

LAW, POLICY, ACTORS AND INSTITUTIONS IN TRANSBOUNDARY WATER GOVERNANCE

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Abstract

The successful governance of transboundary water depends on the interaction of law, policy, actors and institutions. This paper presents a framework for the analyses of these interactions using the example of the Sesan River (Vietnam and Cambodia). Law and policy represent two different but complementary forms of enforcement of agreements and need to be studied together. Both play specific roles in transboundary water management. Also, selecting either an actor-based or institutional perspective often fails to provide sufficient understanding of transboundary water governance. This paper therefore adapts an actor-network perspective that examines the complex nets of actors and institutions, and how law and policy creates different forms of interaction between them. Finally, the paper proposes an analytical framework for the study of law, policy, actors and institutions in the implementation of transboundary water governance.

Keywords

Law, Policy, Actors and Institutions

Part 1: A Framework for Analysis of Transboundary Water Governance Systems

Governance Systems

The term 'governance' is usually used to denote a form of steering, decision-making and implementation in which the power of formal actors such as governments, political parties and business management is shared and complemented by other actors such as stakeholders, NGO's and consumer organisations. In this context, government is usually associated with the use of command-and-control instruments as policy implementation tools (Pierre 2000), while governance is more closely related to instruments requiring greater participatory input from the governed. This can be seen especially in relation to the changes seen to be taking place from a system predominantly dominated by formal political institutions, i.e., 'government', to a system of shared responsibility 'governance'. Within water management, governance can be seen as a combination of formal actors and actors from civil society and the business community (Gooch 2006). While governance can refer to any system that includes these three groups of actors, the need for more effective administration, mainly by international finance and development institutions, has led to a debate over how 'governance' can become 'good governance'. In the context of transboundary water management, 'good governance' can be seen as a process through which the implementation, compliance and effectiveness of agreements, policies and management practices lead to the equitable, sustainable and efficient use of water.

Interplay – laws, policies, institutions and actors

A central aspect of governance is the role that law, policies and institutions play in influencing the affairs of society (or actors). While these factors are often considered synonymously, more work is needed to ascertain the role and function of each, in order to better understand, firstly, their individual contribution; and secondly, the interplay between different instruments. It is also important to consider how diverse groups of actors interact with law, policies and institutions. Ultimately, examining the interaction between such instruments offers an opportunity to ascertain how individual instruments, or a mix of instruments, best address certain problems and where key decisions about these mixes and instruments are made. While it can be useful to envisage laws, policy and institutions as existing at different spatial levels, the international, national, regional and local, we also need to remember that they are today interconnected. Studies of law, policy, actors and institutions therefore need to take into account these spatial levels before continuing with analyses of the 'modes of connection' and networks. An analytical framework also needs to include the analyses of the inter-organizational and institutional structures through which law and policy is implemented, an issue which despite a long history of recommendations (Hanf and O'Toole 1992), still needs more attention.

It is also important to recognize that both substance and process are central aspects of a governance system. For example, it is not sufficient to look solely at the standard set out within a particular law or policy. In order to consider the issues of implementation and compliance within the context of governance systems, it is necessary to take into account the processes by which such standards are adopted, implemented and adhered to, including who participated in that process and where key policy decisions are made in government (Franck 1988). Franck maintains that the *legitimacy* of a rule – measured partly by the *fairness of the process* by which it was adopted and its determinacy – will affect the *compliance pull* of a particular rule. The interplay between content and process is therefore an important area of study. An analysis of the actors and institutions involved in these processes must therefore complement the study of laws and policies, and will therefore be discussed in the next section.

Assessing implementation, compliance and effectiveness

The formal acceptance of a law or policy, while representing the end of one process, that of formulation and acceptance, is also the beginning of another process, that of implementation. The importance of implementation was recognised in Agenda 21, which called upon States, 'to ensure the effective, full and prompt implementation of legally binding instruments...taking into account the special needs and concerns of all countries, in particular developing countries' (Agenda 21, 1992). Whilst the importance of examining implementation has been recognized, more work needs to be done to assess the factors that contribute to effective implementation. Within the context of implementing international environmental agreements, (Redgwell 2007) observes that, 'notwithstanding the importance of international environmental law, national implementation is not generally addressed in any detail in the leading international environmental law texts'. Similarly, (Bodansky 2009) observes that, 'despite the importance of the implementation process, only in recent times has it received sustained analysis and much of the work to date has also been done by political scientists rather than lawyers'. Jacobson and Brown Weiss (Jacobson and Weiss 1998) also warn that, 'we know very little about national implementation and compliance with the treaties and other international legal instruments that have been negotiated, despite their importance and growing number. Even if no more accords were to be negotiated, it would be essential to make those that are in force work effectively'.

In addition to examining whether the appropriate measures have been implemented, an analysis of effectiveness must also consider whether actors adhere to (comply with) the provisions of a particular law or policy in that implementation. 'Compliance' can be defined within the context of treaties, as 'the fulfilment by the contracting parties of their obligation ...and any amendments to the multilateral agreement'. In examining compliance, it is important to keep in mind that there may be considerable variation in the 'obligation' that states have entered into pursuant to adopting a particular agreement. Compliance might therefore be measured against specific procedural or substantive obligations – and their supporting instruments – or the spirit of the treaty or national law. In addition, such commitments may be regulatory or programmatic. The relationship between 'implementation' and 'compliance' requires careful consideration. Raustiala (Raustiala 2000) notes that,

'...while implementation is typically a critical step toward compliance, compliance can occur without any effort or action by a government or regulated entity. If an international commitment or national law matches current practice in a given state, for instance, implementation is unnecessary and compliance is automatic'.

