

Transboundary Water and Electricity Governance in mainland Southeast Asia: Linkages, Disjunctures and Implications

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In mainland Southeast Asia, plans for extensive hydropower development and regional power trade are increasingly underway with implications for transboundary water governance. This paper maps out the context, drivers, tools and arenas of water and electricity decision making, and examines the linkages and disjunctures between regional electricity and water governance frameworks. In the Lower Mekong Basin, transboundary water governance has been shaped by the intergovernmental Mekong River Commission. Meanwhile, planning of regional power trade is being shaped by the Greater Mekong Subregion (GMS) program. These regional institutions are founded upon and interact with national institutions, and are molded by historical circumstances, regional geopolitics, and present day development pathways. Linkages between electricity governance and water governance, whilst generally weak and replete with power asymmetries, are identified including Environmental Impact Assessment and Strategic Environmental Assessment tools. Disjunctures include state sovereignty and limited overlapping actors between electricity and water governance arenas. We argue that furthering deliberative tools that build upon existing linkages could catalyze greater interaction and contestation within arenas, and thus closer integration of regional water and electricity governance arrangements. The goal would be informed and democratized decision-making on meeting electricity demand whilst sustaining the multiple benefits that the region's rivers' provide.

Keywords: Mekong River, Water Governance, Electricity Governance, Southeast Asia

1. Introduction

The transboundary Mekong River flows southwards from its headwaters in the Qinghai-Tibetan Plateau through Yunnan Province of China, Myanmar, Laos, Thailand, Cambodia and Vietnam. Within the basin, there remains a close relationship between rural

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communities' livelihoods and the river's wetlands, wild capture fisheries and other natural resources (Mekong River Commission [MRC], 2010; Santasombat, 2011). As mainland Southeast Asia undergoes processes of industrialization, agrarian transformation, and regional integration (Rigg, 2012), growing demand for electricity is a key driver for the construction of hydropower dams by state agencies and private sector actors, with implications for existing uses of the river's resources (Grumbine, Dore, & Xu, 2012).

Thailand and Vietnam are mainland Southeast Asia's two largest electricity markets, and maintaining national energy security for continued economic growth is a government priority. Over the past several decades, whilst Thailand has largely maintained sufficient supply, Vietnam has regularly experienced shortages especially during the dry season due to its heavy dependence on hydropower (Thomas, Hall et al., 2013). Both countries, although of divergent historical and political circumstances, have restructured their electricity sectors from state monopoly towards partially-liberalized models with a growing role for the private sector (Middleton, Grundy-Warr, & Yong 2013). Furthermore, planners in Thailand and Vietnam are looking towards neighboring Laos, Cambodia and Myanmar for electricity imports, principally from hydropower.

The region's development pathway, therefore, inevitably couples electricity governance to water governance (Kaisti & Käkönen, 2012). In the Lower Mekong Basin¹, there is an estimated 30,000 megawatts (MW) of hydropower potential, of which 6000 MW has been installed, 4000 MW is under construction, 6300 MW is pre-construction but already licensed, and a further 12000+ MW is at some stage of planning (MRC, personal communication, April 2014). Extensive hydropower construction, alongside other growing demands for water including for irrigated agriculture and urban water supply, entails trade-offs between the multiple uses of rivers (Kirby et al., 2010). Presently, however, decision making surrounding water governance, and in particular for large hydropower development, has limited participation and transparency, is contested, and reveals significant power asymmetries between actors (Molle, Foran, & Käkönen, 2009).

The purpose of this paper is to evaluate the context, drivers, tools and arenas of decision making on cross-border electricity trade and transboundary water governance within the Lower Mekong Basin, and to identify the linkages and disjunctures between the two governance regimes. The paper first conceptualizes cross-border electricity trade and transboundary water governance. We then outline regional institutions for the governance of the transboundary Lower Mekong River and for cross-border electricity trade. The following sections assess the political economy of Vietnam and Thailand's electricity sector, and identify key linkages and disjunctures with water resources governance domestically and in a transboundary context. Two transboundary water governance case studies are presented that respectively locate a large hydropower dam on major transboundary rivers: the first within the country of the power market, namely the Yali Falls dam located in Vietnam on the Sesan River; and the second outside of it (i.e. a power trade project), namely the Xayaburi Dam located in Laos on the Mekong River. We finally evaluate the linkages and disjunctures between electricity and water governance arrangements with transboundary dimensions, and discuss implications for attaining the multiple objectives of water and electricity governance.

¹ Lower Mekong Basin encompasses the area of river basin located in Thailand, Laos, Cambodia and Vietnam.

2. Conceptualizing Water and Energy Governance

Water governance can be broadly defined as “*the political, social, economic and administrative systems that are in place, and which directly or indirectly affect the use, development and management of water resources and the delivery of water service delivery at different levels of society*” (United Nations Development Programme [UNDP], 2013). Electricity governance could hold a similar definition with regards to the provision of electricity services. The quality of governance can be evaluated according to: transparency and access to information; participation; accountability and redress mechanisms; and social, educational, technological, legal, and institutional capacity to practice good governance (Dixit, Dubash, Maurer, & Nakhooda, 2007).

Recognition of a nexus between water and energy is not new (Gleick, 1994). Since 2008, however, an emerging global policy and research agenda on the water-energy-food (WEF) nexus has refocused policy makers’ and researchers’ attention to this fundamental relationship (Hoff, 2011). Both global and regionally scoped studies have recently examined the water-energy nexus (e.g. Rodriguez, Delgado, DeLaquil, & Sohns, 2013; Smajl & Ward, 2013; United Nations World Water Assessment Programme, 2014;). The water-energy nexus to date has most typically concerned itself over the production and consumption of coupled water and energy use at the operational (local) level by power and water utilities or companies. Scott et al. (2011, p. 6623), however, argues that “*the water–energy nexus is also fundamentally about decision-making*”, highlighting the need for tandem management of both resources. According to Scott et al. (2011), there is a need to: account for resource coupling² of energy and water not only at the local point of use but also with regard to higher-scales (national and regional); and consider how existing multi-tiered institutional arrangements (laws, policies, and organizations that operate across jurisdictional levels) for water and energy either match or do not this resource coupling across scales. National demands for energy can have local impacts on water use, and national or regional-level water and energy policies and regulatory mechanisms can either reinforce or undermine local governance arrangements.

This paper is guided by a heuristic framework for analyzing transboundary water governance complexes proposed by Dore, Lebel, and Molle (2012) (Figure 1), who describe the framework’s elements as:

Actors engage in multiple arenas, depending on opportunity, necessity and choice. Drivers are what influence and motivate actors. We suggest three are key: interests, discourses and institutions. Actors employ tools to establish and legitimise their positions, inform debate and influence negotiations; or resist, reinforce and reframe perspectives . . . Decisions emerge from arenas. We separate the decisions that emerge as being primarily about framing, supply and demand. Ultimately, we are interested in the impacts of decisions in terms of the fairness and sustainability of water allocation, that reshapes the water governance context. We define allocation broadly to include water use, related investment and sharing arrangements. (p. 23)

² Resource coupling refers to how particular production technologies, whilst producing one resource, inevitably utilizes the other. In the case of water-energy resource coupling, this includes for example water desalination, hydropower, and thermal electricity production (see Scott et al., 2011; United Nations World Water Assessment Programme, 2014).

