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Exploring the challenges of energy and resources network governance

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ABSTRACT

While a growing amount of literature has recently emerged describing network governance, less attention has been paid to evaluating the actual performance of networks. Our paper looks at the challenges facing network governance for natural resources (primarily logging and forestry) and energy (primarily renewable energy and energy efficiency) in Asia. The paper investigates what network governance is, and what types of challenges networks have to tackle. It then develops a qualitative analytical framework to evaluate the effectiveness of networks consisting of five criteria: (1) clarity of roles and objectives among members, (2) having strong, independent, continual sources of funding, (3) institutional formality (having a permanent secretariat, budget, full time staff, etc.), (4) efficacy (ability to accomplish its mission and goals at the least possible cost); and (5) level of interdependency among members. Finally, we apply this framework to four case studies: the Association of Southeast Asian Nations (ASEAN) Centre for Energy, Renewable Energy and Energy Efficiency Partnership (REEEP), ASEAN Regional Knowledge Network on Forests and Climate Change (FCC), and ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance (FLEG). These cases illustrate effective (or ineffective) environmental and energy networks and the factors that are associated with network governance.

1. Introduction

One of the founding personalities behind the Organization of Petroleum Exporting Countries, the Venezuelan Juan Pablo Perez Alfonzo, once joked that oil was "the devil's excrement" (Karl, 2005, 21). His statement hints that for some countries with relatively rich endowments of natural resources, such resources can become "curses" to public officials and ordinary citizens.

Indeed, a small but rigorous sample of political science and economics scholarship has arisen typifying just how difficult proper management of natural resources, and the resolution of other common pool resource problems, can be. Bouwen and Taillieu (2004) tell us that conditions and social dynamics must be cultivated that lead to sharing of responsibility, exchange of information, shared construction of reality, and empowerment.[1] Similarly, Folke et al. (2005) write that adaptive resource managers are usually supported by flexible organizations with people that understand the resources in use, as well as problems encountered with their extraction, and are often self-organized around the issue at hand (i.e., a forest, a river basin, an electric utility network).[2] Other notable studies from Dietz et al. (2003), Ostrom (2000, 2009a, b), Ostrom et al. (1999) and Poteete et al. (2010) have identified a slew of social, political, and economic conditions conducive to sustainable resource management. These include the involvement of individuals who think in the long-term and see sustainable resource management as important for their own achievements; the availability of reliable information with minimal transaction costs related to its collection; open and frequent communication among stakeholders regarding costs and benefits; effective rule enforcement and provisions for forcing compliance (such as sanctions); and predictable and gradual changes to rules and enforcement when they occur.[3]

While a growing amount of literature has recently emerged describing the governance principles that work (and do not work)

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[1] For them, "interactive participation" and "open methods of coordination" are needed to incentivize people to participate in resource management plans and discussion. Responsibility must be engendered through the co-ownership of projects. Information exchange must provide a cognitive basis for enhancing interchange between experiential and expert knowledge. Shared experiences must serve to coordinate patterns and behavior. Communities must be empowered by natural resource production and use.

[2] They also argue that collaboration and leadership provide key functions such as building trust, making sense, and brokering deals. Trust creates a sense of community that makes it easy for stakeholders to work together. Civil society with a certain level of social capital and influence can press for the interests of the disenfranchised or underrepresented.

[3] Conversely, they find that major changes in group composition, inflexible and homogenous rules, rapid changes in technology, information failures between groups or generations, dependence on external sources for resources or aid, and unchecked opportunistic or rent seeking behavior seem to corrode effective governance and complicate cooperative efforts.

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involving common pool resource problems and environmental governance, less attention has been paid to evaluating the actual performance of those networks and the factors that could possibly explain variations of performance among different networks (with one notable exception being O'Flynn and Wanna 2008). Our paper looks at the challenges facing network governance for natural resources, primarily logging and forestry, and energy supply, primarily renewable energy and energy efficiency. The paper investigates what network governance is, as well as what types of challenges networks have to tackle. It then develops an analytical framework to evaluate the effectiveness of network governance consisting of five criteria: (1) clarity of roles and objectives among members, (2) having strong, independent, continual sources of funding, (3) institutional formality, (4) efficacy, and (5) resilience. Finally, we apply this framework to four case studies: the Association of Southeast Asian Nations (ASEAN) Centre for Energy, Renewable Energy and Energy Efficiency Partnership (REEEP), ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance (FLEG) and the ASEAN Regional Knowledge Network on Forests and Climate Change (FCC).

Our piece is unique in five ways. First, it proposes the first analytical framework we know of, quantitative or qualitative, to evaluate networked forms of environmental and energy governance. Second, it covers four case studies not well known outside of Southeast Asia, drawn from both a rigorous assessment of documents as well as original data collection through interviews. Third, previous work has sometimes considered communities and local end-users of natural resources a barrier to resource management, something that hinders effective management (Agrawal and Gibson, 1999). Contrary to these works, we see communities and non-state actors as an elemental part of any attempt to conserve or manage resources. Fourth, theories of resource management frequently take a steady-state view that sees social or ecological change as gradual, incremental, and therefore predictable. Such studies can disregard complex interactions or interactions across scales and create an overly simplified and partial view of the resource management and governance process. And finally, our study fills the gap in the literature of governance networks where most cases are of domestic focus, whereby our cases are all multinational networks.

2. Research methods and case selection

We began by selecting four cases of networked governance to examine. We sought to include a mix of geographic locations, types of organizations, and sectors within Asia. We chose energy efficiency and renewable energy because it is a pressing global governance problem (Florini and Sovacool, 2009, 2011). Sustainable forest management was chosen because it represents one of the most crucial natural resources for ASEAN, and also because of its immediate linkages to livelihood protection, economic prosperity, and the global issue of climate change.

After we selected our four cases, our methods of data collection consisted of document analysis and targeted semi-structured interviews. Our document analysis relied on collecting peer reviewed articles, reports, and policy briefs about each of our four case studies—REEEP, ACE, FLEG, and FCC—published in English from 2006 to 2011.