Raustiala goes on to state that,

'Compliance can also occur for reasons entirely exogenous to the legal process: economic collapse in the states of the former Soviet Union, for example, has produced perfect, but coincidental, compliance with many environmental treaties. Again, no causally-related implementation of the treaties occurred.... This example ... suggests that attention to the empirics of implementation processes can shed light on the real impact of treaties and commitments'.

Similarly, Jacobson and Brown Weiss (Jacobson and Weiss 1998) warn that,

'...effectiveness' is, not identical with, compliance. Countries may be in compliance with a treaty, but the treaty may nevertheless be ineffective in attaining its objectives. And even treaties that are effective in attaining their stated objectives may not be effective in addressing the problems that they were intended to address'.

Ultimately, any analysis of effectiveness within the context of governance systems must therefore be aware of the capacity and limitations in focusing solely on implementation and/or compliance. Underdal, (Underdal 2008) p. 64, identifies three areas of effectiveness, namely output, outcome and impact. According to Underdal, 'output' relates to compliance in the form of ratification or other formal steps of implementation taken by national governments in accordance with international agreements; 'outcome' refers to a change in the human behaviour targeted by a particular regime; and 'impact' focuses on changes in the biophysical environment itself that can be attributed to a particular regime. Other writers have adopted terms such as, 'implementation', 'compliance', 'legal effectiveness', 'behavioural effectiveness' and 'problem solving effectiveness' in order to categorise these key aspects of effectiveness. The terms 'outputs' and 'legal effectiveness' can be broadly seen as similar to that of 'implementation'. 'Compliance' is closely aligned with the concepts of 'outcome', and 'behavioural effectiveness'. Finally, 'problem-solving effectiveness' shares much in its meaning with 'impact'. UNEP defines 'implementation' as referring, *inter alia*, to 'all relevant laws, regulations, policies, and other measures and initiatives, that contracting parties adopt and/or take to meet their obligations under a multilateral environmental agreement and its amendments, if any' (UNEP, 2008).

Networks: a way to analyze interplay?

In the preceding paragraphs we have claimed that law, policy, actors and institutions, as well as the different spatial levels of these, are distinct but interconnected. What then is the nature of these connections? A defining aspect of the concept of governance is that relations take the form of networks (Rhodes 1996) and that the influence of actors in the governance system or network are a result of the positions that they occupy within these networks (Knoke 1990). These positions enable actors to influence the flow of resources, material or otherwise, and to control communication within the network. Networks are seen as channels of communication that facilitate information exchange, negotiation, coordination and access to decision-makers (van Waarden 1992). Network theory is compatible with governance as a concept through the ways in which the formulation and implementation of public policy is seen as a process of interaction between public and private actors that can be analyzed through the relations and contacts that play a part in the policy process (Parsons 1995) p.185. Network theory is, however, in itself not sufficient to explain the processes of the governance of water, especially transboundary water. These networks need to be placed in the legal and political context in which they work, and also need to be used together with other analytical tools, for instance theories of power or institutional organization in order to develop the utility of the concept (Dowding 1995).

Traditional network theory claims that networks can be classified according to differences in membership, integration, power and resources. Rhodes states that networks can vary along a continuum based on the closeness of the relationships within them (Rhodes 1997) p. 43, and he distinguishes between five different types of policy networks. These are a) policy community, b) professional networks, c) intergovernmental networks, d) producer networks and e) issue networks. Policy communities are stable over time, are restrictive in their membership and their members share basic values and are likely to accept the legitimacy of outcomes. Issue networks, on the other hand, are characterized by a large number of participants, resources and power are often unequally distributed, and while there is usually consensus on goals, basic values are not necessarily shared. The policy community is a usually a positive sum game but the issue network can be a zero sum game (Rhodes and Marsh 1992) p.182. The remaining three forms of networks, professional, intergovernmental and producer networks are placed in between policy communities and issue networks. Another established way of studying networks in water governance that can also provide us with useful insights, especially at the international level, is that of epistemic communities (Haas 1992). These are seen as networks of professionals with recognised expertise and authority in a particular domain, with shared normative and causal beliefs, shared criteria for validating knowledge in their area and a common policy enterprise (Haas 1992) p.3. Epistemic communities are also seen as a means of learning, of who learns what, when and how (Adler and Haas 1992). Finally, while any framework for the analysis of transboundary water governance needs to include the legal, political and institutional aspects presented in the preceding sections, it is also important to remember that the rivers and lakes, and the hydro-electric power stations and irrigation systems often constructed around them, also need to be taken into account. These represent not only the foci or end product of water governance systems, but also often play an important role in the networks and governance systems themselves.

