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# Contested Knowledges of the Commons in Southeast Asia

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Sally Beckenham, Robert A. Farnan, David Chu, Edyta Roszko,  
Amnuayvit Thitibordin, Andrea Valente, Michał Zaręba**



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## **I. INTRODUCTION**

Environmental questions are at the heart of many development dilemmas in Southeast Asia. New actors and technologies, changing domestic politics, policies, and economies - as well as shifting geopolitical contexts, are remaking nature-society relations in the region. A failure to address transnational environmental challenges could not only undermine ASEAN's legitimacy but also have drastic consequences for the region's security and its political and economic stability. In addressing these questions in Work Package I (WPI), we are particularly concerned with contested knowledges of "the commons" and competition over resources. We consider the environment as a driver of processes of regional integration, but also of conflicts between various actors in the region. Our research focuses on three environmental contexts namely: sea; rivers; and air. In addressing all three our emphasis is on the transition to a low-carbon economy.

Grounded in a multidisciplinary approach, WPI shares a common conceptual framework, centred on the co-production of ecological knowledge and ecological governance. Drawing on the work of Sheila Jasanoff (2004), Shubhra Gururani and Peter Vandergeest (2014), amongst others, we consider the production, circulation, acquisition and assimilation of ecological knowledge at, and across the local, national and global levels and its relationship to ecological governance. Based on macro and micro case studies, we relate this dynamic process of co-production to other concepts, including reterritorialization; feminist political ecology, hydropolitics, and paradiplomacy (international relations conducted by subnational governments on their own). The aim of this paper is to present the theoretical framework of our work as well as the three main strands of our research. In the first section, we explain our understanding of the concept of ecological knowledge. This is followed by a presentation of our methodological approaches, while the last section presents the individual research projects in the WP, arranged in three modules.

## **2. CONCEPTUAL APPROACH**

In our research we pay particular attention to the 'co-production' relationship between ecological knowledge and ecological governance. Co-production is a concept advanced by Sheila Jasanoff, who described it as an idiom where "... co-production is shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it" (Jasanoff, 2004: 2). In her work she conceptualizes how natural and social orders are co-produced together, mediated by the production of knowledge contextualized within history, power relations, and culture.

Gururani and Vandergeest (2014) show how new actors, new technologies, and practices of boundary work, territorialisation, scale-making, and expertise are shaping the production of ecological knowledge at multiple levels. They demonstrate how powerful state and

non-state actors "...are competing to control what it is that they value in Asian ecologies—minerals, land, endangered species, community livelihoods, or sequestered carbon" (Gururani & Vandergeest, 2014: 344). One means through which this is done is the production of ecological knowledge, for it restructures ecological governance regimes that do not only involve laws, but also transnational norms and "best practices". For instance, Boer *et. al.* (2016) highlight the legal pluralism in the Mekong basin and the diversity of "hard" and "soft" laws regulating water governance in this area. Marginalized groups, by being excluded from knowledge production and circulation, are also precluded from new forms of ecological governance as shifts in relations of authority, control and decision-making occur, and this, in turn can prevent them from access to resources and livelihoods (Gururani & Vandergeest 2014: 349, 50).

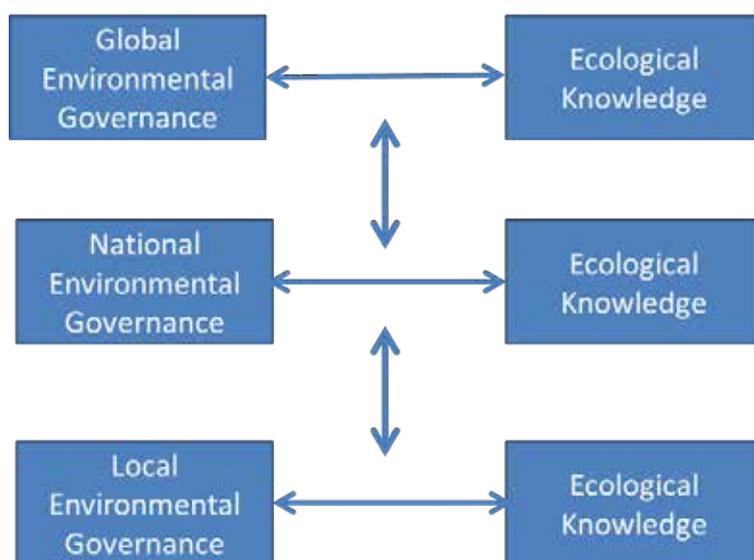
In our understanding, the relationship between ecological knowledge and environmental governance is a symbiotic one. Production, circulation, integration and dissemination are elements of how knowledge is being shaped, put into action and reshaped. To gain a better understanding of these processes, it is necessary to have a close look at the different groups of actors that have access to particular resources and how they maintain and transfer knowledge about those resources. Any attempt at identifying different attitudes and approaches to 'the commons' springs from the assumption that the ways in which nature is constructed and represented are linked to power relations. These are political in nature, and to strengthen their power, groups of actors produce and mobilize different constructions of nature for different purposes, depending on their respective interests. Thereby politicized processes are highlighted 'by which environmental knowledge(s) is/are produced through various media forms and technologies, from popular scientific texts, to news media, policy, law, and novel technologies, and the sorts of political and ecological outcomes that result.' (Boykoff 2016: 4). These politicized processes are closely related to how 'nature is perceived in distinct ways by different actors, within particular moments and contexts' (Budds 2016: 60).