To supplement document analysis, we conducted 15 targeted semi-structured interviews from November 2008 to February 2011: five with officials at REEEP in Vienna, Austria; four with the ASEAN Centre on Energy in Jakarta, Indonesia; four with the head and members of FLEG in Kuala Lumpur, Malaysia; and two network managers of FCC based in Jakarta, Indonesia. In each case, we asked questions relating to (a) general background information about the network, (b) operational challenges the network faces (c) benefits of their programs, and (d) lessons their experiences may have concerning the study of public policy and governance more generally. Although each interview was transcribed and carefully coded, it was mutually agreed at the beginning of each interview that participants were speaking confidentially. We thus present their statements below anonymously and without attribution. This approach prevents verification of the authors' interpretation and analysis of the interviews, which must be taken on trust.

3. Network governance for natural resources and energy

In this section we explain the sources of our framework to assess natural resource governance networks. We draw primary on the network governance and the adaptive governance literature. The term *governance* has been used extensively by many scholars in various fields (Kjaer, 2004). It can be defined broadly to be "structures and processes by which people in societies make decisions, set rules, and share power" (Folke et al., 2005: 444). The idea accepts the importance of network relationships, the mixture of public and private resources, and the use of various instruments in policies (Peters and Pierre, 1998). However, to be more precise we should take into consideration the different angles of definition that authors have taken. Rhodes (2000) summarizes seven definitions: governance as corporate governance; governance as new public management; governance as 'good governance'; governance as international interdependence; governance as socio-cybernetic system; and governance as networks. It is this last definition of governance as networks that we draw our attention to, and by closely studying different networks we are, in actual fact, unpacking governance systems.

Studies on governance networks have expanded in the last 20 years. In the fields of public policy and public administration there are many overlapping concepts and theories that relate to the study of networks. Our own cursory review revealed terms such as systems theory, complexity theory, policy networks, policy communities, communities of practice, collaborative management, interorganizational relations, issue networks, polycentricity, adaptive governance, governance networks, and network governance. The concept of network gained recognition in the fields of public policy and public administration by two factors: the rise of network society; the growing interest to *governance* as a way to administer policy and service delivery (Klijn, 2005). This paper observes the network governance aspect.

Our premise is that performance of networks is determined by a set of characteristics that we can also find in single organizations. *Governance network* can be defined as "inter-organizational networks comprised of multiple actors, often spanning sectors and scale, working together to influence the creation, implementation, and monitoring of public policies." (Koliba et al., 2011). On the other hand, *network governance* can be defined as the act of designing, managing, coordinating strategies, structures and processes of inter-organizational relations in order to affect public policies. This definition is adapted from Provan and Kenis's (2007) study of three network governance models: shared governance; lead organization; and network administrative organization as well as Kickert and Koppenjan's (1997) study of complex networks.

This definition marks the distinction between network governance and policy networks. Policy networks usually refer to a group of various people who are connected or are held together by common interests for certain policy problems. They are often treated as interest groups influencing government decisions (see Marsh and R.A.W, 1992; Marsh, 1998). A similar concept to policy

networks would be policy communities. Studies on policy networks do not focus on how the network is governed, whereas the study of network governance explicitly focuses on how networks can be managed to achieve certain network goals. Often these goals are beyond the capability for any single organization to achieve on its own.

Governing structures that are market oriented function by price-based mechanisms, whereas governing structures of bureaucracies function by rule-base mechanisms or so-called administrative orders. Some conclude that the network form of governance is somewhere in between market and bureaucracies or that networks are a combination of markets, hierarchies and collaborative arrangements (Koliba et al., 2011). Some say they "are an alternative to, not a hybrid of, market and hierarchies" (Rhodes, 2000, 61). While some authors argue that trust and cooperation are central mechanisms of network governance, we do not have yet a sophisticated theory to explain the effectiveness of network governance.

Furthermore, network governance has been observed to hold certain negative characteristics. Networks are less flexible than markets and lack the willingness to develop long-range plans. They often lack accountability systems and are inefficient due to delays (Rhodes, 2000). Similar to running a successful organization, networks require a good flow of information; sufficient cooperation; expertise to make judgments; and long-term relationships (Rhodes, 2000). Dawes et al. argue that public sector knowledge networks must move from the 'need to know' to 'the need to share' mentality. This is because there is *realpolitik* in sharing knowledge and information among network members and this is a skill that participants must have (Dawes et al., 2009). In essence, these negative attributes imply that networks can be as poorly managed and ineffective as their private sector or government counterparts (Podolny and Page 1998).

In this paper we argue that effective network governance requires a set of managerial tools and skills. And there is a need to develop performance indicators that can help guide network leaders and managers of how to effectively run networks. From his study of various networks, Agranoff (2006) developed a list of principles to best manage networks. They are (1) Be representative of your agency and the network; (2) Take share of administrative burden; (3) Operate by agenda orchestration; (4) Recognize shared expertise-based authority; (5) Stay within the decision bounds of your network; (6) Accommodate and adjust while maintaining purpose; (7) Be as creative as possible; (8) Be patient and use interpersonal skills; (9) Recruit constantly; and (10) Emphasize incentives.

The strategies for having participants manage networks are varied. If networks are a combination of markets, hierarchies and collaborative arrangements, the governance of such networks could include any of the following: command and control; competition; concession and compromise; collaboration and cooperation; and coordination (Koliba et al, 2011). The strategies are oversight; providing resources; negotiation and bargaining; and facilitation (Koliba et al, 2011). Similar to the policy formulation process, networks can be formed from a variety of push factors, including leaders from governments, international organizations, and international NGOs and civil society groups.

Provan and Kenis (2007) discuss the impact of governance on network effectiveness. They propose three types of network governance: (1) participant-governed networks, (2) lead-organization-governed networks, (3) network administrative organization. They propose four key structural and contingencies that affect the success of networks: trust, size (number of participants), goal consensus, and the nature of the task (Provan and Kenis, 2007, 237).

