brokering exchange enjoy greater network status in that they have privileged access to network resources. Thus according to Burt (2001)

structural holes create a competitive advantage for an individual whose relationships span the holes. The structural hole between two groups does not mean that people in the groups are unaware of one another. It only means that the people are focused on their own activities such that they do not attend to the activities of people in the other groups. Holes are buffers, like an insulator in an electronic circuit. People on either side of structural holes circulate in different flows of information. Structural holes are thus an opportunity to broker the flow of information between people and control the projects that bring together people from opposite sides of the hole (33).

The production of ideas is thus accelerated through the expansion of weak ties and in particular ties that bridge holes in network structure (Burt 2004).

At the individual level the actors with the greatest number of ties also have greater influence on the flow of ideas through the network. Ahuja and Carley (1998) suggest that the level of hierarchy in virtual organizational structure “is reflected by the degree to which relationships in a network are directly or indirectly reciprocal” and “reflects the extent to which a network or group is organized around its focal point.” In a hierarchical network actors must go
through an intermediary to obtain information providing more opportunities for a centralized actor to strategically manage the relational context of the network.

Thus, the two variables used to determine a VPN’s inclination towards policy innovation are actors’ centralization and network density. In VPNs with higher volumes of information, the network’s inclination toward policy innovation is impaired. Alternatively, where network density is low, policy learning and participatory debate are occurring, resulting in increase, not just in the volume of information flows, but in the variety of different sources of discursive production. Density measures the networks volume of information and is calculated by summing the entire population of potential ties \( n(n-1) \) where \( n= \text{all nodes} \) as compared to the actual population of unidirectional links \( m/n(m) \), where \( m= \text{set of all edges or links} \). Previous studies have suggested that the average density of a VPN is approximately 0.10 (McNutt 2006; 2008). By this standard both networks are fairly dense with the Forestry VPN at 0.18 and the Forestry and Climate Change VPN at 0.12; however the emerging network has more opportunity structures as it is comparatively characterized by weaker ties.

The second variable, centralization, measures each website’s share of influence, which is calculated by summing all inbound links the node received from the network population divided by the total number of inlinks (Ahuja and Carley 1998). Centrality scores are based on the distribution of information and used to compare actor’s influence within a single network. The Forestry VPN was centered on the European Union Online, which had a 0.18 degree of centralization. The Forestry VPN was, however, less centralized than the Forestry and Climate Change VPN where the World Bank had a 0.22 degree of centralization. Other than the presence of the United Nations the lead institutional influences in the two networks are markedly different, with the Forestry VPN centralized around the European Union and the United
Kingdom (Table Three); while the World Bank and the USDA Forest Service were more influential in the Forestry and Climate Change VPN (Table Four).

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<thead>
<tr>
<th>Rank</th>
<th>Website</th>
<th>Centralization</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>European Union Online</td>
<td>0.16</td>
</tr>
<tr>
<td>2</td>
<td>United Nations Environmental Protection Program</td>
<td>0.12</td>
</tr>
<tr>
<td>3</td>
<td>United Nations</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td>Forestry Commission of Great Britain</td>
<td>0.07</td>
</tr>
<tr>
<td>5</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
<td>0.05</td>
</tr>
<tr>
<td>6</td>
<td>UK Government</td>
<td>0.05</td>
</tr>
<tr>
<td>7</td>
<td>Food and Agriculture Organization of the United Nations</td>
<td>0.04</td>
</tr>
<tr>
<td>8</td>
<td>World Agroforestry Centre</td>
<td>0.03</td>
</tr>
<tr>
<td>9</td>
<td>United Nations Framework Convention on Climate Change</td>
<td>0.03</td>
</tr>
<tr>
<td>10</td>
<td>United Nations Systems of Organizations</td>
<td>0.03</td>
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<thead>
<tr>
<th>Rank</th>
<th>Website</th>
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<tbody>
<tr>
<td>1</td>
<td>The World Bank</td>
<td>0.22</td>
</tr>
<tr>
<td>2</td>
<td>The United Nations</td>
<td>0.11</td>
</tr>
<tr>
<td>3</td>
<td>United States Forest Service</td>
<td>0.08</td>
</tr>
<tr>
<td>4</td>
<td>European Union Online</td>
<td>0.07</td>
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<tr>
<td>5</td>
<td>United Nations Environmental Protection Program</td>
<td>0.06</td>
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<td>6</td>
<td>United Nations Framework Convention on Climate Change</td>
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<td>7</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>8</td>
<td>United Nations Systems of Organizations</td>
<td>0.03</td>
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<tr>
<td>9</td>
<td>United Nations Development Programme</td>
<td>0.03</td>
</tr>
<tr>
<td>10</td>
<td>World Meteorological Organization</td>
<td>0.02</td>
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</table>