The knowledge requirements may strongly differ, and there are various types of knowledge that have to be taken into consideration, ranging from 'common sense' knowledge, practical and professional knowledge to scientific knowledge. In resource governance issues, actors often create alliances and networks based on shared interests, for example, the desire to protect and preserve a particular resource. To create and sustain an intra- and extra-group discourse, networks tend to construct ritual narratives, and thus draw a rhetorical boundary between 'us' and 'them' (the latter might have alternative views of how a resource should be used).

Groups of actors work across local, national and international boundaries to facilitate knowledge exchange. Although actors may be associated with one level, i.e. the nation state, boundaries between scales are often blurred in practice, and there are certain mechanisms 'through which the local and global are interconnected and interpenetrated' (Fouksman 2017: 1849). In the context of the interplay between the nation state and local actors, Robbins (2000: 127) remarks that the state does not produce knowledge to exclude local accounts but rather that it "seizes and reproduces locally powerful knowledges and enforces management through alliances with locally powerful groups". (*ibid.*)

Hence, to gain a thorough picture of the interaction between different networks, it is crucial to understand their collaboration at different levels and their respective power relations. Global issues tend to be negotiated at the local level, and it is essential to find out how these negotiation processes occur at the grassroots. For example, Nijbroek, in his study of environmental knowledge concerning mangroves in Surinam (2014: 534), argues that local power relations contribute to how global issues translate into laws and policy and shape how knowledge is filtered and replicated. Moreover, not any type of knowledge is considered valuable or equally recognized; only certain types of knowledge are reproduced. In our research we will try to understand 'which knowledge counts' (Heland / Clifton 2015: 154).

**Figure 1.** Interconnections between the global, national and local level of environmental governance and ecological knowledge production



**Source:** Tomasz Kamiński

In different macro and micro case studies, we relate the co-production of ecological knowledge to other conceptual frameworks such as Social Construction and Production of Space, Reterritorialization, Security, Hydropolitics or Paradiplomacy. For example, Monika Arnez, in her study on land reclamation in maritime Southeast Asia, employs approaches inspired by studies about the social construction and production of space (Lefebvre 1991, Low 2017, 2009, Massey 2005). Social constructionist approaches highlight abstract notions of space such as people's sentiments, imaginings, and memories. As these frequently invisible ideas and emotions have a strong impact on the ways in which space is conceived of, therefore a close understanding of such abstractions is deemed important to uncover underlying ideas about land reclamation sites and their environment. Moreover, social production approaches seek to

reveal political, economic, social and historical dimensions of renewal and developing urban planning projects. Thus, they can shed light on the process of how land reclamation projects come into being, how they change over time and how interrelations shape conceptualizations of space (cf. Massey 2005: 9). A combination of these approaches lends itself well to an analysis of interplays between spatial constellations and knowledge, given that political knowledge is an integral part of a 'science of space', and knowledge is closely related to the mode of production (Lefebvre 1991: 8-9).