Previous studies on networks of natural resources have focused on policy networks and their formation (See Toke, 2000) and their ability to influence policy change (See Richardson et al., 1992). Most network cases in these studies are made of members that have similar goals. Few studies address the cases where the members might have conflicting goals and are forced to come together to form networks for solving common pool resource problems. The four cases below illustrate this complexity.

4. Performance of networks for natural resources and energy

In this section we propose five criteria to assess the potential effectiveness of network governance. They are (1) Clarity of Purpose, (2) Funding, (3) Institutional Formality, (4) The Ability to Exercise Power to Meet Agreed Network Objectives, and (5) Resilience or Strength of Ties. We propose that these criteria are fundamental elements of organizational and institutional arrangements applicable to network settings. They are goals (clarity of purpose); capacity (funding and formality); and relationships between parts (power relations and resilience).

4.1. Clarity of purpose

It is intuitive that effective networks should have a clear sense of its goals and missions. Goal orientation of network members is a crucial part to make the network long-lasting. For any entity to measure the level of success first it must have a sense of purpose for its existence. Goals, missions, visions, and objectives are expressions of an entity's purpose. Common sense tells us that networks with clearly stated goals will often also have clear roles and responsibilities among members. Also studies have shown that the success of a network is partly determined by whether there is alignment with different levels of goals of member agencies. Clarity of purpose does not occur naturally but rather members must go through a process to have dialogues which creates a discourse to shape ideas and common understandings. It is dangerous to assume that meanings are clear to all members (Dawes et al., 2009).

4.2. Funding

Though funding can come with strings attached, implying a loss of autonomy and authority for the recipient governance network, we believe that a sufficient independent and continual source of funding is an important criterion to judge the effectiveness of networks. Often networks rely on their members to pool resources to implement network-led projects. The dilemma may arise where organizations, as members of networks, are also struggling to secure their funding and make use of their limited funds. Giving such resources away to the network might not be in their best interest. In addition, often network-led programs have multiple goals in nature, which may make them less attractive to donors or potential sponsors. Networks that can overcome such problems are prone to be more effective.

4.3. Institutional formality

Institutional formality refers to two aspects: whether the network has formal recognition; and whether the network behaves formally in interactions. Some indicators of having formal recognition includes having a permanent secretariat and full time staff. Also the network might have legal status and it can be supported by established international entities. One study of 6 public sector knowledge networks reveals that legal basis is necessary for legitimacy of networks (Dawes et al., 2009). Thus legal formalization of networks helps to launch and sustain the network. However, it is also important to strike a balance

and make sure the network can stay flexible and adapt to new structures and arrangements when needed.

4.4. The ability to exercise power

Power can be defined in two ways: one is the power to manage within the network and the other is the power which the network has to influence the outside world. The former we shall call *internal power* and the latter *external power*. Goldsmith and Eggers (2004) argue that the key to managing or facilitating networks is the capacity to work in shared power relationships. This is internal power, and if networks can get this right they are deemed to be effective. As for external power, it refers to how much influence the network has on altering actual policies or behavior. For natural resource management it is interesting to note that without coercive power the network can use only soft persuasive power and expertise power to influence policies.

4.5. Resilience and strong ties

Of all the five criteria, this is the only one that distinguishes networks from single organizations. This criterion illustrates the importance of inter-organizational relationships between network members, as well as elements of adaptability and the resolution of conflict. The relationships themselves are at the core of what makes the network 'a network'. It is important to know the cohesion factor in networks (Agranoff, 2006). The network should have a life of its own. Members should be able to enter and leave the network without disrupting the direction and work of the network. Some studies argue that strong ties of association can foster dependency and inflexibility. Loose ties can be more adaptive (wider members, less formality, less clear objectives) but it can also make it difficult to mobilize as a single unit (Grabher, 1993). Thus it is important to judge the strength of ties among network members to gauge its effectiveness. Moreover, resilient networks can adapt and evolve to challenges and even continue to function after they have fulfilled their mandate, and tend to have formal modes of conflict resolution, arbitration, or consensus style methods of decision-making so that when members disagree, the entire network does not collapse.

5. Four case studies

5.1. ASEAN Center for Energy (ACE)

The Association of Southeast Asian Nations (ASEAN) became interested in energy activities after the OPEC oil embargo of 1973 motivated them to create a Petroleum Council in 1975. Member countries established the ASEAN Centre for Energy (ACE) in 1999, after agreeing in late 1998 to create a network that would "initiate and facilitate" policies and investment in the regional energy sector. As an umbrella organization, ASEAN's stated objectives are to accelerate economic growth and development in the region, and promote regional peace and stability through cooperation. ACE's vision and purpose fits centrally into these objectives, as it intends to help unify and coordinate the activities of ASEAN member states in the areas of oil and gas, renewable energy, electricity, and buildings.

The clarity of its purpose, however, is clouded by the lack of a specific mandate. Its website, accessed in 2010, states that:

> The Centre is envisioned to be a catalyst for the economic growth and development of the ASEAN region by initiating, coordinating and facilitating regional as well as joint and collective activities on energy. To realize this vision, the Centre will accelerate the integration of energy strategies within ASEAN by providing relevant information state-of-the-art technology and expertise to ensure that over the long term, necessary energy development policies and programs are in harmony with the economic growth and the environmental sustainability of the region.

One official described the official mandate of the ACE network even more succinctly as "coordinating and facilitating regional, joint, and collective activities on energy." Another official within ASEAN stated that its goal was "to ensure greater security and sustainability of energy supply through diversification, development and conservation of resources, the efficient use of energy, and the wider application of environmentally sound technologies." ACE's formal charter is just as vague and broad, arguing that the Centre "shall enjoy the full capacity necessary … to conclude agreements with states, local, or international organizations, contract, acquire and dispose of property, and be a party to legal proceedings … in the matter of energy." One respondent commented that "everything falls into this category, making it difficult to focus on a particular program or area."

In terms of funding, the network is moderately well supported. It was initially set up with an ASEAN Energy Endowment Fund consisting of $5.3 million, shared in part by each of the 10 ASEAN member states. Indonesia also volunteered to give ACE offices within its Ministry of Mines and Energy. It therefore operates on an annual budget of about $600,000, enough to hire ten fulltime staff and maintain an office location in Jakarta, Indonesia.