Dore et al. (2012), in applying the framework to Mekong transboundary water governance, highlight the complexity of the region’s societies, economies and ecologies that shapes decision making on producing food and energy, maintaining ecosystems, and sustaining livelihoods. In this paper, we principally examine the articulation of national and regional electricity governance with water governance at the local, national and regional scale, focusing in particular on linkages and disjunctures. Electricity and water linkages are both more and less evident in contexts, drivers, tools, decisions and impacts. At a basic level, for example, fishers and electricity producers use water from the same ecosystem. But, different interests are in play between disparate actors, exercising their powers in or on the margins of various political arenas, using their preferred tools to assist their marginal or central engagement in decision-making. We are particularly interested in arenas where the multiple objectives of water governance are considered together with the multiple objectives of electricity governance by relevant actors from both sectors.

Linkages, defined here as providing opportunity for co-consideration, can include ministries of finance managing revenues from what they see as inter-dependent resources, water and energy. River basin organisations and their enabling institutions (decrees, mandates etc.) can also link water and electricity planning, and sustainability initiatives can and do focus on linking and reducing water and energy consumption in various places. Discourse promoters can also provide a boost to linkage, for example, the 2014 Stockholm Water Week has focused on energy and water invoking a 2007 statement of the Prime Minister of India that “. . . if all members of society can have adequate access to energy and water, many of the societal problems can be solved”. Conversely, a disjuncture is the absence of co-consideration of water and electricity governance objectives.

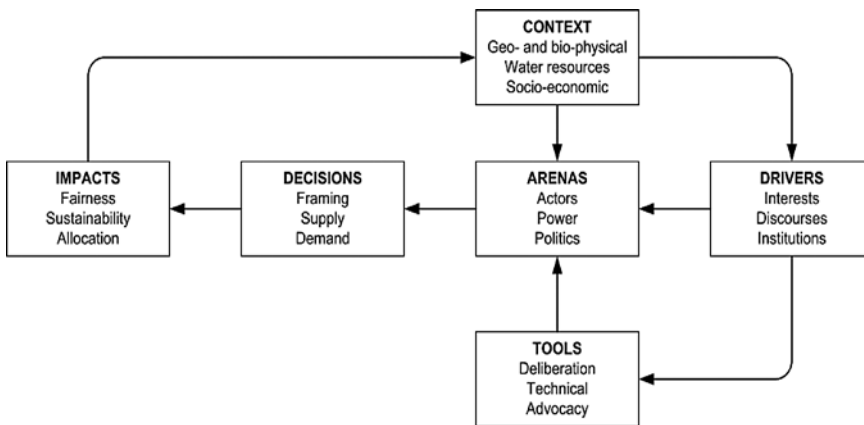


Figure 1. Framework for analyzing transboundary water governance complexes (reproduced from Dore et al., 2012, p. 24).

3. Regional Energy Governance

Regional economic integration in mainland Southeast Asia has been shaped since the early 1990s by the Greater Mekong Subregion (GMS)³ program of the Asian Development Bank (ADB) (Asian Development Bank [ADB] 2012b; Kaosa-ard & Dore, 2003). Through preparing studies, arranging inter-governmental meetings, providing technical support including on policy and institutional frameworks, and direct financing for infrastructure, the ADB has promoted cross-border power trade as part of the GMS program (ADB, 2012a). The GMS program ultimately envisions a liberalized, regional, competitive power-pool market with most electricity generated by private-sector Independent Power Producers (IPPs).

An “*Inter-Governmental Agreement on Regional Power Trade in the GMS*” (IGA) was signed by the region’s leaders in November 2002, and a revised *GMS Roadmap for Expanded Energy Cooperation* launched in mid-2009 endorsed by the region’s energy ministers. To coordinate regional power an evolving set of regional inter-governmental committees have been created, in particular since 2004 the Regional Power Trade Coordination Committee (RPTCC) that was established to implement the IGA (ADB, 2012a). Members of the committees are senior representatives from GMS ministries responsible for national energy sector development, together with representatives from energy-sector regulatory agencies where established and in some cases representatives from key state owned enterprises. In addition, various international donors often observe at the meetings, the sixteenth of which was held in June 2014, including Australia, France and representatives from the ADB and World Bank.

Even as the private sector takes a larger role in hydropower dam construction and operation and an increasing number of cross-border transmission lines are built on the basis of individual power purchase agreements (Middleton et al., 2013), institutional progress towards a fully competitive regional power market is slow-paced. Indeed, the region’s governments’ full commitment to a regional competitive power-market is doubtful given the influential role continued to be played by state-owned utilities and a relatively small number of IPPs that arguably stand to benefit more from the monopoly sale of electricity (Greacen & Palettu, 2007). Other institutional and technical concerns about the technical risks of full power system integration – both real and perceived - also exist amongst the utilities themselves (Garrett, 2004).

Early regional power trade studies commissioned by the ADB for the GMS program excluded consideration of environmental and social impacts constituting a significant disjuncture with water governance given the centrality of hydropower to the plans. They instead focused on technical design and argued for the economic benefits of regional power grid integration, which was heatedly debated with civil society (Middleton et al., 2009, pp. 27–28). The ADB subsequently commissioned regional studies that incorporated some consideration of environmental impacts (ADB, 2009), most recently a strategic

³ The GMS encompasses Cambodia, Laos, Myanmar, Thailand and Vietnam, and Yunnan Province and Guangxi Zhuang Autonomous Region of the People’s Republic of China.

environmental assessment (SEA) of regional energy trade (International Center for Environmental Management [ICEM] Asia, 2013). According to a summary presented to the RPTCC, the study found that “*Power sector planning does not take account of wider environmental and social impacts*” and “*The effectiveness of public consultation on power development plans is mixed, and generally appears to ignore wider environmental and social concerns*” (ADB, 2013). Despite the serious disjunctures the report identifies, it also reveals some linkages between energy planning and water governance upon which to build analytically and institutionally. The extent to which the SEA alone can influence the respective countries energy planning governance remains to be seen, although expectations remain low. RPTCC members’ interest in extending the SEA work was scarcely evident when the topic was raised at their June 2014 assembly.

4. Regional Water Governance

Intergovernmental cooperation on the lower Mekong River between Cambodia, Laos, Thailand and Vietnam is through the Mekong River Commission (MRC) (MRC, 1995), with various precursors in existence since 1957 (Hori, 2000). In contrast to regional electricity governance, much more has been written about the governance of the MRC as a transboundary river basin organization (Dore & Lazarus, 2009; Dore & Lebel, 2010; Hirsch & Jensen, 2006). Institutionally, the MRC is governed by a Council formed of environment or water ministers of the member states. A Joint Committee formed of senior officials act upon the decisions of the Council, and National Mekong Committees (NMCs), or their national secretariats, should coordinate between line agencies. A regional Secretariat based both in Vientiane, Laos and Phnom Penh, Cambodia performs technical and administrative functions for the MRC.