Actor-Network Theory in Water Governance

Water governance systems comprise aspects of both the natural and social spheres and to be successful need to combine elements of both. While this is now commonly accepted, attempts to improve water governance and policy have often been hindered by the lack of suitable theoretical frameworks that can achieve this. Actor

Network Theory (ANT) focuses on the relationships between the human and non-human (Latour 1999; Latour 1999), and may provide us with a way to include material entities such as dams, water pollution, wells etc into analyses of societal water governance networks and institutions. While ANT is not a unitary theory it provides us with insights into how many of the problems faced by water governance are the result of our inability to perceive the complex interactions between human and non-human entities (Latour 1993) and to the dichotomy of human (policy, participation, socio-economic forces etc) and non-human (rivers, lakes etc) aspects. By looking at the relationships between these, and by accepting that non-human entities can perform as actants (actors) (Callon, Law et al. 1986) and must be included into analyses of water governance and its institutions, we may be able to avoid the twin traps of positivism or social constructivism (Latour 1999). ANT also addresses the major issue of scale and global/local causes and impacts of water management and calls for a focus on the interrelationships of the two (Latour 1993). While much work has been conducted in science studies, by geographers and in business studies, to date relatively little academic work in water management has directly utilized ANT, although the theory has established itself as a means to study 'nature' per se (Demeritt 2002).

Analytical framework and methods

The main components in the framework for analysis of water governance have now been presented; these are the laws, policies, actors and institutions involved in the systems, and the networks and forms of communication that form the relationships between them. The next step is the description of the framework itself, the ways in which the framework can be applied to transboundary water governance, and the methods proposed to be used in the operationalization of the framework. The main steps are an examination and analysis of:

1. The problem structure of the study area
2. The existing governance system
3. Factors influencing implementation and compliance
4. Strategies for overcoming barriers to implementing good governance

1: The problem structure of the study area

While not strictly constituting part of the governance system, no analysis would be complete without an appreciation of the problem structure, or in other words the underlying issues, challenges, interests and conflicts related to transboundary water governance within the case study areas. Victor *et al.*, (Victor D. 1998) highlight three aspects of problems that are significant in this respect (i) the ratio of costs to benefits, (ii) the distribution of those costs and benefits, and (iii) "strategic" considerations such as international economic competitiveness, see also, (Jacobson and Weiss 1998); (Bernauer 2002); (Lindemann 2005); (Mitchell 2008). In order to identify the problem structure within each case study area, an analysis needs to have recourse to the views and opinions of local stakeholders, members of the public and civil society organisation. An insight into these views and opinions can be gained through the use of *focus groups*, groups of 8 to 10 people, assisted by a moderator, who freely discuss the main problems and issues as they see them (Gooch, Huitema et al. 2004). In particular, focus groups can provide an important means by which to identify the determinants that are likely to influence future development within the case study areas (Gooch and Huitema 2007). Understanding such context can provide a platform by which to consider how law and policy interventions can help influence future development.

2: The existing governance system

A crucial second step within the analysis is to firstly map out the law and policy architecture, as well as the actors and institutions, both at the international and national levels, which are relevant to the case study area. Such a mapping exercise should identify the key legal and policy instruments, establish their relative importance and hierarchy, and consider the connections between instruments. At the international level, it is necessary to understand the degree of commitment that States entered into related to transboundary water governance. An analysis of the legal rules and principles contained in the relevant international agreements should therefore also be conducted, alongside an examination of the relationship between them. A second key component of the analysis at the international level is to examine the relevant policy instruments. Such instruments can include declarations, guidelines and working documents, produced by international institutions with a responsibility to implement the legal commitments related to transboundary water management. These policies may be overarching in that they may provide the foundations upon which the legal commitments were developed, or they may be specific in that they were developed to support the implementation of a particular legal commitment. The analysis should consider the linkages between different policies, as well as the linkages between the relevant policies and the legal commitments. At the national level, the work should seek to examine the national law and

policy framework, in terms of the interrelationship between, *inter alia*, the relevant national laws and policy instruments.

This component of the analysis should also identify the applicable institutions and actors both at the international and national level. At the international level such institutions might include specific organisations established pursuant to the terms of international agreements, or governmental and non-governmental organisations that support the implementation of the relevant regimes. At the national level, the research should identify the relevant institutions and actors water management; and civil society groups.

3: Factors influencing implementation and compliance

The third component of the analysis should seek to examine the frameworks three key factors that potentially influence implementation and compliance both from a theoretical and empirical case study standpoint, namely a) rule determinacy, b) actor networks and c) administrative capacity. In choosing rule determinacy, actor networks, and administrative capacity, the framework does not intend to be comprehensive in its assessment of factors that might influence implementation and compliance. Rather, the analysis seeks to identify three factors that, i) are capable of being examined with limited resources, ii) have been identified in the literature as significant; and iii) are susceptible to policy interventions, either through changes in the existing law and policy framework, or suggestions as to how institutions and/or actors can better utilise that framework.

Rule determinacy

Rule determinacy relates to the degree to which it is possible to ascertain the existence and nature of a particular legal right or obligation. Strong rule determinacy can be seen where rules clearly stipulate what rights and obligations pertain to which subjects (actors and institutions) of that law. Weak rule determinacy can be said to exist where it is difficult to determine the precise nature of a particular right or obligation. In addition, weak rule determinacy might exist where there is a conflict between rules, and there is no clear mechanism for reconciling such conflicts. Rule determinacy can be considered a central factor in influencing implementation and compliance. Sand (Sand 1992), cautions that, 'a lack of precise objectives is a major difficulty in measuring achievement'. However, as Franck (Franck 1988) reminds us, certain issues are unable to be reduced to simple binary categories, and complex problems may justify a rule that embodies 'a textured system of regulatory and exculpatory principles', that at the same time suffers legitimacy by increasing the chance of ambiguity. In certain circumstances, the interplay between elastic rules and process determinacy, e.g., institutions that are able to resolve ambiguity in a legitimate manner, becomes crucial. Such interplay will therefore be examined through the study of actor networks as discussed below.