Its institutional formality is also moderate, with a Governing Council comprised of Senior Officials on Energy from ASEAN members and a chairman selected by the ASEAN Senior Official's Meeting on Energy (SOME), which occurs every two years. Fig. 1 shows ACE's organizational structure, which consists of an Executive Secretary, Executive Director, and Advisory Body that manage 17 separate programs (or more programs than the number of individual staff).

ACE's power, however, appears limited. It has no formal ability to implement actual energy projects, just jurisdiction to "guide discussions and policy," whatever that means. It played an "active role" in drafting a five year "ASEAN Plan of Action for Energy Cooperation" for 2004 to 2009 and a separate plan for 2010–2015, but this Plan has never been fully implemented. It has been charged with promoting the following regional projects, technologies, and research:

- The Trans-ASEAN Power Grid (regional project);
- The Trans-ASEAN Gas Pipeline (regional project);
- Coal and Clean Coal Promotion (technology);
- Energy Efficiency and Conservation Promotion (technology);
- New and Renewable Energy Development (technology);
- Energy Policy and Environmental Analysis (research).

Yet the Trans-ASEAN Power Grid and Trans-ASEAN Gas Pipeline have faced immense technical, social, and economic challenges (Sovacool, 2009a, b, 2010a, b, c). Renewable energy and energy efficiency technologies remain impeded by slow rates of consumer acceptance, conflicts over intellectual property, and poor institutional capacity of regional government actors (Sovacool, 2010c). And other organizations, such as the Asia Pacific Economic Cooperation (APEC) Energy Working Group, Asia Pacific Energy Research Centre in Japan, and the Energy Studies Institute in Singapore have eroded ACE's role on energy research and analysis.

ACE does have a degree of resilience, however. Situated within ASEAN protects it from being subject to continual bilateral approval, and one official told me that the organization's budget has always been funded, and supported, by ASEAN member states. It also interacts closely with state-owned energy companies such

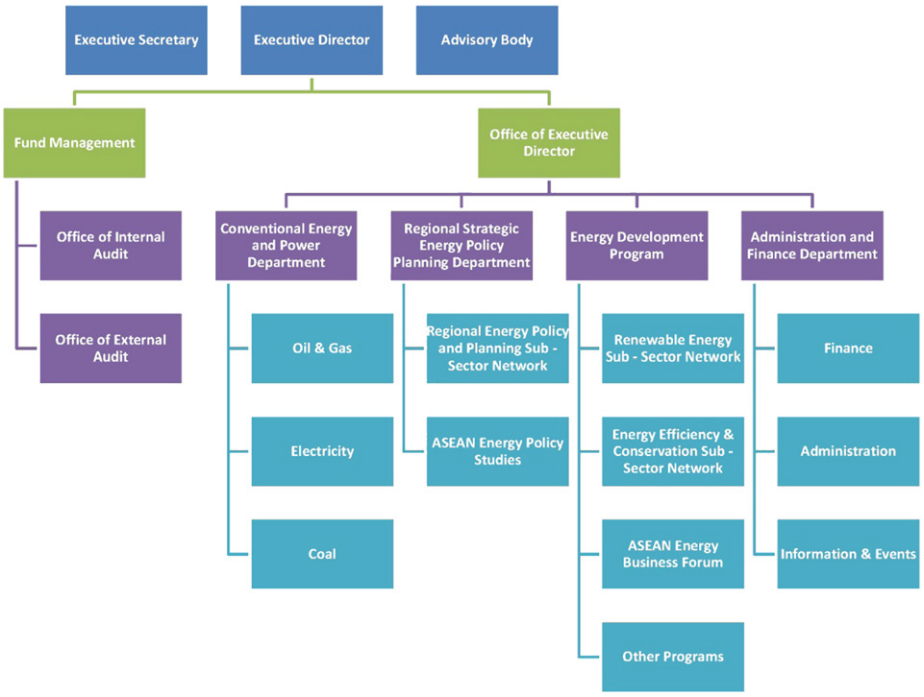

Fig. 1. Organizational Structure of ACE.
Source: Authors.

as Petronas and Pertamina, and civil society networks related to issues such as climate change, palm oil production, deforestation, and renewable electricity.

5.2. Renewable Energy and Energy Efficiency Partnership (REEEP)

Deeply affected by debates within the Group of Eight (G8) about sustainable development, electricity, energy poverty, and renewable sources of energy, a collection of actors from the private sector, public sector, multilateral finance, and civil society decided to create REEEP in 2002. The network's mission is rooted in three central areas: climate change mitigation, or the reduction of greenhouse gas emissions; energy access, namely expanding electricity networks and the diffusion of small-scale renewable energy technology such as solar home systems and biogas units to the rural poor; and encouraging energy efficiency, conservation, and demand-side management. Voluntary contributions from its member states make up most of REEEP's budget and the network does not place restriction on membership.

The clarity of purpose for REEEP is relatively strong compared to our other case studies. The network supports only projects that can be scaled up in a "variety of different regulatory frameworks," in essence meaning their efforts and projects are designed to work in various countries and in different types of energy markets (Florini and Sovacool, 2009). One key part of this strategy is to overcome the remaining barriers to renewable energy by employing attorneys and technical experts to proposes changes to government regulation and policy. Another important part of their strategy is providing low-cost financing for projects so that entrepreneurs and investors can deploy cleaner technology in emerging markets. A third component is maintaining "technology neutrality," enabling its partners to decide which particular low-carbon technologies they want to adopt or deploy (Parthan et al. 2010).