The MRC is mandated by the Mekong Agreement (article 2) to prepare a basin development planning (BDP), based on the principles of Integrated Water Resources Management (IWRM) (Öjendal & Jensen, 2012; MRC, 2013). The most recent BDP has produced development scenarios evaluated from an economic, social and environmental perspective utilizing modelling and technical assessment of the MRC Secretariat (MRC, 2013; see Dore et al., 2012 for extended discussion on use of tools). The scenarios are derived from official government plans amongst multiple sectors, including for hydropower development, and thus the implications of electricity planning are reflected in the MRC’s basin assessments, constituting a potentially important linkage between the water and electricity sectors. The BDP, however, is prepared mainly by water-sector experts, with limited involvement of electricity-sector experts. More broadly, the MRC has tended to emphasize relatively neutral activities such as knowledge management and scenario-building over advocating particular visions for the basin, although under different CEOs it has clearly leaned towards ambitions for both environmental protection and accelerated infrastructure investment. As a result, hydropower developers and their energy ministry-counterparts, may consider the MRC an administrative hurdle to be overcome or even circumvented, or in the case of tributary dams even irrelevant, rather than a pro-active ally to their project development plans. Thus, despite the significance expense and effort

invested, a significant disjuncture exists between the BDP's assessment of water related trade-offs and feeding the implications back into national electricity-sector plans, including via the RPTCC. MRC engagement with RPTCC has been minimal and tokenistic with no serious presentation of BDP analysis into RPTCC deliberations.

In principle, at the national level, the NMCs should coordinate between water-related sectors and hold the potential to create linkages between the water and electricity governance. The NMCs, however, are challenged by their inability, yet, to build their convening power. Suhardiman, Giordano, and Molle (2011, p. 2) highlights a "scalar disconnect" between fragmented national-level water resources management and the aspirations of the regional-scale BDP, arguing that "*this structural mismatch would make the translation of MRC's cross-sectoral programs into the national level very difficult . . .*" Mirumachi (2012), examining Thailand's domestic water policy and implications for transboundary water governance through the MRC, also highlights the fragmented, disjunctured approach, including due to the politicization and securitization of water allocation.

Within the regional-level institutions, of the four lower Mekong governments, it is only Government of Laos that has the same lead representatives from the Ministry of Energy and Mines (MEM) as principal contacts to the MRC and the RPTCC. This reflects the general fragmentation of ministry responsibility between water and electricity across the region. In the case of Laos, given hydropower construction's centrality to the country's energy planning as well as national development strategy, it is less surprising that the MEM is the lead agency for both regional institutions. As such, the MRC functions largely without the active involvement of Thai, Vietnamese and Cambodian energy actors, thus creating a sectoral disconnect. The MRC program structure was energy blind for the first decade of its post-1995 operation, although this was eventually redressed with the creation of an Initiative on Sustainable Hydropower in 2008.

Both the MRC and the RPTCC exist within a regional political context that limits substantive transparency and accountability in government decision-making. It is widely held that regional economic growth – as promoted by the GMS program, and which has only recently begun to address environmental and social issues – has been privileged over protecting against river degradation (Haefner, 2013). Bakker (1999) has argued that it is the ADB's GMS program for regional economic growth rather than the MRC that is shaping water resource planning in the region. As such, the mandate and legitimacy of MRC is often contested between government interests and civil society (Lee & Scurrah, 2009). The MRC has been particularly challenged by proposals since 2006 for a cascade of up to twelve large hydropower dams on the Mekong River's mainstream, of which eight are in Laos, two on the Thai-Laos border and two in Cambodia (*see Xayaburi case study below*).

5. Electricity and Water Governance Linkages in Vietnam

In Vietnam, export-orientated industrialization since the 'Doi Moi' economic reform in 1986 and rapid domestic electrification growth rates have raised demand for electricity (U.S. Commercial Service, 2013). Between 2005 and 2010, Vietnam's electricity generation capacity almost doubled from 11,578 MW to 21,542 MW, and the government

predicts demand will increase to 75,000 MW by 2020 (Nguyen, A.T; Socialist Republic of Vietnam, 2011). To meet future power demands, Vietnam plans to further develop domestic capacity and to import hydro-electricity from Laos, and to a lesser extent coal-fired and hydro-electricity imports from China and Cambodia.

Vietnam's electric power industry is under the jurisdiction and management of the Directorate General of Energy (DGE) in the Ministry of Industry and Trade (MoIT). The MoIT is responsible for approving local and regional development plans, including the Power Development Plan (PDP). The DGE is responsible for overall energy planning and policy including commissioning, appraising and approving the PDP, and developing and restructuring the power market (U.S. Commercial Service, 2013). In terms of day to day operation, however, Vietnam's electricity sector remains dominated by the state-owned utility the Electricity Corporation of Vietnam (EVN), which as of 2010 operated 55% of the installed generation capacity; other generators are the major state owned enterprises (SOEs) PetroVietnam (PVN; 9%) and Vietnam National Coal and Mineral Industries Group (VINACOMIN; 5%), whilst 26% are other Independent Power Producers (IPPs), and 5% were power imports from China (Nguyen, A.T). Both EVN and the MoIT reports to the Prime Minister, and the government is responsible for promulgating legal frameworks and approves the national PDP.

There are a range of other actors, revealing the various interests that channel into the electricity sector, including: the Ministry of Planning and Investment, responsible for Vietnam's overall economic and development planning; the Ministry of Finance, which broadly oversees the financial matters of the government; the State Bank of Vietnam; the Ministry of Natural Resource and Environment, responsible for environmental regulations; and the Provincial, District and Commune People's Committees, that are responsible for the functions of government at the local level. Vietnam also has an Electricity Regulation Authority of Vietnam (ERAV), created in 2005 as an independent power sector regulator under the MoIT. According to Harris, Hawkes, Abdul, Buhyoff, and Schaefer (2009, p. 2), "The jury is still out on how ERAV is handling its regulatory role. The scope of its authority is still being determined and its enforcement powers are still being defined." There are various Vietnamese civil society groups seeking to influence power-sector planning, in particular related to rivers thus seeking linkages between the sectors, including the members of the Vietnam Rivers Network and a recently created Energy Alliance.

Up until 2005, Vietnam's electricity market was a state monopoly; EVN was vertically integrated and owned all of the electricity generation capacity, transmission and distribution. Vietnam's recent Electricity Law, passed in 2004, set out government plans to restructure EVN's generation assets into joint-stock companies and open up power distribution and additional power generation to private investors and other SOEs. Shares in the joint-stock companies, in a process of partial-privatization called equitization in Vietnam, would be sold to private investors whilst EVN would – at least at first - maintain a majority shareholding (Harris et al., 2009, p. 1). Meanwhile, some assets important to national security, including ownership and operation of Vietnam's largest multipurpose hydropower dams would remain with EVN. EVN was established as a holding company

in June 2006 with 60 subsidiaries; however, the actual equitization has proceeded slowly due to the inability to attract investors (Nguyen, A. T., 2012). Whilst still influential, EVN has struggled financially (Harris et al., 2009). EVN has claimed that this is due to the underpricing of electricity in Vietnam, which is set by the government (Brown, 2012). Others, however, have critiqued EVN for its “bad management, technical problems, and corruption” (Thomas, Hall et al., 2013, p. 2).

The policy directions of Vietnam’s most recent power development plan (PDP) VII (2011-2020), prepared every five years and with inputs from various sub-plans including a hydro master plan and province power plans (Spencer, 2011), include: linking the power sector to the national socio-economic development strategy; ensuring energy security; diversifying energy resources, including promoting renewable energy and energy efficiency; power imports from neighboring countries; revising tariffs towards actual market prices; power market liberalization; and the protection of natural resources and the environment (Socialist Republic of Vietnam, 2011). These would indicate, in principle, numerous linkages between water and energy governance, discussed below. The planning process of the PDP and its tools have been critiqued, however, including that demand side management is not integrated into the planning process, and that the Institute of Energy, which prepares the plan on behalf of the DGE, does not cooperate closely with other stakeholders, even with other government agencies, thus suggesting important disjunctures (Vietnam Union of Science and Technology Associations, 2007).