Another key concept is **reterritorialization**, employed in the study of the Salween Peace Park by Sally Beckenham and Robert A. Farnan. By conceptualising infrastructure as a technology of reterritorialization (Woods 2011; Cowen 2014), their project explores how public controversy and political conflict over the regional commons (Buchanan, Kramer & Woods 2013) has become central to understanding the transnational environmental challenges facing integration and security in Southeast Asia (Simpson 2017). In shedding light on these transnational practices and processes of reterritorialization, their study also explores how such contestation over the commons is being undertaken by civil society groups (KESAN, 2017), who are utilizing global discourses of cultural heritage (Philp, 2010; Facchinetti, 2014; Morris, 2015; Moore *et al.*, 2016) and indigeneity (Morton, 2017). Their project explores how these are being taken up by environmentalists as a means to access 'the international' and, thus, in doing so, legitimize their own practices of conservation within the formal ASEAN regional project.

**Security** constitutes another central concept of this project (Salter & Mutlu 2013; Aradau *et al* 2015). By foregrounding competition over the commons as it is bound up with reterritorializing infrastructural projects and with global discourses, research in WP 1 will suggest wide-ranging implications for how we conceptualize security - traditional or otherwise - in the region. Various team members are to explore this concept, attempting to shed light on different notions of environmental, economic and human security and the ways in which they interplay. For example, Andrea Valante in her study on electricity in Indonesia and Thailand investigates the idea of sustainability or environmental stewardship, which has brought a whole new dimension to the concept of energy security, with NGOs acting as pressure groups to reduce consumption of fossil fuels.

A solid body of literature focusing on energy in the developing world (Smil & Knowland 1980, Luft & Korin 2009) alerts us to the many differences between the energy problems of the industrialized nations, which pale in comparison to those most of the world's developing countries face. This means that although the broad definition of energy security (comprising the notions of reliability, safety, suitability, affordability, and sustainability) has been adopted by most countries around the world, some have done so in order not to counter the prevalent definition. Yet, they are mostly, or exclusively, concerned about the mere (security) supply and satisfaction of (growing) demand, regardless of the economic, strategic and, lastly, environmental costs and risks associated with such a posture. Valante's research in WP 1 focuses on the interdependency of the political decision-making process at the national level and access to specific technical and economic knowledge with regard to energy production. As stated earlier,

emphasis is placed on low carbon approaches.

The next crucial notion is **hydropolitics**. This term, coined with reference to disputes and potential violent conflicts over shared water resources (Waterbury, 1979), refers to the way politics is affected by the availability of water resources and the influence on transboundary water governance. Hydropolitics can be also described as “the systematic study of conflict and cooperation between states over the water resources that transcend international borders” (Elhance 1999: 3). Within the WP Michał Zaręba is to examine hydropolitics in relation to the capacity of regional geopolitical institutions which seek to create a platform of cooperation for political entities and govern the shared waters in the spirit of sustainable and equitable development. He builds on scholarly work highlighting the contested nature of transboundary water governance and argues that, the question of sharing waters is an incentive for cooperation or can exacerbate conflict (Gizelis & Wooden 2010, Uitto & Wolf 2002, Wolf 1997, 1998). Previous research confirms the thesis, on the one hand, that sharing water enhances cooperation, while, on the other, the risk of conflict increases in the case of upstream/downstream configurations. For example, Brochmann and Gleditsch (2012: 525) point out that “sharing a basin has no added impact on the risk of conflict outbreak in a dyad.” The terms used to refer to trans-boundary water conflicts such as ‘water wars’ and ‘hydro-hegemony’ will also be critically reviewed. Whereas the former foregrounds antagonistic conflict in water governance settings, the latter has been used to explain how powerful groups can control water resources without resorting to repression. In this context, Zeitoun & Warner (2006) have pointed out that subordinates do not only adopt the hegemons’ authority but also internalize their norms and values. They also draw attention to the importance of the respective geographical position, and the unequal political, military and economic powers held by the river basin states as possible reasons for conflict.

On the other hand, a critical perspective on hydropolitics takes into account not only political geography but also human and environmental cases and examines discursive strategies which are the expression of power relations concluded in international agreements. Critical hydropolitics also draws attention to networks created by economic, political, discursive, and hydrological factors and underlines the role of the non-state actors like local communities (Sneddon & Fox, 2006). This perspective shifts hydropolitical rhetoric from that of “water wars” triggered by states to the level of “water riots” at the community level. In WP I Carl Middleton looks at the transforming hydropolitics of the Lancang-Mekong River and its associated knowledge production through a ‘hydrosocial’ lens (Linton 2010). In this approach, water is conceptualized as a ‘socio-natural hybrid’ that dissolves society-nature dualisms (Swyngedouw 1999) and is produced through assemblages of human and more-than-human relationships (Linton & Budds 2014). Through a hydrosocial lens water and society constantly co-produce themselves. Overall, Linton and Budds call for “a shift from thinking of relations between things – such as the impact of humans on water quality – to the relations constituting things, such as the cultural, economic and political processes that constitute the particular character of desalinated water, treated drinking water or holy water” (*ibid*: 173)