REEEP has many actors through which it raises revenue. It receives donations from a combination of banks, nongovernmental organizations, national governments, and ordinary private sector enterprises. The decision making authority for the network lies with a central governing board. This board is comprised of nineteen partners, the chair currently located within the Department for Environment, Food, and Rural Affairs within the United Kingdom. REEEP collects about $9 to $12 million in funding each year as part of its operational budget, the largest portion given from the governments of Norway and the United Kingdom. Yet the network spends more than ten times this amount on actual projects through money raised from its members. For instance, by 2010, REEEP had managed almost 150 projects in 56 countries with a combined worth of $90 million, most of this supported through private equity financing with REEEP serving as a matchmaker, with 37 new projects in the design phase (Florini and Sovacool, 2009; Parthan et al., 2010). These new projects in the pipeline included those related to solar thermal water heaters in Uganda, compact fluorescent light bulbs in India, the use of rice husks and sustainable biomass in rural China, and raising financing for wind and solar projects in Mexico. REEEP also coordinates the activities of 270 partners, 46 of which are national governments: a Sustainable Energy Regulators Network dedicated to regulation, a Renewable Energy and International Law network emphasizing law, and an Energy Efficiency Coalition supporting energy efficiency for buildings (Parthan et al., 2010).

Institutional formality has also strengthened over time and is now relatively robust. For its first two years the network only conducted workshops related to renewable energy, focused on identifying stakeholders interested in energy efficiency and renewable energy, and had no secretariat. An international secretariat was established in Vienna, Austria, in 2004, when it began hiring full time staff. Its secretariat acts as a "central service hub" which collects and disseminates information and also provides support to the organization's 18 regional secretaries. An International Director for the network is in charge of overall strategy, a finance committee manages the budget, and a steering committee implements regional action plans, shown in Fig. 2. It also has regional offices for East Asia in Beijing China; for Latin America and the Caribbean in Washington, DC; for Africa in Johannesburg, South Africa; for South Asia in New Delhi, India; and for Southeast Asia and the Pacific in Southbank, Australia.

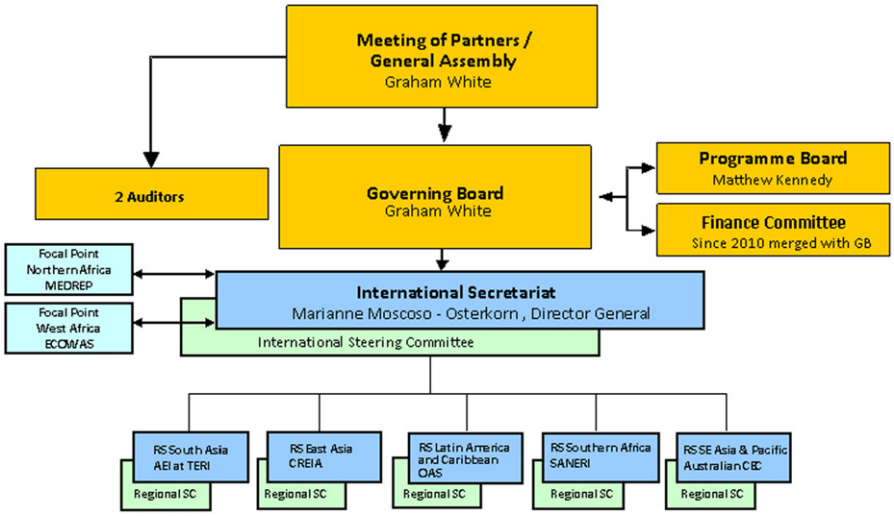

Fig. 2. REEEP Institutional Structure, 2007.

The network is moderately effective at accomplishing its goals. As previously noted, it operates on a much smaller scale than intergovernmental organizations. It emphasizes facilitation and capacity and the majority of REEEP's partners are bankers, financiers, and NGO managers. One benefit to its structure is the flexibility it enables; because REEEP is relatively small, it can engage actors closer to the local scale, improving efficiency and accountability. Another advantage is the iterative relationship between partners in the network. Frequent interaction between members creates an intense amount of feedback about the efficacy and challenges facing ongoing projects. The network sponsors and manages frequent meetings and consultations with its partners as well, which helps ensure that "fresh" data are always being circulated to members. The REEEP managers we spoke with stated that this tends to enhance effective implementation, done through a decentralized network closer to "people on the ground," instead of relying on a "one-size-fits-all" strategy of implementing projects (Florini and Sovacool, 2009). One independent assessment of REEEP programmatic activities noted that 71 percent of its projects were deemed "successful" or "highly successful" by its partners, with only 19 percent "moderately successful" and 10 percent "unsuccessful" (Consortium Le Groupe-conseil Baastel Ltee & Econoler International, 2009).

One disadvantage to the network, however, is that due to their smaller scale REEEP must simultaneously track scores of individual energy projects rather than, say, a large, massive power plant. Moreover, REEEP's large volume of members can create delays as those partners discuss, and at times disagree about, particular projects. Since the bulk of REEEP's budget is from voluntary contributions, its planning horizon for projects is "perpetually oriented towards the short-term," as one manager told us. Lastly, one study warned that "REEEP needs to directly engage more government agencies dealing with low-carbon energy issues, as well as energy regulators, banking and financial institutions, and energy businesses" (Parthan et al., 2010: 87).

Finally, REEEP is certainly resilient. It is supported primarily dozens of institutions including:

- Governments such as Australia, Austria, Canada, the European Union, Germany, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, the US and the United Kingdom;
- Private sector actors including the National Australia Bank and Siemens;
- Manufacturing organizations such as the European Insulation Manufacturers Association and the North American Manufacturers Association;
- Research institutes such as the The Energy and Resources Institute (TERI) in India and the Mediterranean Renewable Energy Centre in Tunisia;
- Intergovernmental organizations such as the UNDP, UNEP, European Commission, and Organization of American States.

Such a broad network ensures that if any of its 350 partners leaves the network the others still enable it to function.

5.3. *ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance (ARKN-FLEG)*

Fully supported by the German development agency – GTZ, under the umbrella ASEAN-German Regional Forest Programme (ReFOP), the ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance (ARKN-FLEG) was formally established with the endorsement of the ASEAN Senior Officials on Forestry (ASOF) in October 2008. In the first phase of ReFOP from 2003 to 2008, inter-governmental effort on forestry management through the formal ASEAN mechanism was not sufficient to create substantive impact. Timber and non-timber forest products provide great economic and social benefits to ASEAN member countries. However, law and regulation of such products differ drastically in member states. This became a source of conflict among member states and also makes it difficult for ASEAN to participate in the EU market due to lack of standardization. For example one product labeled illegal in one country can be considered legal in another. Annual meetings of ASOF often resulted in deadlocks. Consensus was not easily reached, and resolutions were very difficult to be implemented in member states.