By 2020, if Government plans are fulfilled, Vietnam’s domestic hydropower potential of approximately 17,400 MW will be fully exploited, increasing from 9200 MW in 2010 (Socialist Republic of Vietnam 2011). The PDPVII emphasizes the prioritization of hydropower projects with multiple functions, namely flood control, water supply, power production (Socialist Republic of Vietnam, 2011, p. 3). Vietnams’ largest existing projects are multi-purpose, including Hoa Binh, Son La and Yali Falls, and were excluded from equitization “to ensure optimal coordination between power generation and social goals (i.e., managing flood control and irrigation)” (Nguyen, A.T., p. 6). Dao (2010) argues that the absence of resettlement policies prior to 1990 together with a lack of expertise within EVN in recognizing and addressing environmental and social issues has contributed to a legacy of impacts from hydropower in Vietnam, including at the Hoa Binh, Son La and Yali Falls dams that resettled in total over 160,000 people. There were, in other words, serious disjunctures between power planning, and the broader concerns of water governance. Recently, some limited improvements in policy and practice can be found, even as the decision making process remains top down (Dao, 2011).

On paper, the PDPVII heavily emphasizes the importance of environmental – including water-related – considerations, including with commitments to “Implement the provisions of the legislation on environmental impact assessment of projects and strategic environmental assessment of master plans” and “Fully perform environmental monitoring and observation . . .” (Socialist Republic of Vietnam, 2011, p. 9). Comparable statements are made in the Electricity Law (2004) Articles 11, 33 and 39. Linkages are thus established between water governance and electricity planning through environmental

protection laws, including the requirement for Environmental Impact Assessment (EIA) and more recently Strategic Environmental Assessment (SEA) under the revised Law on Environmental Protection (2005) (ICEM, 2008, p. 12). The pilot SEA, undertaken in the Vu Gia Thu Bon River Basin of Quang Nam Province, was guided by a steering committee formed of MONRE, MoIT and EVN; despite this significant legislative progress, hydropower development in Quang Nam remains contested although recently environment, social and safety concerns have slowed construction in the province (Viet Nam News, 2012).

A second arena of linkage are river basin organizations being formed under Ministry of Agriculture and Rural Development (MARD) and subsequently also under the Ministry of Natural Resources and Environment (MONRE). These bodies were developed “to act as consulting bodies for the government and provincial authorities” (Dao, 2011, p. 111) and have had a complex history due to overlapping and contested mandates between MARD and MONRE. Dao (2011, p. 112) concludes that river basin organizations “have played little if any role in dam planning . . .” as the role of MoIT in securing energy is privileged over MONRE’s role in river basin management and EIA’s both come too late and are failed to be implemented in practice.

A related third arena of linkage is the National Water Resources Council (NWRC), which first met in 2001. The NWRC is chaired by the Vice Prime Minister with representation from all relevant ministries and advises the Government and the Prime Minister on policies on all aspect of the country’s national water resources. The Office of the NWRC is located within MONRE’s Department of Water Resources Management. After a slow start the NWRC was making solid progress before being overtaken to an extent by national climate change responses. The work of NWRC was struggling to strengthen the link between water resources and energy planning. However, the emergence of strong concerns within Vietnam about the effect on the country of hydropower projects by its neighbours have also led to an increased examination of the rationale and economic performance of hydropower and other energy projects domestically, including their impact on water resources and the wider environment, and their social impacts.

Local civil society in Vietnam, including the Vietnam Rivers Network (VRN) that has over 300 members from civil society, academia and the media, has increasingly engaged the state on issues related to hydropower and water governance, and linked this to power sector planning. A recommendation letter in November 2013, for example, from VRN called on the national assembly and government to prepare strategic environmental assessments of hydropower development plan in each river basin (Viet Nam News, 2013). The recommendation letter followed recognition by the Prime Minister Nguyen Tan Dung that there needed to be tighter regulation of hydropower (Viet Nam News, 2013), and earlier announcements during 2013 of the suspension or cancellation of over 424 hydropower projects from a list of 1,239 that had been previously approved (Wall Street Journal, 2013). Meanwhile, the VUSTA (2007) report, titled “*Assessment of Vietnam Power Plan*” reflects an initial attempt to assess and strengthen Vietnam’s power planning, and link power planning to the environmental and social consequences of hydropower development. Despite this, there remains limited transparency and accountability in the power sector and corruption remains a major challenge (Thomas, Hall et al., 2013). There are

also few opportunities for civil society to substantively engage with the government over the PDP and discuss its impact on the governance of water resources.

6. Domestic electricity governance implications for transboundary Water Governance: Sesan-Srepok-Sekong River Basin

The Sesan-Srepok-Sekong is a major Mekong sub-basin shared between Vietnam, Cambodia, and Laos; the Sesan and Srepok Rivers flow from Vietnam to Cambodia, whilst the Sekong flows from Laos to Cambodia, and together are referred to as the “3S Rivers”. Approximately 3.5 million people live within the sub-basin, the majority of who are ethnic minority groups. To date, more than 20 large dams have been built or are under construction, with at least 26 more at various stages of planning (Grimsditch, 2012, p. 76). The most extensive construction to date has been in Vietnam on the Sesan and Srepok Rivers to meet domestic demand, although approximately 22 projects are now planned or under construction on the Sekong River in southern Laos for power export to Vietnam and domestic use. Cambodia has also commenced advanced planning on at least 6 projects, with the controversial Lower Sesan 2, which was approved in early 2011 and is at the most advanced stage of preparation (Grimsditch, 2012).

Dam development to date in Vietnam on the Sesan and Srepok Rivers has created serious environmental and social impacts locally in Vietnam and downstream in Cambodia, including decreased fish stocks, unusual water fluctuations, and impacts on water quality (Dao, Dao, Tran, & Institute of Ecology and Biological Resources/International Rivers Network, 2004; Hirsch & Wyatt, 2004). The Government of Vietnam has acknowledged the transboundary impacts of hydropower projects on the Sesan River, yet also has proceeded with further project construction (Hirsch & Wyatt, 2004).

The 720 MW Yali Falls dam – commissioned and operated by EVN – was the first major dam constructed on the Sesan River. Together with more recent hydropower projects on the Sesan and Srepok Rivers, it sends power to Vietnam’s southern industrial regions around Ho Chi Minh City (Hirsch & Wyatt, 2004). The project is located 80km upstream of the border with Cambodia, yet the project’s original EIA – prepared under Vietnam’s just passed Law on Environment Protection (1993) - assessed impacts no further than 8 km downstream of the project, and was poorly prepared and not shared with the Cambodian government (Hirsch & Wyatt, 2004; Wyatt & Baird, 2007). Following documentation by an increasingly organized movement of civil society groups and community networks in Cambodia of serious transboundary impacts, in 2002 the MRC Council established the Cambodia-Vietnam Committee for the Management of the Sesan River (Hirsch & Wyatt, 2004). The committee had a mandate to resolve the transboundary disputes, and as projects were also developed on the Srepok the committee was reformed in 2004 to address these too.⁴ Representatives from the Vietnam Government included the Ministry of Industry (now MoIT), EVN and the Vietnam National Mekong Committee.