The analysis of rule determinacy should focus on identifying the normative content of legal provisions based on the sources of law, as articulated within public international law, and the national legal systems of the case study area. Through an analysis of the sources it should be possible to ascertain what constitutes a legal binding instrument, and also through interpretative analysis the strength of commitment can be ascertained. Both substantive and procedural instruments should be considered. In addition, the analysis should seek to explore how laws and policies interact in order to provide determinacy, and ultimately support implementation of commitments. This analysis should yield insights into possible gaps, conflicts, ambiguities and inconsistencies within and between the law and policy systems. The analysis should also build upon secondary sources, books, articles, reports, etc. that are related to issues around implementation and compliance.

Additionally, semi-structured interviews with experts that have significant knowledge of issues around implementation and compliance within the case study areas can provide an important source of information. The work should seek to bring together a collection of all relevant documents related to transboundary water governance in the case study area. The collection of law and policy documents also provides input into the identification of the main actors and institutions involved in the formulation and implementation of these laws and policies; and important first step in the study of actor networks (see below).

Actor networks

An initial stage of the analysis should be to consider the formal institutional structures that are in place, and the modes of connection between different groups involved in legal and policy processes. The initial analysis of the law and policy instruments noted above, should provide a basis by which to map out the existing institutional structure; and the formal opportunities that actors have to interact with the decision making process. Victor *et al.*

(Victor D. 1998) observe that ‘patterns of participation are a major part of the implementation process, and hence could be an important determinant of effectiveness’. The assumption is that more openness including non-governmental participation will lead to more effective decision-making, greater accountability, and a stronger likelihood of successful implementation (Franck 1988); (Gooch and Huitema 2007); Agenda 21, 1992). The analysis should therefore also consider the degree to which relevant stakeholders are consulted during law and policy formulation processes, and the extent to which they participate in implementation initiatives. Such analysis must also account for the political context in which decisions within the case study areas are made; and more particularly, how actors interact with both the applicable substantive and procedural laws and policies (as discussed above) – both at the international and national levels. Inter-sectoral coordination often forms a central theme in understanding the interplay between the different actors involved in the decision making process. Semi-structured stakeholder interviews can contribute here to an understanding of the interplay between various actors.

Administrative capacity and political will

The economic and technical capacities of those responsible for the implementation of law and policy commitments is likely to be an important factor to take into account when examining issues around implementation and compliance (Jacobson and Weiss 1998). A third key area of the analysis should therefore be to ascertain whether there is sufficient capacity to fulfil the substantive and procedural commitments identified in the above analysis. However, this is one of the most difficult aspects of transboundary water management to evaluate. Even in established democracies such as those in Western Europe, the criteria have been hard to formulate (Dimitrova 2002). Building on the factors outlined above, and the claim that implementation, compliance and effectiveness are three central criteria in water governance, it can be argued that administrative capacity can be seen as the ability to implement an agreement through a process of compliance and effectiveness. As noted, Underdal, (Underdal 2008) p. 64, identifies three areas of effectiveness, namely output, outcome and impact.

FACTORS INFLUENCING IMPLEMENTATION OF TRANSBOUNDARY WATER AGREEMENTS			
Political Factors - Administrative Capacity, Political Will, Networks	Legal Factors - Rule Dependency	Type of Effectiveness	Actions/results
Output	Ratification	Legal effectiveness	Implementation
Outcome	Compliance	Behavioural Effectiveness	Behavioural change
Impact		Problem-solving Effectiveness	Changes in biophysical environment

According to Underdal, ‘output’ relates to compliance in the form of ratification or other formal steps of implementation taken by national governments in accordance with international agreements; ‘outcome’ refers to a change in the human behaviour targeted by a particular regime; and ‘impact’ focuses on changes in the biophysical environment itself that can be attributed to a particular regime. Other writers have adopted terms such as, ‘implementation’, ‘compliance’, ‘legal effectiveness’, ‘behavioural effectiveness’ and ‘problem solving effectiveness’ in order to categorise these key aspects of effectiveness. The terms ‘outputs’ and ‘legal effectiveness’ can be broadly seen as similar to that of ‘implementation’. ‘Compliance’ is closely aligned with the concepts of ‘outcome’, and ‘behavioural effectiveness’. Finally, ‘problem-solving effectiveness shares much in its meaning with ‘impact’. UNEP defines ‘implementation’ as referring, *inter alia*, to ‘all relevant laws, regulations, policies, and other measures and initiatives, that contracting parties adopt and/or take to meet their obligations under a multilateral environmental agreement and its amendments, if any’ (UNEP, 2008).

However, administrative capacity by itself, while necessary component of water management, is not sufficient in itself; besides this capacity there has to be the political will to utilise the capacity for implementation.

4: Strategies for overcoming barriers to implementing good governance

The framework for analysis described above should contribute significantly to our understanding of the existing governance systems within the case study area, and the current challenges in implementing formal international and national commitments. In so doing, the analysis should provide the basis by which to develop policy relevant recommendations in order to overcome barriers to implementing good transboundary water governance within the case study area. Such recommendations might take the form of strategies that institutions and actors could use to better implement, or utilise, the existing law and policy framework; or such recommendations might provide suggestions as to how the law and policy framework might be strengthened.