In order to remedy the problem, a series of informal discussion groups and seminars for the regional experts and higher-level managers in the area of forestry management was held. Experts and officials from forestry related organizations were encouraged to interact, exchange information, collaborate in research and develop personal networks. This was the start of FLEG. One official of the network said the network is "to find a way out of the formal and rigid structure within ASEAN on forestry issue."

According to the terms of references FLEG's goals were the following:

"The goals of the Network are to:

(i) support ASOF and the ASEAN Ministers on Agriculture and Forestry (AMAF) in decision making and implementation

processes by providing specific policy-oriented and focused research and policy analysis;
(ii) enhance mutual understanding and support effective implementation of the Work Plan for Strengthening Forest Law Enforcement and Governance (FLEG) in ASEAN, 2008–2015;
(iii) respond to emerging issues on FLEG as identified in the agenda and work programmes of ASOF and AMAF;
(iv) institutionalize the Network in one of the organizations in ASEAN to support and work with the ASEAN Secretariat on FLEG implementation; and
(v) provide effective networking and partnering with other institutions, agencies, instruments and processes working on FLEG issues at the regional and global levels."

(ASEAN, 2008)

As listed the goals of the network are varied, ranging from being a provider of knowledge on forestry governance to supporting the FLEG work plan. The main goal is to have a group of experts in ASEAN analyze policies and give sound recommendations to the senior officials and ministers in the region. However the goal of also having to implement or monitor FLEG programs makes the purpose of the network less precise. Interviews with some members of the network reveal that they were hoping for clearer meeting objectives, and more substantive, 'result oriented" discussions with a focus on technical matters. According to some members, their main purpose to join the network was to bring back information, and to make sure that their countries did not "miss out" on any agreement made between other member states on the issue. This demonstrates that while the network's goals are clear, often members possess other interests that reflect their own organizations' goals.

In terms of funding the network is in a vulnerable position because it relies funding solely from donors. For each project the network must seek multiple donors to each fund certain parts. This proves to be very challenging because the donors' goals must all align, which seldom happens. GTZ funds the network's administration, service contracts for research and publications, and the basic expenses in convening meetings. ASEAN, on the other hand, faces limited resource to fund network projects. Partner organizations serve as another possible source of funding for the network but that is also very difficult. In one meeting of FLEG, for example, members agreed to hold a workshop to enhance members' knowledge on the issue of forestry law enforcement. However, this initiative could not proceed immediately. The member initiating the workshop had to submit a formal application to the donor organization, and the viability of the workshop was subject to their approval. Donor organizations often have restrictions on the programs they funded and the application procedures for the funding were often complex. Thus all initiatives take time to materialize.

In terms of the level of institutional formality the network is set up to be semi-formal. Fig. 3 shows how ARKN-FLEG and ARKN-REDD sit within the hierarchy of ASEAN regional body (Obser, 2009). GTZ developed this so-called Double-Tiered Capacity Development strategy, which aims to build capacity for ASEAN at the technical expertise level and also at the higher decision making level of senior officials. Although embedded as part of ASEAN, the network does not have a permanent status nor is it a legal entity. It is not considered a decision-making body. Direct observation reveals that the network members are highly influenced by the formal bureaucratic culture of the ASEAN secretariat and ASEAN meetings. For example certain formality was in place in network meetings which required official dress codes and country name tags, and individuals were addressed as representatives from their respective countries. Nevertheless, at the same time, members were encouraged to address each other by first name to create a friendlier open-communication environment. This ARKN-FLEG does not have the attributes of a flexible, informal, flat structural arrange that we would normally associate with networks. (Fig. 4).

The individuals who are appointed to attend the network meetings are mid-level technocrats from relevant Ministries. A dilemma that these individuals face is how much information they should share with other network members. Since the network is considered close to ASEAN, individuals feel restricted to openly communicate, because ASEAN is closely tied to national governments. Some individuals fear of losing a comparative advantage in the aggressive competition of the forestry industry.

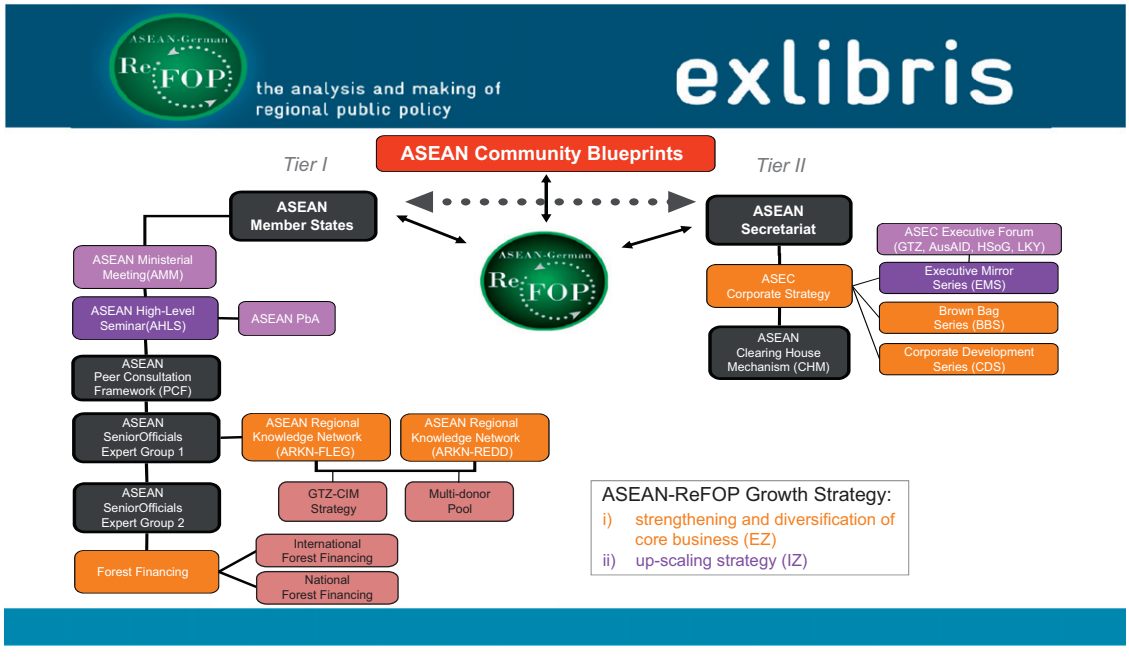

Fig. 3. GTZ and ASEAN's Double-Tiered Capacity Development strategy.