⁴ The earlier committee was reformed as the Standing Committee on the Management of Dams and Canals along the Cambodian-Vietnam Border (Wyatt & Baird, 2007).

Although formed late, the committee was to address the linkage between hydroelectricity operation and transboundary water governance that had previously been ignored. The committee did establish a (poorly functioning) early warning system, commissioned a transboundary EIA for the Sesan Rivers, and discussed the lowest dam of the Sesan cascade in Vietnam to be operated as a regulator dam. Despite this, impacts continue to be experienced in Cambodia, and compensation for deaths, injuries and material losses have not been provided (Grimsditch, 2012). The committee has met irregularly, and civil society and community groups have concluded the committee to be a “disappointment” (Grimsditch, 2012, p. 68). Weaknesses in the mandate of the MRC, in particular for tributary transboundary rivers, became apparent, as well as the MRC’s lack of enforcement capacity (Hirsch & Jensen, 2006; Wyatt & Baird, 2007).

Despite a large number of civil society and academic studies, several official reports including transboundary EIAs for the Sesan and Srepok rivers which involved EVN, and several transborder initiatives including the committee and an ADB basin study (ADB, 2010), there is little evidence that Vietnam’s plans for hydropower development in the 3S basin have significantly changed. There remains an overarching disconnect between Vietnam’s hydro-electricity project planning and operation and addressing concerns about transboundary water governance. Vietnam’s position as the upstream country (and where the project is also built), its rising domestic electricity demand, and economic and political power asymmetries between Cambodia and Vietnam in favor of the latter, together with the absence of an effective transboundary water governance institutional framework, have reduced the incentive for Vietnam to seriously consider transboundary water governance in its domestic power planning and hydropower development. Benefits largely accrue to Vietnam with little serious pressure received domestically or from the Cambodian Government to revise its behavior.

7. Electricity and Water Governance Linkages in Thailand

In Thailand, between 1982 and 2012 the electricity system capacity has grown eleven-fold from 2838 MW (Greacen & Greacen, 2004) to 32,600 MW (Energy Policy and Planning Office [EPPO], 2013). Domestic hydropower projects meet approximately 5% of national electricity demand, with imported hydropower contributing a further 6% (EPPO, 2013). Natural gas accounts for 67% of electricity generation by source, and lignite coal for 20%. Thailand’s rising electricity demand was largely met over this period, although there remains a legacy of environmental and social impacts that has driven the strengthening of regulations, although these are still imperfect (Middleton, 2012). Thailand’s Ministry of Energy estimates that the country’s electricity demand will approximately double to 70,686 megawatts (MW) by 2030 (EPPO, 2012). Resistance to new domestic projects, the near exhaustion of its existing gas reserves from about 2015 onwards, impasse in negotiating new gas field exploitation arrangements with Cambodia, and other factors, has led to Thailand increasing its commitment to import power from neighboring countries, with plans to import approximately 12,000 MW of coal-fired and hydro-electricity from

Myanmar and Laos by 2030. Thailand presently imports approximately 2000 MW from nine hydropower dams in Laos (Electricity Generating Authority of Thailand [EGAT], 2010; Department of Energy Promotion and Development, Ministry of Mines and Energy, 2012)⁵.

The Electricity Generating Authority of Thailand (EGAT) is a state-owned utility under the Ministry of Energy. Until 1992, Thailand's generation and transmission was a monopoly system owned and operated by EGAT. EGAT's rising debts and a series of pro-business governments from the early 1980s led to the partial-privatization of Thailand's electricity sector; in 1992, EGAT began to issue long-term concessions to private-sector Independent Power Producers (IPPs). At present, EGAT and private sector producers generate approximately half each of Thailand's electricity. EGAT's role as both the state-owned utility and as a major shareholder in several of the largest IPPs operating in Thailand⁶, however, has raised concerns over conflicts of interest (Phongpaichit & Benyaapikul, 2013).

Initially, partial-liberalization was conducted in the absence of an effective electricity regulator. It wasn't until the Energy Industry Act (2007) that Thailand's Energy Regulatory Commission (ERC) was created following a failed move to corporatize EGAT that was blocked in the Supreme Administrative Court (Wattana, Sharma, Vaiyavuth, 2008; Wisuttisak, 2012). The ERC is responsible for regulating the energy industry and for licensing domestic power projects, as well as reviewing and monitoring Thailand's power policy and plans. It is an arena of potential linkages between the power sector and environmental concerns, given the ERC's evaluative role of the PDP and individual project licensing. Although the ERC was an important step forward in the governance of Thailand's electricity sector, shortcomings remain including a lack of clarity on scope and extent of its authority, and limited capacity and budget (Wisuttisak, 2012, p. 191).

Thailand's PDP is prepared by EGAT before being reviewed by the Energy Policy and Planning Office (EPPO) in the Ministry of Energy. EGAT (2010) states the criteria for preparing the PDP as system reliability, clean energy and efficient utilization, and local forecast. It is unclear, however, how these three criteria are applied in practice (Foran et al., 2010). The PDP is submitted to the National Energy Policy Council (NEPC) and then the Cabinet for approval, both of which are chaired by the Prime Minister. The NEPC contains representatives from all relevant ministries, including Ministry of Natural Resources and Environment, and is thus another potential arena where cross-sectoral linkages between energy and water could be made. In practice, however, there is little evidence that these institutional linkages are realized.

More so in Thailand than Vietnam, the forecast growth in power demand and the best way to meet it is contested between government agencies and civil society. Regarding power planning, six separate long-term energy plans are prepared by multiple government

⁵ Major projects including Nam Theun 2 (1075 MW), Thuen Hinboun (220MW) and Nam Ngum 2 (615 MW) dams.

⁶ EGAT holds 45% of shares in Ratchaburi Electricity Generating Holding Public Company Limited (RATCH) and 23% of shares in Electricity Generating Public Company Limited (EGCO).

divisions, including for the PDP, for alternative energy, and for energy efficiency; this approach has been critiqued for its lack of integration and thus optimization into one long-term plan (Tongsopit & Greacen, 2013). Studies have also revealed systematic overestimates of electricity demand forecasts resulting in overinvestment in generation capacity (Greacen & Footner, 2006). The dominance of EGAT, a perceived lack of accountability in the operation of large-scale power plants, and the closed-door planning process have caused growing grievance by affected communities and concerned civil society groups (Middleton, 2012). They have sought to challenge and engage in the power planning process to make it more transparent and accountable, and to strengthen the linkages between electricity and water governance, including through an electricity governance benchmarking assessment (Sukumnoed et al., 2006). In another example, PDP scenarios produced by civil society groups using officially available data have argued that Thailand could better meet the stated objectives of the Energy Act (2007) – which include environmental objectives – through repowering existing power stations, and promoting energy efficiency, demand side management and renewable energy technologies (Greacen & Greacen, 2012).

Despite clear policy and institutional deficits, Thailand's electricity sector has also made some notable progress over the past decade, including new renewable energy regulations, promotion of Combined Heat and Power Plants, and, in 2002, Thailand becoming the first developing country to adopt net metering regulations for very small power producers generating beneath 1 MW (Greacen & Footner, 2006; Sukumnoed et al., 2006). Furthermore, since 2007 a slight – but very much imperfect – increase in transparency and public participation emerged in the PDP process with public hearings now held (Foran et al., 2010).