In much of the literature on hydropolitics, there is an implicit assumption that water resources, such as the Mekong River and its increasingly extensive technological infrastructure, are at the passive stage upon which a primarily human hydropolitics drama takes place. From such a perspective water is the object of politics. However, from a hydrosocial perspective, water is repositioned and analysed in terms of "...how water and its circulation internalizes and expresses politics" (Linton & Budds, 2014:177). They suggest that:

*different kinds of waters are realized in different hydrosocial assemblages; in one such assemblage, water is constituted as a public good, while in another, it is constituted as a commodity... There is no necessary contradiction between a dialectical process, by which water and society make and remake each other as both an historical process, and one that relates water and society internally (Linton & Budds, 2014:175).*

In other words, from a hydrosocial perspective water is more than H<sub>2</sub>O, but instead has multiple meanings and roles (Bakker & Bridge 2006). This emphasis on the spatial dimensions of hydrosocial territories enables an exploration of how different actor networks hold divergent visions for the future of the Lancang-Mekong River basin (Hirsch 2016), and the role that the multiple meanings of water play within it.

In order to analyse the engagement of local governments in ecological knowledge production and sharing, **paradiplomacy** needs to be factored into any analysis. By paradiplomacy is meant the international activities of non-state actors, and regional entities. The latter particularly has attracted considerable scholarly attention in the 1980s, given the increasing involvement of regional governments in the international arena. The term paradiplomacy was defined by Kuznetsov (2014:, 31) as: "...a form of political communication for reaching economic, cultural and political or any other types of benefits, the core of which consist in self-sustained actions of regional governments with foreign governmental and non-governmental actors." Some strands of literature on paradiplomacy - or city-to-city diplomacy (eg. Curtis 2014, Pietrasiak et al. 2018) - take an environmental perspective when analysing the foreign activities of subnational actors (eg. Eatmon 2009). Kuznetsov (2014) has argued that the existing literature on "green" paradiplomacy can be divided into three main types: case studies on regional cross-border environmental projects; analysis of the development of global environmental networks of subnational governments; and the treatment of subnational governments on the issues related to the global environmental agenda. Unfortunately, the rapidly growing number of books and papers dealing with the role of cities in environmental governance (eg. Happaerts et al. 2010, Bouteligier 2013, Lee 2015, Campbell 2012), is also very much concentrated on Western actors. South East Asian local and regional governments are largely omitted in the research so far.

### **3. METHODOLOGICAL APPROACH**

WPI research involves a truly multidisciplinary team consisting of anthropologists, political scientists, sociologists and historians. While we have agreed on incorporating the concept of ecological knowledge production in all individual projects conducted in the framework of the WP, we draw on a wide range of competencies and methodological approaches. Multi and transdisciplinary research methodologies are employed, thus capitalizing on the diversity of the team members in terms of methodological approaches. Investigating the complex interplay of social, political and environmental forces that is at the heart of the growing competition over the commons in the region of Southeast Asia, we will mainly use qualitative research methods. In the initial stages of the project, we have prepared comprehensive review of the scholarly literature, with different foci depending on each particular research topic. These reviews are based on materials published in English and different Southeast Asian languages: Thai, Khmer and Indonesian, among others. In addition, one of WP I researchers, Amnuayvit Thitibordin, plans to conduct archival research in Great Britain and Thailand.

In line with the qualitative research approach, the bulk of the work will rely on interviews and ethnographic observations. How the “lore” of water and its distribution is shaped, acted upon and reshaped, is best understood through ethnographic observation and narrative interviews, accompanied by occasional semi-structured expert interviews to cover the macroscopic aspect. Similarly, the gendered aspects of mining, including its ‘How Tos’ and ‘Don’t Dos’, is best taken into cognizance by the participant observer. Decision-making in relation to low carbon energy production such as constructing hydroelectric dams, in contrast, usually takes place at the higher echelons of the state, so this calls for semi-structured expert interviews of politicians. In both these cases, we seek to pinpoint the influence of local communities on knowledge dissemination and decision-making. As a rule of thumb, unstructured, observation approaches are more appropriate for microscopic views better. Focus group discussions serve as a complementary method to address more sensitive topics, particularly in regard to access and consumption of the ‘commons’ within our research framework.