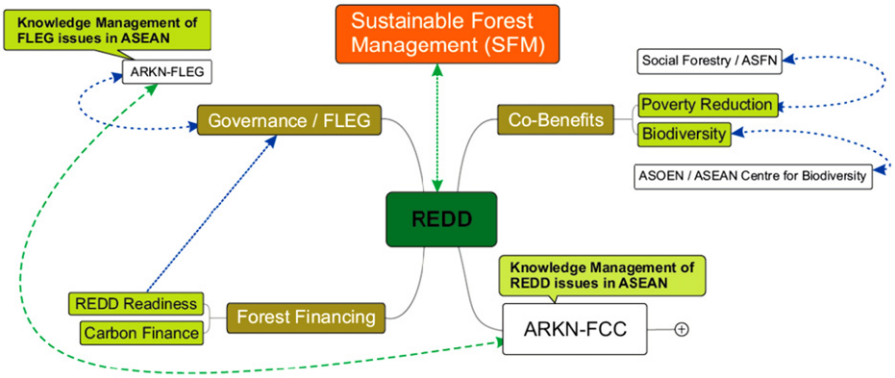

Fig. 4. REDD and its components in ASEAN.

In addition, members of the network have a tendency to not recommend radical changes, partly because they would have to implement whatever changes they proposed. Without the right incentives, these so-called bureaucratic technocrats are reluctant to initiate new ideas. This kind of network is in constant struggle to strike a balance between formality to remain order and the informality to encourage innovation.

The network is recognized by ASEAN member states because its members were chosen by respective Ministers from each government. But since it is not a decision-making body, the network is not able to exercise power over external actors. Rather, it is restricted to bringing the member states together by sharing information on forest law and its enforcement. So far the network has received support from member states even though it has no explicit power to control its members, whether as individuals or as nation-states. This is in correlation with the status of ASEAN. For example in network meetings, each government can send anyone. It does not have to be the same people who attended previously. This sometimes makes the young network difficult to manage because new members require new rounds of explanation and dialogue to generate a common understanding. The network cannot force individual members at the meeting to share comprehensive information on forest management. The network functions by allowing individuals to get to know and trust each other in the hopes that more information sharing will occur.

FLEG will not survive without its founding members from the ASEAN States. The ASEAN members of the network are the anchor of the network. The majority of the members are representatives of their respective governments. These are Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Thailand and Vietnam. The ASEAN Secretariat plays an important role as the institutional hub of the network. While memberships were intended to be stable, on some unusual occasions, such as a change in office of the initial member, ASOFs might make changes to the appointments.

At the same time, there are members by invitation who belong to academic institutions and non-government think tanks. They include TRAFFIC International, The Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), the World Conservation Union (IUCN), the Institute for Environment and Development (LESTARI), the College of Forestry and Natural Resources (University of the Philippines Los Banos) and a forestry concessionaire in Indonesia. The network also has partners including the Food and Agriculture Organization of the UN Regional office for Asia and Pacific in Bangkok, the World Bank, the UN Office on Drugs and Crime (UNODC), the International Tropic Timber Organization (ITTO), and the European Forest Institute (EFI).

This dual category of membership provides the network some degree of flexibility and resilience. Non-state members can come and go and the network will still stand. However the network is completely reliant on ASEAN, and given that the issue of forestry requires close collaboration, the network cannot function without the full cooperation of all ASEAN member states. This makes this network less flexible and dependent on centralized control than some members expect.

5.4. ASEAN Regional Knowledge Network on Forests and Climate Change (ARKN-FCC)

Also a program established as part of the ASEAN-German Regional Forest Programme (ReFOP), ARKN-FCC aims to generate knowledge and policy positions for ASEAN members in order to take part in and influence the ongoing negotiations of the Reducing Emissions from Deforestation and Forest Degradation (REDD) in developing countries. The network is also referred to as ASEAN Regional Knowledge Network on Reduced Emissions from Deforestation and Forest Degradation (ARKN-REDD). The setting up of this network is an attempt to move ASEAN member states away from competing with each other for the limited resources but rather to have an agreement on broad issues and have a coordinated stand on forestry in climate change issues (Fawzia, 2009a, b).

The term of reference of the network is the following:

"The goals of the network are to:

(i) Support ASEAN decision-making and implementation processes by providing inputs based on policy-oriented research results, outcomes and policy analysis on forests and climate change;
(ii) Support ASEAN Member States to better understand and learn from each other's approaches in the implementation of forests and climate change activities and good practices;
(iii) Stimulate research and debate to develop, advise and facilitate solutions in forests and climate change issues among ASEAN Member States and ASEAN Partners."

(ASEAN, 2009)

The above figure shows how both the FCC network and FLEG network fit into the framework of REDD (Fawzia, 2009a, b). The goals include not only to support decision-making by providing knowledge expertise on forestry and climate change but the network is to serve also as a platform for sharing good practices and facilitate the process to find solutions. These latter two goals are ambitious for the network, especially because it is trying to marry the issues of forestry and climate change.

Since its goals are broad the network is constantly challenged to set clearer objectives. As one network manager put it, "FCC had no plan, we were constantly working by setting up agendas as we moved along. New agendas were set each time." She explained

further that the reason was because FCC was working on issues that were not clearly defined. The foundation for REDD was in development stage, including how to count the carbon, how to do carbon accounting, and how to actually pay for carbon. She explained that "International negotiation was still ongoing and we (as ASEAN) wanted to influence the debate of REDD. We wanted to focus on the research agenda. To see how the evidence from the research can help support ASOF members to decide what should be done for respective countries and for ASEAN." This demonstrates that at the goal setting stage, it can be very fragile for the network because members are unclear of what the network is for and what their roles are.