Thailand does not have a law specifically governing water. Broad water governance reforms however have contributed towards improving access to information, participation, accountability and redress mechanisms on large scale projects with environmental and social impacts, although not without significant weaknesses (Boonlong, Farbotko, Parfondry, Graham, & Macer, 2011; Nicro, Friend, & Pradubsuk, 2011; Unger & Siroros, 2011). These include the most recent 2007 Constitution⁷ that contains provisions on the right to access public information (Article 56), the state's responsibility to hold public hearings on projects that could affect the quality of the environment (Article 57), and the need for environmental impact assessment and health impact assessments (Article 67). The National Environment Quality Act (1992) also requires the preparation of an EIA, although the Act's design is not conducive to public participation and access to information (Boonlong et al., 2011), and there is a growing demand for its reform (Wipatayotin, 2014). These are all potentially linkages between electricity and water governance, and local and national level priorities.

In Thailand, four main ministries are responsible for water: Interior, Industry, Agriculture and Cooperatives, and Natural Resource and Environment (Thai Water Partnership, 2013). A National Water Resources Committee (NWRC) was first created in 1989, chaired by the Prime Minister, where ministries exchange their needs for water, although it has no

⁷ The 2007 Constitution was repealed in May 2014 following a coup d'état, and replaced by an interim constitution in July 2014.

authority to determine national water policy (Champathong, Sirasoontoon, Thavornyuti-karn, 2009). Given the importance of agriculture in Thailand, the Royal Irrigation Department in the Ministry of Agriculture and Cooperatives is very influential. Meanwhile, the Department of Water Resources (DWR) in the Ministry of Natural Resource and Environment, created in 2002, is responsible for preparing policy and integrated water resources management (IWRM) plans for river basin systems. The DWR has promoted committees or working groups for each of Thailand's 25 river basins, with local river basin working groups representing the provincial, sub-basin, district and sub-district levels and with – in principle – state and non-state members (Kanjina, 2008). In practice, the river basin committees have struggled to coordinate across sectors and have had limited influence due to rigid bureaucratic structures, limited will to cooperate between state agencies, the limited convening power of the DWR, and also power asymmetries both between local and higher levels of ministries, and between state and non-state actors (Champathong et al., 2009; Kanjina, 2008). Furthermore, an IWRM implementation plan has not yet been completed (Thai Water Partnership, 2013) and overall water management remains fragmented (Champathong et al., 2009).

Revealing the disjuncture between energy planning and water governance, large hydropower projects in Thailand, all of which are operated by EGAT, have been flashpoints for social movements and civil society groups since the late 1980s. These include several projects in the Mekong Basin in the northeast of Thailand, such as the 136 MW Pak Mun Dam and 36 MW Sirindhorn Dam (Foran & Manorum, 2009; Missingham, 2003). Since the Pak Mun Dam, completed in 1994, there have been no further large dams built in Thailand, both due to public opposition and limited suitable sites remaining.

The Governments of Thailand and Laos have an MoU for power exports to Thailand of 7000 MW. To fulfill this commitment, the Government of Laos provides a ranked list of preferred power-export projects to the subcommittee on power imports of Thailand's NEPC; the criteria that the Government of Laos uses to prioritize the projects that it puts forward for power export are not clear (Thabchumpon & Middleton, 2012). The NEPC's subcommittee on power imports assesses each proposed project according to whether it meets the electricity system requirements of Thailand and according to its economic cost. Unlike for IPPs projects in Thailand, no competitive bidding process between alternative power import projects is required, even though the projects ultimately feed into the Thai transmission network (Thabchumpon & Middleton, 2012).

Sovereignty creates legal disjunctures in power import projects. From the perspective of the Thai Government, Thai Law and standards for planning, construction and operation do not apply to power import projects located in neighboring countries, even where governance standards are weaker than those of Thailand, (Middleton, 2012). Likewise, the ERC has stated it does not have the authority to monitor environmental and social performance for power import projects in neighboring countries (Thabchumpon & Middleton, 2012). For power export projects inside Laos, therefore, it is Laos' national law that must be satisfied together with any requirements under the 1995 Mekong Agreement where applicable.

8. Power-export projects and transboundary Water Governance: Xayaburi Dam on Mekong River Mainstream

Since 2006, a cascade of twelve large dams has been proposed for the Mekong River's mainstream, of which nine are planned in Laos (Middleton et al., 2009). The full cascade holds the potential to generate up to 13,000 MW of electricity and thus to contribute significantly to the region's economic growth. Yet, by changing the river's hydrology and ecology and blocking major fish migrations and the movement of sediment, there are concerns that mainstream dams will have serious repercussions throughout the entire basin with negative impacts on the livelihoods, local economies and the food security of millions of people (ICEM, 2010).

The 1285 MW Xayaburi Dam is located on the Mekong River's mainstream in Xayaburi Province, north-central Laos, and is the project at the most advanced stage of development. The US\$3.5 billion project is developed by a consortium of dominantly Thai energy and construction companies, has been financed by five Thai commercial banks and the Export-Import Bank of Thailand. In contrast to the Sesan River case study above, the Xayaburi Dam is a power export project that will send 95% of its electricity to Thailand. The project developers and the Thai and Laos government drew extensive criticism as they have sought approval for the Xayaburi Dam through a regional decision-making process, initiated in September 2010 and facilitated by the MRC (discussed below), whilst at the same time proceeding with preliminary construction work and resettlement activities (Grumbine et al., 2012; Matthews, 2012).

Much has been written regarding the decision-making process of the Xayaburi Dam and its transboundary water governance (see Grumbine et al., 2012; Herbertson, 2013; Matthews, 2012). Regarding linkages and disjunctures, two processes are particularly relevant: the preparation of a Strategic Environmental Assessment (SEA) prepared between May 2009 and October 2010, commissioned by the MRC (ICEM, 2010); and the Procedures for Notification, Prior Consultation and Agreement (PNPCA), which is an inter-governmental decision-making process facilitated by the MRC as mandated by Article 5 of the 1995 Mekong Agreement. The SEA report recommended that approximately 50 additional studies be conducted to fill knowledge gaps, and in this context proposed that any decision to proceed with the mainstream dams should be deferred (a precautionary moratorium) by at least 10 years. The Government of Laos initiated the PNPCA process in September 2010, one month before the SEA report was officially launched. Much ambiguity and controversy has existed around the conclusion of the PNPCA process, with the Government of Laos claiming it to be concluded in April 2011, 6 months after its initiation as per PNPCA Article 5.5.1. The Government of Laos subsequently sought to back up its claim with two consultancy reports (CNR 2012; Pöyry Energy AG, 2011). Civil society groups and the governments of downstream Cambodia and Vietnam disagreed that the PNPCA could be concluded given that consensus between all four governments had not been clearly indicated (Herbertson, 2013) and that PNPCA Article 5.5.2 allows for an extension.

Remarkably, the Xayaburi Dam was not identified even as an indicative project in Thailand's Power Development Plan published in April 2010. However, the project was first discussed by the NEPC in March 2010, and subsequently appeared as a definite project in the PDP update report, published in June 2012. NEPC first authorized EGAT to negotiate a tariff in July 2010 and then stipulated criteria for signing the project's Power Purchase Agreement in December 2010, which included the conclusion of the MRC's PNPCA process. EGAT proceeded to sign a Power Purchase Agreement (PPA) for the Xayaburi Dam on 29 October 2011, despite ambiguity remaining over the status of the PNPCA (Matthews, 2012, p. 405). In "fast-tracking" the Xayaburi Dam project, the decision making process was particularly opaque and controversial.