Part 2: A Case Study of the Sesan River, Vietnam and Cambodia

The following section provides the results of the application of parts of the analytical framework on the Sesan River, which flows between Vietnam and Cambodia in South-East Asia. All parts of the framework have not been applied, and the text only presents an actor-network map for Vietnam. As noted above, administrative capacity and political will are notoriously difficult to determine. Administrative capacity is sometimes equated with institution-building, but in the case of the Sesan River the Mekong River Agreement and the National Mekong Committees do constitute institutions formed for the purpose of coordinating actions around the Mekong. However, as noted below, the Mekong River Agreement does not stipulate rules for managing the tributaries. In this case the national ministries, together with the National Mekong Committees, should coordinate actions. The capacity of these administrations has not been evaluated stringently in this study; this is in fact a methodology that needs to be developed. Instead, it can only be noted that the situation in the Sesan is complicated by the need for a strong state, Vietnam, to work with a weak state, Cambodia, and that the capacity of the Cambodian authorities in the Sesan, according to the interviews conducted in the region, is very low.

1. The problem structure of the study area

The Sesan River flows between Vietnam and Cambodia and is one of the largest tributaries of the Mekong River with a drainage area of 17,000 km² (11,000 km² in Vietnam and 6,100 km² in Cambodia). It originates in the Central Highlands of Vietnam and the southernmost part of Laos, and flows through mountainous areas in Vietnam's Dak Lak, Gia Lai and Kon Tum Provinces before entering Northeast Cambodia, where it moves into relatively lowland areas. In Cambodia, the Sesan winds from east to west through Ratanakiri Province and into Stung Treng Province, where it merges with the Srepok River, another large tributary of the Mekong and then flows east into the Se Kong River just before this river entering the Mekong River close to the Stung Treng Town. Traditionally people in the region have relied on subsistence agriculture and fishing, developing techniques suited for small-scale water utilization. Increases in population and modernisation have created a demand for more intensive utilization of the water resources, such as large-scale hydropower production, large-scale irrigation and increased water supply for urban populations. While small-scale hydro-electric power production is often managed locally, it is the central authorities that drive large scale water projects. Both forms can create problems, but it is often the large-scale production that has created unforeseen negative impacts for local communities which are still embedded in an older subsistence oriented system. The intensified use of water for power production is also at odds with the needs of agricultural irrigation (Rieu-Clarke, Gooch et al. 2006).

In both Vietnam and Cambodia, authorities exist at the national, provincial, and district levels. The organisation of these authorities differs however considerably. In Vietnam water management is based upon a socialist administration system with a strong central-state role. In Cambodia the state is much weaker and international and national NGO's play a major role. Due to the large number of research institutions and multilateral and bilateral aid programmes working on the Great Mekong Sub-Region (GMS), the Sesan has a multitude of actors, both national and international. The authorities responsible for the management of the Sesan also interact in the context of their work with the Mekong River Commission, a co-operative forum for both the utilization and protection of the Mekong River and its tributaries. Finally, an *ad hoc* Sesan River Committee has been established, but no permanent basin commission has yet been established.

The problem facing the governance of the Sesan River is therefore multi-level (national, regional and local authorities are involved), transboundary (the river flows between Vietnam and Cambodia), it involves multiple actors (governmental agencies, NGO's, ethnic minorities etc), competition between different water demands (energy production, irrigation, fishing etc), and it includes complicated technological systems (hydro-electric power production, large dams, energy supply to domestic and industrial consumers). The issue at stake is

moreover not simply to *describe* the nature of the problem and the governance system, but also to attempt to *identify* possible solutions to some of the problems facing water governance in the region.

2. The existing governance system

The main contemporary problem with the Sesan River is that it is heavily modified; there are numerous dams built along the water course on the Vietnamese side of the border and more are planned or proposed (Vietnam Electricity 2007). Therefore, while any analysis of water governance in the region must involve mapping socio-economic conditions, analysing formal decision-making structures, and gathering data on ecological conditions, these are necessary but not sufficient. In an excellent report from the Stockholm Environment Institute in 2002, it was stated that

'the decision-making process for hydropower site selection in the Se San Basin is a complex interplay among a range of actors, exercising their formal mandates but also promoting their own interests, legitimate or otherwise. The actors include national governments (ministries of planning and investment, water resources ministries, ministries of industry etc.); public utilities (Electricity of Vietnam, Electricity Du Lao); the Asian Development Bank; bilateral donors (Sida, Norad, JICA); consultancy and construction companies (SWECO, Halcrow, Norplan, Statkraft); international investors (Nordic Hydropower, owned partly by Statkraft); and equipment suppliers (Öjendal, Mathur et al. 2002).