### **4. RESEARCH MODULES**

Research activities in WPI are taking place in three strands (modules), focused on three of the commons: sea, rivers and air (transition to low-carbon economy).

#### **MODULE I: SEA**

As far as the sea is concerned, our research addresses two topics. A first project

examines the impacts of sand mining and land reclamation, focusing on Indonesia, but also taking into consideration transnational trade and trafficking. A second project examines the marine resources of the South China Sea. Here, consideration is given to the evolving regional demand for fishery products and its political economy, including the competitive relationship between industrial-scale and small-scale fishing practices.

**Project title: Creating land from water: Land reclamation in maritime Southeast Asia (Monika Arnez)**

This research project is a multi-sited ethnographic study aiming at a deeper understanding of land reclamation sites in maritime Southeast Asia. It analyses, firstly, how the process of creating new space - and displacing the sea - impacts on social relationships and the marine habitat. Secondly, I examine the approaches of different groups of actors towards land reclamation and, thirdly I study, how ecological knowledge production is used to influence land reclamation projects. This project draws on two bodies of scholarly literature, the first dealing with the social construction and production of space (Levebvre 1991; Low 2017; 2009; Massey 2005) in what Hayward (2012) refers to as 'aquapelagic assemblage' and the second with ecological knowledge and knowledge-shaping processes (Boykoff 2016; Gururani & Vandergeest 2014; Heland/Clifton 2015; Lamb 2018; Nijbroek 2014).

***Problem statement / background***

Land reclamation is an urban development strategy many countries implement in order to extend the reach of existing cities and create new space for artificial islands housing multiple projects such as apartment complexes, office buildings, shopping malls, and deep-sea harbours. Countries like Singapore, for example, where land is a scarce resource, have long relied on sand imported from countries such as Indonesia, Cambodia, and Vietnam for land reclamation before the latter prohibited the export of sand to their Southeast Asian neighbour. Yet, land reclamation is also common in regions where land is already available. A case in point is Malaysia's West Coast where artificial islands have been created by dredging sand despite the fact that land is abundant. As land reclamation relies extensively on capital, labour and technology, elite actors dominate the process of creating land within an environment of water. These actors, as Grydehøj (2015) demonstrates, use land reclamation to create new urban spaces without having to deal with complex regulations and land right issues.

In land reclamation sites, spatial transformations are often contested as different groups of actors seek to control new urban spaces. The process of pushing the sea back and creating a built environment redefines the interface between sea and land, creating change in human and marine life. This process can have detrimental effects on local community members such as fishermen, as their livelihood is affected by declining fish or shrimp stocks. One example is the Portuguese community in Malacca that has protested against the 'Melaka Gateway.' Local actors

oppose this development project created on three artificial, and one natural island, linked to China's Belt and Road Initiative (BRI) due to concerns over detrimental impacts on catch values and the obstructed water flow. As observed for other local communities affected by development projects (i.e. Lamb 2018), they seek to produce knowledge to influence decision-making processes in their favour. However, as Heland & Clifton (2015: 154) point out, the process of knowledge production is selective and shaped by inequality: some knowledge is deemed more valid than others so that only certain types of knowledge are reproduced. For example, it is likely that developers involved in negotiations have full knowledge about a project scope and impact, whereas affected communities have to expand their knowledge about it.

#### **Research question(s):**

1. How does the process of creating new space - and displacing the sea - impact on social relationships and interfere with the marine habitat in selected land reclamation sites in maritime Southeast Asia?
2. How do people's sentiments, imaginings, and memories construct spatial formations in land reclamation sites?
3. How do land reclamation projects come into being, how do they change over time and how do interrelations shape space?
4. How is ecological knowledge produced and used to influence land reclamation projects?

#### **Project title: Environmental Displacement: The Glocalised Effects of the South China Sea Disputes (Edyta Roszko)**

Studies on the environmental history of Southeast Asia suggest that, while there has been long-standing exploitation of marine resources in the region, overfishing is a very recent development. Marine ecologists offer an equally alarming picture by connecting various contemporary state development projects with ongoing damage to the marine ecosystem, including to mangroves, sea grass beds and coral reefs that provide breeding grounds for many marine species. Maritime disputes, the development of refrigeration, freezing and transportation technologies might encourage coastal inhabitants to use more intensive and often destructive methods of extracting marine and coastal resources for commercial purposes. Economists, therefore, have proposed a broader economic evaluation of natural assets and payment for their ecological services as a way out of the unbridgeable dilemma between destructive exploitation and conservation. However, one of the main assumptions underlying this project is that tensions in the South China Sea region cannot be fully grasped without paying attention to local communities that inevitably become involved, not only in competition over marine resources and in border making, but also in perpetuating environmental damage. We need to better understand how coastal communities—which are dependent on maritime spaces for their livelihoods—respond to the new challenges.