On paper, a linkage existed between transboundary water governance and Thailand's electricity governance via the NEPC's pre-requisite that the PNPCA be concluded prior to conclusion of the PPA. In practice, however, the authority to interpret the PNPCA's completion was placed with Thailand's Ministry of Energy, which justified the PNPCA's completion based on a letter received from the Government of Laos stating as such in early October 2011 (International Rivers, 2013). This reveals significant differences in power between the contesting actors involved over the legitimacy to interpret the law. Subsequently, Thai riparian communities challenged this decision in the Administrative Court, and in June 2014 the case was accepted by the Supreme Administrative Court on the basis that public consultation as required under the Thai Constitution may not have been adequate for Thai state agencies to proceed with the project.

The PNPCA process occurred towards the relative end of project approval and, by design, did not fundamentally question Thailand's power planning rationale behind the Xayaburi Dam. Meanwhile, whilst the SEA report influenced the terms of the debate in the PNPCA process, it was not published by the MRC as an official report because the Government of Laos did not support its findings. Thus, whilst the report offered analytical linkages between multiple sectors – in particular water and energy – the report was marginalized from the decision-making process as the report's findings did not align with the interests of the powerful project proponents. Finally, despite the project's location on an international river, and the findings of the SEA that there would be transboundary impacts, the Xayaburi project was not required to prepare a transboundary EIA either under the MRC's PNPCA process or according to Laos' national law.

9. Linkages and Disjunctures in Transboundary Water and Electricity Governance

Thus far in the paper, we have identified that a number of linkages exist between electricity and water governance that provide opportunity for the co-consideration of the multiple objectives of these two sectors. However, these linkages are generally weak, and clear disjunctures also exist. Moreover, there are power imbalances both between countries, and between the array of actors involved in the water and energy sectors, which

shape decision-making and its impacts (Contreras, 2007). In this synthesis and conclusion section, linkages and disjunctures between water and electricity governance regarding context, drivers, tools, arenas, decisions and impacts are discussed.

9.1. *Context*

The Mekong Basin is an important transboundary resource shared amongst the countries of mainland Southeast Asia. From a hydrological, ecological and social perspective, the river basin is a complex unit interconnected in many ways (Fox & Sneddon, 2005). Catalyzed in part by the GMS program, the region is rapidly economically integrating including via cross-border power trade and the accompanying physical infrastructure and financial, human resource and knowledge flows that power-trade and associated hydropower dam construction entails. Much of the remaining large hydropower potential in the Mekong Basin is located in China, Laos, and Cambodia. Meanwhile, the major power markets are in Thailand and Vietnam. This group of countries – and the populations within them – hold diverse national interests in the future of the river basin for food, water, and energy (Kirby et al., 2010).

Geographically, national-scaled interests of “energy security” do not match the biophysical geography of the Mekong Basin; many of Southeast Asia’s major load centers, including Bangkok, Hanoi and Ho Chi Minh City, are located outside of the basin. The geographical territory, therefore, of the institutional arrangements for regional water and energy governance differ, with the MRC’s territorial scope being a sub-area of the RPTCC’s territorial scope. Scott et al. (2011) has highlighted that divergent scales of water and energy governance can lead to divergent priorities, which is a politics of scale that has been extensively documented within the Mekong Region (e.g. see Bakker, 1999; Dore & Lebel, 2010).

Geography, territory and sovereignty also shape the relationship between transboundary water and energy governance: a project may be located on a transboundary river within the power market country; or a project may be a power-export project located on a transboundary river. In the first case sovereignty over both power sector planning and project design, approval and operation are coincident and thus more potential linkages between water and energy governance exist. Yet, these may also be understood as ‘national projects’ with transboundary implications⁸, and whether transboundary externalities are addressed depends upon the accountability of the project developing country to its neighbors, possibly within the existence of cross-border water governance institutions. In the second case, power sector planning and project design, approval and operation are not coincident. Linkages might be mediated by regional water and energy governance institutions, as well as various contractual arrangements such as the Power Purchase Agreements, reflecting the new forms of legal plurality and state territoriality evolving in the region (Suhardiman & Giordano, 2014). Yet, sovereignty still also creates disjunctures if the power importing country prefers to externalize impacts within the power exporting country.

⁸ The authors thank an anonymous reviewer for this insight.

9.2. Drivers

Grumbine et al. (2012) suggest that principle drivers of hydropower are: demographic changes; human development aspirations; food and energy demands; trends in economic growth, trade and investment; and climate change. Dore et al. (2012), meanwhile, discuss drivers in terms of interests, institutions and discourses.

As discussed above, regional-scale and national-scale institutional arrangements exist individually for both electricity and water governance. For electricity, a key regional inter-governmental agreement is the *Inter-Governmental Agreement on Regional Power Trade in the GMS* (2002) that guides the work of the RPTCC. For water, it is the *1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin* that guides the MRC. Nationally, amongst others, are the apex water committees and energy committees, river sub-basin organizations, and energy regulators. As argued above, both between sectors and across scales there is significant fragmentation and disjuncture between water and electricity governance institutions. Furthermore, these predominantly government-led institutions are limited in terms of transparency, accountability and their cultures and rules pertaining to participation, cross-sectoral cooperation and exchange; these are problematic factors for those seeking to minimize disjunctures and foster linkages.

The RPTCC is increasingly institutionalized in terms of declarations and agreements between countries (ADB, 2012a), although remains relatively uninfluential in terms of directly shaping national electricity planning priorities in Thailand and Vietnam as they pursue their national interest for energy security through the RPTCC. Despite the recent preparation of a Strategic Environmental Assessment study on energy guided by the RPTCC (ICEM Asia, 2013), the RPTCC is almost totally focused on the regional power trading possibilities consequent to energy planning with few linkages to regional water governance arrangements.

Meanwhile, the MRC is inevitably shaped by decisions taken by electricity planners and developers driving hydropower projects. For the reasons discussed above, however, the MRC remains marginalized from key power-sector investment decisions. In principle, the MRC's National Mekong Committees would build linkages between water and electricity governance according to the principles of IWRM. However, in Thailand and Vietnam ministries responsible for energy have relatively little engagement with or accountability to the NMCs (both in day to day practices, and during key decision making processes, such as the PNPCA), and tools applied by the MRC including the SEA and BDP discussed above do not fundamentally shape power planning even as they may inform and shape discourses surrounding it.

Some limited linkages, however, exist in terms of the shared membership on both the MRC and RPTCC. The Government of Laos has nominated the Ministry of Energy and Mines (MEM) to represent it in both of these organisations/committees. Meanwhile, both also have shared development partners joining the meetings, including the ADB and World Bank. Whilst the membership of the MRC have no input into the agenda of the RPTCC, once decisions are taken to develop projects that have an impact on transboundary water resources then MRC processes are invoked.

9.3. *Tools*

Deliberative tools to date in the region have principally engaged with water governance, including in multi-stakeholder platforms, environmental flows, and scenario building, although have necessarily touched upon energy planning (Dore et al., 2012). In a recent assessment of tools for large hydropower dams in the Mekong region, Keskinen, Kummu, Käkönen, and Varis (2012) conclude “more concerted effort is needed to assess benefits, costs and uncertainties of the current development plans . . . existing assessment procedures require a revision, building on the three transformations – cumulative assessment, increasing inclusiveness, and [a] comparative approach . . .” Deliberative approaches to electricity planning, meanwhile, have been far scarcer. There is furthermore little evidence yet that applying the (potentially) deliberative tool of SEA to the GMS multi-national energy community via the RPTCC has been effective in changing the thinking within energy ministries.