However, while a large number of traditional, socio-economic actors have been analysed in this and other reports, the role of non-human actants has not yet been sufficiently addressed. The starting point for this study will therefore be the dams themselves; these are at the centre of interest, as it is the dams that have changed environmental flows in a large region and that have resulted in radically different patterns of water supply in the river basin. The demand for energy from the hydro-electric power plants supplied by the dams has also increased and led to a conflict of use between traditional irrigation needs and the needs of electricity for industries and further development in Vietnam, and problems with erratic river flow in Cambodia. In order to understand these changes we need to look at conditions and actors in a broad sense; not only the farmers and industries directly affected by these changes, but also at the global forces that encourage and influence the changes taking place. Using the Actor Network Theory (ANT) approach we can see that the dams represent more than just concrete structures used to hold back water and generate electricity. They are at the centre of networks that stretch far beyond their geographical vicinities, from the local to the global level, and they influence human activities and behaviour. The dams are the result of international know-how and foreign funding combined with national and local knowledge and demands, and as such they span spatial levels on knowledge from the local to the international. Here we can speak of multi-level networks of know-how, with governments, banks, international organisations, and engineering companies etc constituting different actors. The effects of the dams are also geographically widespread. First there is of course the direct effect of the changes in water regime resulting from changes in water flow. These changes are both quantitative (less water is released for irrigation) and temporal (water is released according to energy needs, not according to the seasons). The changes in water flow also affect agricultural practices and ecological conditions further down the river. However, these changes, which affect the inhabitants of the border region in Cambodia and in other parts of the country, lead not only to changes in natural conditions, but also to changes in forms of livelihood. In response to these changes, international NGO's have become involved, especially in Cambodia, where these organisations work for what they perceive as the good of the local and regional populations. The dams, which in themselves are physical structures, are thus also actors (see below) as their existence results in a wide flora of human, non-human and ecological activity at various spatial levels.

In 1995 The Commission on Global Governance stated that;

"Governance is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest" (Governance 1995).

An actor-network analysis includes even more, not only individuals and institutions, public and private, formal institutions and regimes, but also the infrastructure and artefacts that these regimes are built around. This challenges the distinctions between local and global, as, 'there is, therefore, no difference in kind between

'macro' and 'micro' or 'global' and 'local' actors; longer networks can simply reach further than shorter networks' (Murdoch 1997). As these networks can consist of actors and actants at many different spatial levels (Latour 1987), the distinctions between 'local' and 'global' are seen as irrelevant. This leads us to understand that it is of vital importance to follow the network wherever it leads (Latour 1993) and to include all levels within the analysis. In the following sections I will describe the main aspects of actor-network analysis that are most relevant for water governance, and provide examples of how the actor-network around the hydro-electric power (HEP) stations and dams on the Sesan River can be traced.

3. Factors influencing implementation and compliance

Rule determinacy

In terms of the legal architecture for water resources management within Vietnam and Cambodia the picture is quite chequered. At the global level, Vietnam and Cambodia have committed to a raft of international environmental agreements, such as the Ramsar Convention on Wetlands, the Biodiversity Convention, the Climate Change Convention and the UN Convention on Desertification. However, the latter agreements tend to lay down general environmental principles, which do not have precise application within the context of transboundary waters. The Mekong Agreement goes some way to alleviate this gap by specifically focusing on transboundary waters. Within the context of the agreement both states agree to cooperate,

'in all fields of sustainable development, utilisation, management and conservation related to of the water and related resources of the Mekong River Basin, including, but not limited to irrigation, hydro-power, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimize the multiple use and mutual benefits of all riparians and to minimize the harmful effects that result from the natural occurrences and man-made activities' (MRC, 1995).

At the national level both countries have also adopted water laws that promote some of the key principles of integrated water resources management (IWRM) (Lawon Water Resources, 1998; Law on Water Resources Management 2007); and Vietnam is currently undergoing a revision to its Law of Water Resources. While key laws are therefore in place at the international and national levels, significant gaps remain. One of the major gaps within the legal architecture for the Sesan relates to the Mekong Agreement. Increased hydropower development within the Sesan River has exposed weaknesses in this existing Mekong Agreement (Rieu-Clarke and Gooch 2010). Legal arrangements for the notification of planned measures, exchange of data and information between states have not been clearly interpreted at the tributary level; and provision for the participation of stakeholders in decision making procedures have been largely lacking (Rieu-Clarke and Gooch 2010). As Wyatt and Baird (2007) observe, 'all of the Sesan dams planning and construction have preceded any notification by the Vietnamese to the MRC and the Cambodian government. While the Agreement does not require consultation for intra-basin tributary use of water, the Vietnamese government did not consult the Cambodian government on the EIAs for the individual Sesan dams before construction.' An important area where the legal framework can be strengthened is therefore to develop a bilateral governance arrangement specific to the Sesan, which supplements the existing international and national laws. A drive to adopt such an agreement has been promoted by the Asian Development Bank in recent years (ADB, 2007)

Actor networks

Actor Network Theory has generated considerable interest in science studies, geography, organisation studies and to a certain extent, environmental studies as a possible means of integrating the 'natural' and the 'social' into the same analytical framework. The potential advantages of this communion of theoretical approaches for water governance can at the present time be seen more as a promise than a fact, but ANT does seem to provide a way to integrate the approaches of the 'natural' and 'social' sciences. Let us begin by looking at one of the central tenets of ANT, that of '*general symmetry and symmetrical analysis*'. This refers to the necessity for non-human elements (of a network) to be treated analytically in the same way as the social and human elements (Law 1992). This concept of general symmetry is one of the most heavily criticized aspects of ANT (Vandenberghe 2002; McLean and Hassard 2004) and of course it cannot be denied that human actors perceive and act upon their world in ways that non-humans cannot (Bruun and Langlais 2003). However, it is also true that a mixture of human and non-human actors is precisely what we have to deal with in water management (Gooch 2004). This of course raises a difficult question; can hydro-electric power stations, desalination plants, irrigation canals and waste water treatment plants be considered political phenomena in their own right? (Pels,

Hetherington et al. 2002) and can there be a 'politics of things' (Winner 1986)? These questions cannot be answered a priori, we need instead to keep an open mind about the roles of different actors, and to be prepared to accept that dams and statistics can play major roles, just as governments and environmental administrators can. Let us return to the case at hand, that of the Sesan River, and start by looking for the cause of the changes in water regimes.