### **Problem statement/ background**

Rejecting the idea that fishers pursue opportunity or rational choice (see Hardin 1968; cf. Ostrom *et.al* 1999; Nonini 2006), scholars have started to pay attention to historical patterns of resource use (Schlager & Ostrom 1992), conflicts between competing resource users and long-standing political and economic inequalities (Boomgaard *et. al.* 2005; Fabinyi, Evans & Foale 2014); as well as to the role of uncertainty in shaping decision-making processes in local fisheries (Holland 2008). Yet, we still know little about how coastal communities which are dependent on maritime spaces for their livelihoods respond to the new challenges. While different states use reference to customary fishing practices in order to formulate legal arguments for enclosure of these commons, the resulting enclosures paradoxically suppress the voices and interests of these fishing communities.

### **Research question(s):**

1. The project will address this issue in depth by asking two interrelated questions:
2. How do governments and private and public institutions seize upon the exclusive notion of sovereignty and adopt new technologies and new forms of knowledge to demarcate maritime spaces and exploit resources from the sea?
3. How do local coastal communities stake their claims from below to contested fishing territories which were historically considered common property?

## **MODULE 2: RIVERS**

For the theme of “rivers”, five research projects focus on two major transboundary rivers: the Salween River and Mekong Rivers. Both rivers are simultaneously seen as potential engines of economic growth, in particular for large-scale hydropower dams and irrigated agriculture; as natural resource foundations of rural subsistence livelihoods as well as important domains for environmental conservation. Two projects explore the hydropolitics of the Mekong River, including the shifting relationship between China and downstream countries that has emerged with the China-led Lancang Mekong Cooperation Framework and creates new challenges and opportunities for transboundary governance. A third project examines the local impact of resettlement at a large hydropower dam from the perspective of human security. For the Salween River, a fourth project will analyse the history of cross-border teak trade and its implications for border-making. The final project examines the contemporary politics of the ‘Salween Peace Park’ recently created in Karen State, Myanmar. This project seeks to examine the reterritorialization it implies within the context of the complex, fragmented sovereignties of that area of the basin.

**Project title: Analyzing the coproduction of ecological knowledge and transboundary water governance on the Lancang-Mekong River through a hydrosocial lens  
(Carl Middleton)**

The Lancang-Mekong River has been increasingly engineered by large dams, including on the mainstream in both China and Laos, changing the river's hydrology and ecology, and with subsequent implications for riparian livelihoods. The electricity generated is destined for the region's largest electricity markets, namely Thailand, China and Vietnam. Whilst early inter-governmental cooperation was framed around the Mekong River Commission (MRC), in 2016 the China-led Lancang-Mekong Cooperation Framework (LMCF) was launched reflecting the shifting geopolitics in the region and the growing influence of China. With a focus on the MRC and LMCF, this research will engage with the already substantial volume of research on Lancang-Mekong hydropolitics, examining how recent and ongoing ecological knowledge production is both productive of, and produced by, ecological governance and associated hydrosocial territories. The research hypothesizes that, through both the MRC and the LMCF, water is increasingly understood by States as an economic resource that links visions and the hydrosocial territories of regional economic integration and water commodification. However, these plans remain contested, and alternatives have been proposed that envision the Lancang-Mekong as a locality where water is central to riparian livelihoods and wellbeing. It is asked how convergences might be built upon - and divergences addressed in transboundary water governance, with an emphasis on ensuring inclusion and social justice, and to what extent 'the commons' is a relevant concept to be built upon?