Technical assessment tools, in particular environmental impact assessments, and the use of planning tools including strategic environmental assessments and the MRC’s basin development plan (BDP), offer potential linkages between the sectors. However, to date these tools, as they have often commissioned from a water governance perspective, arguably do not shape power sector planning, but instead respond to it, and are constrained by unequal power relations between the actors involved.

Advocacy campaigns on both water and energy have been organized by transnational actors and in Thailand, and to a lesser extent in Vietnam and Cambodia; they have sought to influence both power development planning and individual projects. High-profile campaigns on transboundary water governance, including Save the Mekong (that has included a focus on the Xayaburi Dam), and efforts of the 3S Protection Network and the Rivers Coalition of Cambodia (focused on the Sesan, Srepok and Sekong) have found it difficult to influence PDPs as actors challenged by power inequalities and often excluded from formal arenas of electricity planning and decision making.

9.4. *Arenas*

Arenas (actors, power and politics) for water and energy governance can be linked or disconnected, and if the latter, key actors may not have the opportunity to engage. Tools, whether they are EIAs, SEAs, scenario building exercises, or advocacy campaigns, can force greater contestation within arenas by bringing together different actors and/or changing the politics and power differentials. Furthermore, unless there is some overlap between arenas, respective drivers (interests, institutions, discourses) of water and energy will also be less deliberatively contested.

In Thailand and Vietnam, the region’s two major electricity markets, despite their diverse political and historical contexts, there are some similarities in the relationship between electricity and water planning: the state-owned utilities, IPPs, and financiers are influential actors; there has been pressure on these utilities to privatize; and water-related state agencies, whilst influential, are significantly less so than the electricity related

state-agencies. This may in part be explained by the importance accorded by national leaders to an inexpensive and reliable electricity supply for sustained national economic growth. The water sector, meanwhile, whilst important to both commercial agriculture and subsistence livelihoods, must often balance a wider range of economic, social and environmental concerns. The electricity sector, therefore, with its principally economic goals and support from national leadership, has limited incentive to directly ensure good water governance itself and in a fragmented institutional setting may externalize such concerns (see also Mirumachi, 2012; Suhardiman et al., 2011). Suhardiman and Giordano (2014) furthermore show how as hydropower development is a central pillar of the Government of Laos' development strategy, it enlists private sector developers as its "informal agents," and in a context of legal pluralism negotiates international donors' expectations for strengthened hydropower governance. These disjunctures limit negotiation and compromise around joint goals shared by both sectors.

Significant power asymmetries exist between state and private actors on the one hand, and civil society actors on the other (Contreras, 2007; Suhardiman & Giordano, 2014). At the same time, public participation, transparency and accountability is uneven but generally limited across the region (Hirsch 2010; Sneddon & Fox, 2006). There have been responses by civil society networks to specific projects and national power planning that have intentionally or otherwise sought to build upon linkages between water and energy governance, to the extent that political space allows. At the national level, these groups have included Towards Ecological Recovery and Regional Alliance (TERRA) and Palang Thai in Thailand, and Vietnam Rivers Network, and GreenID in Vietnam. Regionally, groups have included the Mekong Energy and Ecology Network (MEENet) and the Mekong Program on Water, Environment and Resilience (M-POWER). A range of strategies have been deployed, from research and knowledge creation, to petitioning and street protests, seeking a range of goals from institutional reform of (inter)government agencies, to the cancellation of particular projects.

9.5. *Decisions*

Dore et al. (2012) note that decisions address both supply- and demand-side, and framing shapes the decisions-taking context. The dominant electricity frames in the region emphasize supply-side solutions, and justify more large-scale projects to ensure "national energy security" (Greacen & Greacen, 2012). Dominant framings around water governance, meanwhile, encompass a more diverse array of perspectives, including; sustainable development, scarcity, environmental protection and the trade-offs that these entail (e.g. MRC, 2010). Alternative frames, that carry less weight, emphasize the need for demand-side and small-scale solutions.

There are, in other words, significant disjunctures between the framing of electricity and water governance. Whether proposals promoting a "water-energy-food nexus" approach, as most recently discussed at the Second Mekong Summit in April 2014 amongst the region's leaders (HCMC Leaders' Declaration, 2014), will create shared frames and policy linkages remains to be seen (Ward & Smajgl, 2013; Middleton & Allen, 2014).

9.6. *Impacts*

In terms of fairness, sustainability and allocation, impacts can be evaluated according to a range of criteria. The concept of environmental justice, for example, proposes the need for distributional, procedural, and recognitional justice (Walker, 2012). Dore et al. (2012) put forward a Rewards, Rights, Risks and Responsibilities framework. From the case studies presented in this paper and much other evidence (e.g. see Lazarus, Badenoch, Dao, & Resurrection, 2011; Molle et al., 2009), it is seen that no matter how evaluated winners and losers have been created, and that a key disjuncture relates to how tradeoffs between food, water and energy are negotiated within the region's existing electricity and water governance frameworks as mapped out above.

A disjuncture regarding transboundary projects and access to justice emerges from the implications of jurisdiction of national law in cross-border power trade projects (see also *context* above). As demonstrated in the case of the Xayaburi Dam in Laos, despite construction, ownership, operation, and power sales being a bilateral undertaking between state and private actors in Laos and Thailand, communities affected by the project in Laos do not have reliable avenues to seek justice within Laos, and yet neither are they permitted to seek justice in Thailand (the power-importing country) where the legal system is more robust (Middleton, 2012). Likewise, in the case of the Sesan River, downstream communities in Cambodia are unable to directly access the justice system in Vietnam to make claims of EVN, but instead have had to seek regional institutional mechanisms for justice and redress, which have proven significantly flawed (Wyatt & Baird, 2007); indeed, even for communities affected in Vietnam, recognition and access to compensation redress has been limited (Dao et al., 2004).

10. **Linking Transboundary Energy and Water Governance: Promising Entry Points**

We see significant value for society in bridging existing disjunctures, strengthening linkages and deepening deliberative processes between the water and electricity sectors to close the gap between regional and transboundary water and electricity governance. This would facilitate more informed and democratized decision towards meeting energy needs whilst sustaining the multiple benefits that the region's rivers provide. Though the disjunctures are challenging, a number of linkages, whilst weak, can be built upon:

- At the planning level, deeper institutionalization of assessment tools that can link water planning to electricity planning including basin planning tools, strategic environmental assessments (SEAs) (see also Bach et al., 2012) and multiple-criteria decision analysis;
- At the project level, deeper institutionalization of transboundary impact assessments that evaluate how large water-using and energy-producing projects are proposed, justified, planned, designed, operated and monitored;

- Empowering river basin organizations at the transnational basin and sub-basin scales to more equally engage with and build closer linkages to electricity planning processes and its governance;
- Policy reform of the electricity sector with more clearly stated requirements on attaining multiple goals from an economic, social and environmental perspective;
- Further in-depth research on the legal and institutional linkages between the electricity and water sectors, including the implications of legal plurality, and political economic assessment of how to build on these linkages;
- Framed by the growing interest in a water-energy-food nexus approach, a need for dialogues that build personal and institutional linkages between the multiple arenas and actors engaged in electricity and water governance.

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