One of the central ideas of ANT is that we should not only look at human aspects of water management, but that also non-human entities such as material objects, organisations and technology must be taken into account, either as actors or in other roles. As a result both humans and non-humans are sometimes referred to as 'actants'. In this way ANT differs from most other forms of constructivist network analysis, and can perhaps be best described as *post-constructivist* (Asdal 2005). One of the leading figures of the approach is the French scholar Bruno Latour who has written extensively about what he considers an artificial dichotomy between nature and society, and of the necessity of reunion of these two (Latour 1999; Latour 2004). In this respect there are similarities with Foucault's (Foucault 1980) discussion of the artificial division of space into 'nature' and 'culture' or 'state'. As the concept of *actant* is, as noted controversial, we can begin by tracing the causes of the changes to water flow and river regimes that have occurred on the Sesan. Starting from the changes in river flow, the most obvious cause of the problems experienced by the down-stream, Cambodian actors, it becomes clear that the dams constructed to provide much-needed energy for the growing population and industrial development of Vietnam are at the centre of the controversy.

The largest and most important, both from the perspective of Vietnam and Cambodia, is the Yali Dam. Construction of the dam began in 1993 and was completed in 1999 ((CRES) and University 2001). The project has four turbines is constructed to produce 720 MW of electricity, far more than the other existing or projected dams on the Sesan such as Se San 3 (273 MW), Se San 4 (330 MW), Pleikrông (100 MW), Thuring Kon Tum (220 MW) and Se San 3A (108 MW) (Vietnam). As can be seen in Figure 1, the HEP dams are part of a network consisting of governmental agencies, ethnic villages, river flow, and relocation policies etc. While it is itself the result of energy demands from a growing and developing population, its effects on both humans and non-humans, in Vietnam and Cambodia, is considerable. Also, as a major tributary to the Mekong, it also influences water flows in that river; however, precisely because it is a tributary, it does not come under the Mekong River Agreement. We can also see from the network diagram in Figure 1 that the dams, together with various departments and ministries of the People's Republic of Vietnam, are important nodes in the network. The dams can therefore be seen as actants in the network, and as a source of power in both a material sense (power as in energy) and in a political sense (power as in ability to influence others). The concept of power is at the centre of actor-network analysis, for as Law notes, 'actor-network theory is all about power -- power as a (concealed or misrepresented) effect, rather than power as a set of causes' (Law 1992) and actors (or actants) gain power through their relations with others in networks, for 'ANT seeks to analyse how social **and** material processes (subjects, objects and relations) become seamlessly entwined within complex sets of association' (Murdoch 1998). As can be seen in Figure 1 a network can stretch far beyond what may appear to be the centres of activities (Latour 1987); the HEP dams are connected both to energy consumption and to resettlement villages in the Central Highlands. They are also connected to water flow in the Mekong River.

Actors/actants/ and entities are major elements of the actor-network, and have been described as 'any element which bends space around itself, makes other elements dependent upon itself and translates their will into a language of its own' (Callon and Latour 1981). Actors do not, however, hold power by themselves, they only do so through their relations with others (Foucault 1980; Latour 1987). Actors can be seen as nodes in a network (or networks) and actors as an 'entity that interacts with other actors or serves as an intermediary between actors (Combera, Fishera et al. 2003). In the case of the HEP dam network it can be seen that there are a number of nodes, among them the Government of Vietnam and the dam itself (see Figure 1). ANT claims that the form and attributes that actors have are dependent on their relations with other entities (Law and Hassard 1999) and that actors and entities can be either human or non-human; the properties of entities (human and non-human) will also be dependent on their relationships in a network (Healy 2004). As the term 'actor' is usually associated with human actions the term 'actant' is sometimes used to signify non-human influences, and here the dam will be called an actant, not actor. In order to map the network, Latour has suggested that we should simply 'follow the actors' (Latour 1993) and keep an open mind as to which entities exist and to their importance and role in the network. In practice, this involves looking at the relationships that the dam has, with humans and with non-human entities. Figure 1 demonstrates that there are many such relationships in the dam network. Here we can see that the network also consists of both social structures and associations with other non-human entities. Latour (Latour 1996) claims that social structures are in themselves not solid enough to frame durable interactions and hold social reality in place. Human sociality must be combined with nonhuman entities. The