***Problem statement/ background:***

Since the early 1990s, the Lancang-Mekong River has been transformed from a free-flowing river, to one increasingly engineered by large dams (Middleton & Allouche 2016). In 1992, China commissioned the Manwan Dam, the first of six large hydropower dams built unilaterally on the Lancang River mainstream in Yunnan province. To date, almost sixty medium or large hydropower dams are in operation in the lower Mekong basin, with over twenty more under construction, including the Xayaburi Dam and Don Sahong Dam on the Mekong River's mainstream in Laos. In 1995, the governments of Cambodia, Laos, Vietnam and Thailand jointly established the Mekong River Commission (MRC) intended to strengthen transboundary water governance for sustainable development. However, since its creation, the MRC has faced a number of challenges, including the fact that China has maintained a distanced 'dialogue partner' relationship with it. Moreover the MRC has struggled to ensure citizen participation; and it has been largely marginalised from the Asian Development Bank-backed Greater Mekong Subregion (GMS) programme for regional economic integration (Hirsch & Jensen 2006).

The creation of the Lancang Mekong Cooperation Framework (LMCF) in 2016 has redefined the region's hydropolitics, and challenged existing inter-governmental cooperation under the Mekong River Commission (MRC) (Biba 2018, Busbarat 2018). Mainly championed

by China, and with Thailand's strong backing, the LMC commits the six countries sharing the Lancang-Mekong River to cooperation in five priority areas, including economic integration and water resource management. Shortly before the LMCF's launch, in a self-proclaimed act of "hydrodiplomacy," China released water from its Lancang cascade to alleviate a regional drought, although to mixed responses by downstream countries and communities within them (Pongsudhirak 2016). This simultaneously revealed the extent to which China now controls the headwaters of the river, and hints at the new dynamics of regional hydropolitics based on the transformed material properties of the Mekong River (Middleton & Allouche 2016).

There has been a significant quantity of research on the hydropolitics of the Lancang-Mekong River. For example, Mirumachi (2015) argues that transboundary intergovernmental water governance on the lower Mekong entails a mixture of conflict and cooperation intermediated by the MRC. Ho (2014) also suggests that China has engaged in a degree of intergovernmental cooperation with downstream riparian countries including via the Greater Mekong Subregion (GMS) programme, but he also emphasizes China's domestic imperatives too. China's academic institutes and government think tanks are also producing policy research on transboundary water governance (Wouters & Chen 2014, Lee 2015). Of note, the principles discussed are not fully aligned with the UN Watercourses Convention that inform the Mekong Agreement that has mandated the MRC (Wouters & Chen n.d.). According to Magee (2012), for example, five principles have governed the Lancang dams' construction and operation, namely: meeting domestic power needs; electricity sector integration with neighbouring countries; addressing regional disparities under the Western Region Development Strategy; low-carbon development; and "rationale and equitable use" of transboundary waters. Others have argued that it is a misperception that China has not cooperated with downstream countries (Tian & Liu 2016; Zhong; Tian *et al.* 2016)

With increasingly ambitious plans for lower Mekong mainstream dams apparently high on the governments' agenda, and a closer relationship between the governments of China and mainland Southeast Asia around Lancang-Mekong water cooperation, a new period of hydropolitics has arrived that signals both continuity and change (Biba 2018). The main research questions addressed in this project are:

1. What are the emerging visions for transboundary water governance on the Lancang-Mekong River, including within the Lancang-Mekong Cooperation Framework and the Mekong River Commission? What are the meanings of water and the associated hydrosocial territory?
2. What knowledge is being produced towards these visions (by academic, governmental and international organizations)? How is knowledge production (re)shaping and contesting existing norms, policies discourses and practices for Lancang-Mekong transboundary ecological governance?
3. How might convergences be built upon - and divergences addressed - in transboundary water governance, with an emphasis on ensuring inclusion and social justice? To what extent is 'the commons' a relevant concept to build upon and how might it be better understood?

## **Project title: Hydropolitics of the Mekong River Basin (MRB) and its influence on regional integration (Michał Zaręba)**

The Mekong River which runs through China, Myanmar, Laos, Thailand, Cambodia and Vietnam forms the largest inland fishery basin in the world, and is a major source of water used in agriculture: 80 million people rely on the river for their livelihood. Since the 1950s the lower riparian states have been collaborating, for example, establishing the Mekong River Commission in 1995. Nowadays the MRB faces a rapid development in hydropower production due to dam construction on the mainstream in China and, recently, in the Lower Basin, raising environmental concerns. Moreover, in 2016 China launched the Lancang-Mekong Cooperation, a new mechanism focused on regional hydropolitics.