There is no single IO or government that controls these two networks; however, combining the density and centralizations variables demonstrates that the networks’ structures do differ. The Forestry VPN has great density and lower network centralization while the forestry and climate change network has lower density but is more centralized. High levels of density do
not necessarily mean that innovation is not occurring and ideas are not being produced and exchanged; it instead suggests that certain ideas receive more attention and information exchange becomes limited to key stakeholders with stronger ties. In networks that have low levels of density and higher levels of actor centralization, it is reasonable to conclude that the network is being guided by intermediaries directing diverse flows of information.

As suggested above the central nodal websites in each network also varied providing evidence of the impact of a climate change ideas on the previous forestry discourse. The rising influence of the World Bank and the USDA Forest Service further weakens the roles of NGOs, as competition for attention is largely a contest between Europe, the United States, and two IOs. As such the forestry VPN has fewer structural holes and weaker ties; however it is less centralized around the dominant actor. In contrast the forestry and climate change VPN has more opportunity structures but is more centralized around the focal website.

5. Conclusion

In this paper, we set out to demonstrate, first, that virtual policy networks mimic the structure and composition of networks created by other, more familiar, modes of exchange. Second, we proposed that analysing the structure of international VPNs will provide some insight into the new modes of coordination that explain the persistence of global governance arrangements. In particular, we proposed that familiar policy instruments are likely to be deployed in new ways, creating new relationships between traditional actors.

Although, on the evidence of the VPNs, transnational policy networks for forestry and forestry/climate change clearly exist, the absence of NGO participation, particularly in forestry/climate change, is striking. Humphreys (2004) argued that forest NGOs had been most successful at agenda setting, “in challenging mainstream discourse and in shifting the ideological
terrain of [forest] negotiations” (71). If so, we would expect greater participation by NGOs in forest/climate change, where policy development is still very much involved in agenda setting and the discussion of alternatives, than in forest policy itself, a more mature policy area. Nonetheless, notwithstanding the already low levels of participation by NGOs in the forest policy VPN, the opposite is true. Further analysis would likely reveal that forest NGOs have their own issue-oriented VPNs that parallel their offline activities.

Two alternative explanations suggest themselves. In the first, the existence of structural holes in a network is interpreted (as Burt does) as an opportunity to be exploited by policy brokers and mediators and as a source of policy innovation. In the second, structural holes are evidence of the exclusion of actors and ideas from a network, the presence of an absence. Exclusion reflects the value that the network members place on the information and expertise of the missing network actors. Having little to offer is to be relegated to the edges of the network or excluded entirely.

In support of the second interpretation, we note that judgments about value are, in turn, not made in vacuum but according to the goals and priorities of the principal actors in the network, whose bridging activities control the flow of information and set priorities. The VPNs analysed here are both the kind described by Coleman and Perl (1999, 704-5) as “transnational-expert”, first observed in the many studies of international banking and finance. Since implementation of any agreements will largely fall on national policy communities, the role of the transnational expert network is to devise proposals that are acceptable in a variety of national contexts and to promote convergence on best practices through “polydiffusion” (Mossberger and Hale 2002). In the case of the forestry VPN, the network has a long record of failure in this respect, though it is clearly still trying. In the case of forestry and climate change, we see the
effort at agenda setting and problem definition by the World Bank, on the understanding that the
target audience is comprised of other international organizations and key governments who are
collaborating in the discursive project of framing the problem in neoliberal terms (Schmidt and
Radaelli 2004)

Our conclusion thus provides a negative confirmation of the thesis proposed by Sending
and Neumann (2006). In studying the role of non state actors in global governance, they argued,
against the “co-optation” thesis, that

these actors are not brought into the fold and as such deprived of their autonomy and as
recognized representatives of “civil society.” Rather, it is precisely their status as actors
that possess expertise central to the task of governing and, much more importantly, the
fact that they appear to be autonomous political subjects with a capacity for political will-
formation that make them key subjects of, and allies in, governmental tasks (668).

In the cases we have studied the self-reinforcing judgment of the networks that these actors do
not possess expertise “central to the task of governing”, that the information that they provide,
when filtered through the dominant discursive frames already circulating in the network, is
useless or irrelevant, serves instead to exclude them. Governing functions are performed by
international organizations, technical and research organizations and, surprisingly, key national
governments who are still able to exploit the old governing resource of nodality transposed into a
new virtual environment.

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