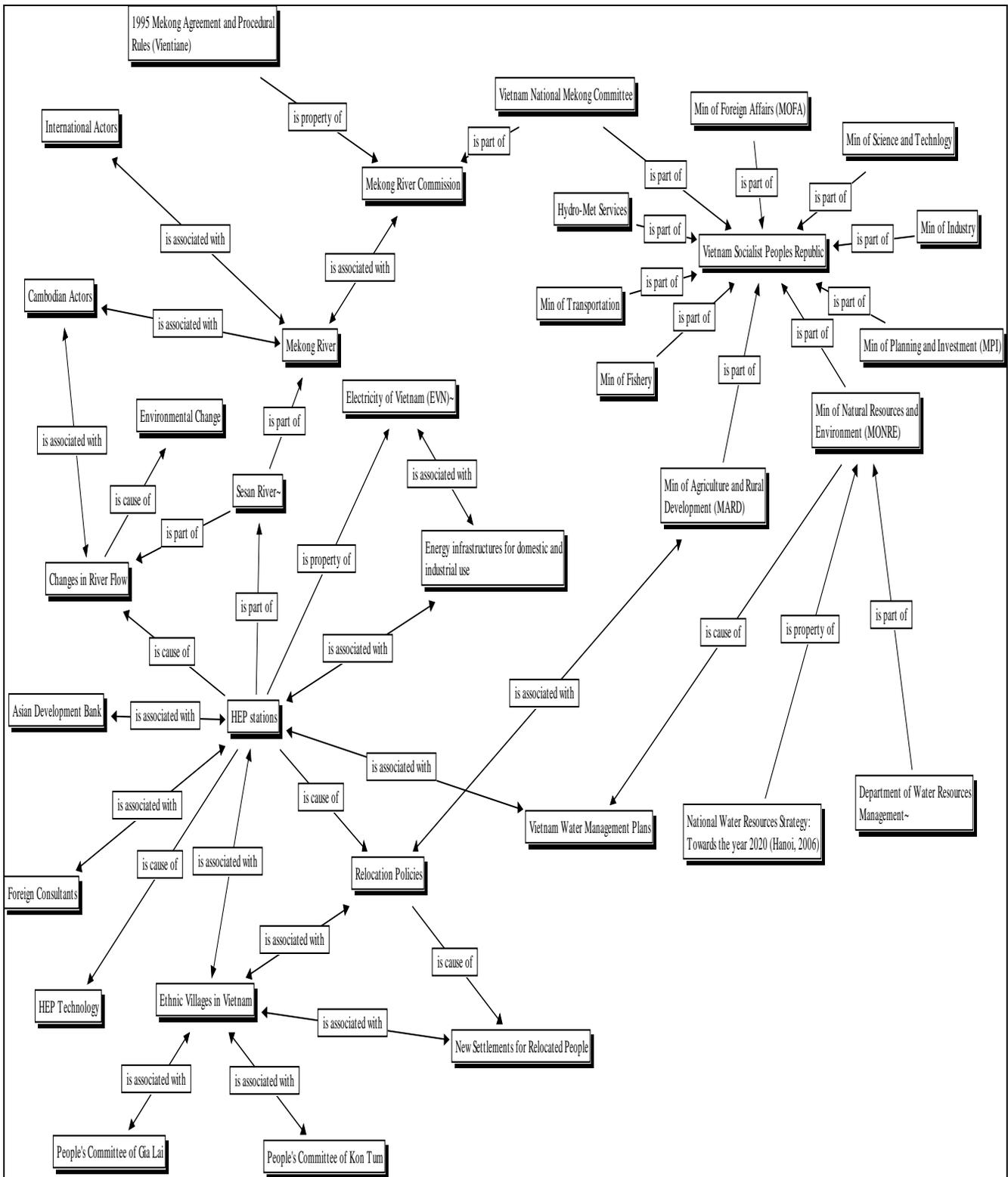


Figure 1: The Hydro-Electric Dam Networks on the Sesan River in Vietnam, South-East Asia

HEP network is composed of different categories of people, bureaucrats, scientists, politicians, NGO's in Cambodia, and civil society. We could also include engineers, businessmen and women, and financial institutions. The network also includes statistics, documents, reports, and infrastructures for the transportation of energy, the organizational structures of the international organizations involved as well as the fish, aquatic animals and crustaceans in the Sesan River.

Let us move on to the question of how networks are formed? ANT claims that this occurs through *translation*, which is 'all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force' (Callon and Latour 1981). Translation is seen as an on-going struggle over power, and through translation an actor persuades others to accept his/her/its view of the world, and becomes the main representative of this view, able to speak for the network and to define its goals. Looking at the HEP dam network it becomes apparent that as yet there is no completed process of translation. The Vietnamese authorities state that there were initial problems with erratic water flows during the building process of the Yali Dam and first period that the dam was active, but that these problems have now been solved (personal communication, EVN, Hanoi), while an alternative translation is provided by Cambodian authorities and international NGO's. For example, a report by The Fisheries Office, Ratanakiri Province, Cambodia, states that 'approximately 20,000 people in 3,500 families in Ratanakiri Province have experienced serious ecological and socio-economic impacts as a result of the over US\$ 1 billion Yali Falls dam' (The Fisheries Office and The Non-Timber Forest Products (NTFP) Project 2000). A report by the 3S Rivers Protection Network claims that '722 households composed of 3,545 people (including 1,800 women, from 17 villages and 8 communes located along the river's four districts) have abandoned the Sesan River in order to live in upland mountainous areas', and that 'The main reason why many communities have chosen to abandon their homes and a village located along the Sesan River is due to the river's frequent flooding' ((3SPN) 2007). The cause of the problems is said to be the dams on the Sesan, and the report also states that '(T)he future of the dam-impacted people remains a great concern, because thus far there has yet to be an effective mechanism or solution practiced in resolving the negative impacts caused by the dams' ((3SPN) 2007). A report by Centre for Natural Resources and Environmental Studies (CRES) Vietnam National University ((CRES) and University 2001) also points out that the Yali Dam has created problems for local ethnic peoples in Vietnam, and that the resettlement policies have not always been a total success. The Vietnamese authorities see with suspicion on the Cambodian NGO reports, while the NGO's themselves have little trust in the Vietnamese claims of relatively small negative effects of the dam.

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