The mode of communication was done mainly through two venues: the ASEAN Clearing House Mechanism, which is basically a website to upload information and for members to have closed-door online discussions; and the annual network meetings. One manager of the network offered the opinion that "ASOF members would meet only once a year and that was not adequate for creating a common understanding of the issues related to climate change and forestation. The idea was to have more meetings and to create a policy network." This reflects the challenge of networks that have geographically separated members; they are not able to meet often. This poses a problem for knowledge sharing since dialogue may be needed to ensure network effectiveness.

In terms of power, because the network holds expert knowledge on forestry and climate change, it has been influential for ASEAN. At the 14th Session of the Conference of Parties of the United Nations Framework Convention on Climate Change (COP 14) in Poland 2008 ASEAN for the first time submitted a joint position for the UNFCCC negotiations (Fawzia, 2009a, b). This is one of the greatest accomplishments for the network.

As of December 2010, this network is used as a platform to build a new collaboration program between GTZ and ASEAN. The agenda is tentatively called "ASEAN Multi-sectoral Framework on Climate Change: Agriculture and Forestry towards Food Security" (AFCC). This agenda includes a much broader spectrum of issues related to climate change such as agriculture, fisheries, and forestry, all of which are in line with the ASEAN Integrated Food Security Framework (AIFS). The FCC network is also exercising its indirect powers to shape the agenda for future corporations.

As for the level of resilience, similar to FLEG, the FCC network also has the dual category of membership: the network members – ASEAN member states; and the network partners – plus individuals or non-state organizations that are invited to join the network. This gives the network a working core and also the flexibility to engage multiple parties when needed. While the ASEAN Secretariat is designated to be its institutional hub, the network is facilitated by the Asia Pacific Association of Forestry Research Institutions (APAFRI). APAFRI provides the interface and manages communication channels for the network (ASEAN, 2009). This helps to take away the administrative role from ASEAN, but not the sense of ownership. Again, similar to FLEG, there is a risk in relying solely on ASEAN Secretariat as the main pillar. In order to sustain and grow the influence of this network, it must somehow have a life of its own, with or without direct administrative support from ASEAN. Having APAFRI as the administrative core of the network helps distribute the risk, which increases the level of resilience.

6. Conclusion

Table 1 illustrates the comparisons between our four case studies of network governance and summarizes our qualitative evaluation of them. Of these, REEEP demonstrates to be the most effective based on our five criteria. Close analysis reveals certain attributes that REEEP has that the other three networks do not. Firstly, the network is heavily supported by non-state actors: non-governmental organizations (NGO) and the businesses sector. This tripartite relationship between governments, NGOs and the business sector strengthens the possibility of securing resources and funding. The other three networks do not have business sector members and the NGOs are only recognized as partners rather than core members of the network. Secondly, REEEP illustrates a more horizontal network. Because of limited influence of governments in the network, there is less of a top–down mandate and restrictions on network management. This probably has helped the network be very adaptive and innovative while also maintaining formality and structure. Lastly the number of members of REEEP has grown to more than 300, which helps the network have a life of its own. The strong ties of members also reinforce all the other criteria to continuously make the network effective.

One contribution is that we have demonstrated the usefulness of the five criteria framework of clarity of purpose, funding, institutional formality, scope of power, and resilience to assess the effectiveness of networks. Admittedly, this contribution is only a first step. Further research ought to explore how networked governance compares to government and non-networked forms of governance. This paper has demarcated the challenges facing four networked forms of governance in Asia, but it would be interesting to determine which of these are unique to *network* governance, and those that seem to affect other forms of governance, such as "classic governance" involving nation–states or "new modes" of governance such as corporate social responsibility and global governance. In addition, we weight our five factors equally in this article and measure them qualitatively. Future research could correlate our metrics with quantitative measures and also assign different weights to each criterion; it could be that clarity of purpose or funding is more important than institutional formality and resilience (or vice versa), implying that such factors ought to be weighted more heavily.

Moreover, researchers and scholars could apply our existing framework to other networks in the energy, climate change, and

Table 1
Qualitative comparison of four governance networks.

	Clarity of purpose	Resources/ funding	Institutional formality	Scope of power	Level of Resilience
ASEAN Centre for Energy (ACE)	Lack of specific mandate	Moderately supported	Semi-Formal	Limited	Somewhat resilient
Renewable Energy and Energy Efficiency Partnership (REEEP)	Very Clear	Broad based funding	Robust	Influences members and policy	Very Resilient
ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance (FLEG)	Somewhat clear but ambitious	Weak	Semi-Formal	Limited	Not very Resilient
ASEAN Regional Knowledge Network on Forests and Climate Change (FCC)	Not clear due to complexity of the issue	Weak	Semi-Formal	Limited	Not very Resilient

forestry sectors. The Global Village Energy Partnership, Global Network on Energy for Sustainable Development, International Network on Gender and Sustainable Energy, and the Climate Group, to name a few, represent fascinating case studies to investigate. Unfortunately there is a level of green-washing and social fairness in some of these types of networks, which may prefer to spend money on useless meetings and lavish meals. On the other hand, many of these initiatives help push forward individual and national action on achieving energy and climate targets. A deeper, and more systematic, discussion of which energy and forestry networks truly "walk the walk" and result in progressive and positive change, versus those that "talk the talk" and result in nothing, would be quite useful.

Despite these promising areas of inquiry, the framework presented here allows us to compare across networks of energy and forestry governance, which in turn has shed light on possible explanatory factors as to why some networks are more effective than others. These explanatory factors have great implications for practitioners who are network managers. The bottom-line for practitioners is that in order to set up successful networks there should be clear mandates, flexible sources of funding, and a certain level of formality. The membership should always include non-state actors and the business sector, to ensure sustainability of the network. And the network should be kept horizontal, to allow new ideas and innovation to emerge.

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