This project will analyse the role of the actors producing ecological knowledge that gives legitimization or questioning the validity of building hydropower dams. Furthermore, the project will highlight those actors which have the greatest impact on creating hydropolitical order in the MRB, by sharing and disseminating knowledge related to damming the river. Thirdly, this research will scrutinize the nature of hydropolitical relations between riparian states by teasing out the drivers of conflict - and incentives for cooperation - and seek to answer the question whether hydropolitics strengthens or weakens integration processes in the Mekong River Basin.

### ***Problem statement/ background:***

During the 1950s and 1960s the Mekong was acknowledged as an untamed river with great economic potential. After the French withdrawal from the Indochinese Peninsula the United States asserted their political position in the region. The US sought to restore post-colonial economies based on water resources. Actions under the umbrella of the United Nations led to the establishment of the first regional organization in 1957, the Mekong Committee, comprised of Thailand, Laos, Cambodia and (South) Vietnam. Due to the wars and the turbulent situation in the region, the Committee did not withstand the test of time but the idea of integration over the water resources survived. After the situation had eased, the lower Mekong countries set up a new institution in 1995, the Mekong River Commission.

The potential of the river and the need for economic growth caused riparian states to start thinking about developing their hydropower potentials, and in the middle of the 1990s the first dam was constructed in China's Yunnan province. Since that time, China has built eight hydropower plants along the Mekong. This has triggered a wave of criticism, due to the potential consequences for the environment as an increased number of dams in the basin, especially large-scale projects, may have a negative impact on fish resources. Furthermore, it could reduce the amount of available water which is essential to irrigate fields, thus impacting on agricultural production. (Osborne 2009). However, contrarian voices have claimed that dams enable the control of water levels of the Mekong. Managed water levels allow for guaranteed access to water for agriculture averting droughts and floods. In addition, hydropower plants produce energy (Freeman 2009, McCormack 2001). Given the apparent strength of these arguments, and despite growing environmental concerns, there are efforts to construct hydropower projects

in the lower riparian states such as Laos. Large-scale projects are also planned in Cambodia, posing a threat to the Mekong Delta in Vietnam. Moreover, the dynamics of the hierarchized hydropolitical order also led to the growing engagement of China. As a consequence, a new mechanism, the Mekong-Lancang Cooperation (forum), to coordinate activities related to the water resources, was launched in 2016.

In the Mekong Basin there are two perspectives on hydropolitics. On the one hand, hydropower development is meant to bring positive benefits such as electrification and new energy resources. On the other hand, there are concerns that an increasing number of dams may deteriorate the environment and threaten fisheries and agriculture at the macro and micro level. Due to the complex hydropolitical order of the Mekong River Basin, many actors are producing ecological knowledge either to legitimate, or question, the construction of hydropower plants. Furthermore, the fact that China has been rapidly developing its hydropower potential can shift the centre of gravity of regional hydropolitics to the Lower Basin; from upstream/downstream disputes to inner-downstream ones.

This project draws on extant scholarly work dealing with threats to the riparian states posed by dams (Osborne 2009; Keskinen *et al.* 2008). In addition, several recently published monographs and articles examine how China's hydropolitics has changed from unilateral actions to benefit sharing (Onishi 2007 & 2011; Lee 2015; Biba 2012) and claim that Beijing is consolidating its leadership in the basin (Busbarat 2018). The negotiation processes in the Lower Mekong Basin are described in Browder & Ortolano 2000, while the capacity of institutions to solve problems among member states is tackled by Shmeier 2010. There are also studies underlining the significance of indigenous people who are producing local ecological knowledge to adapt to new circumstances (Baird 2005, 2007; Grey *et al.* 2017). The concept of producing and sharing ecological knowledge (Gururani & Vandergeest 2014) can be useful to analyse how the investment in hydroenergy at different levels is legitimated or questioned. Legitimization is an important factor that impacts on hydropolitical relations in the Mekong Basin with implications for integration or disintegration. This aspect has not been sufficiently addressed in scholarly investigation so far. Thus, this project promises new insights on water resource governance between riparian states and it assesses the impact of producing and sharing ecological knowledge on regional integration.

### **Research question(s):**

1. Who are the major actors producing ecological knowledge concerning the hydropolitics of the MRB?
2. Which actors producing ecological knowledge have the greatest influence in shaping the hydropolitical order in the MRB?
3. What is the nature of the hydropolitics of the Mekong River Basin in terms of conflict and cooperation?
4. Do these interactions over the water resources in the MRB lead to integration or disintegration?

## **Project title: Sacrificing Human Security: The Lower Sesan II Dam's Resettlement and Compensation Mechanism (David Chu)**

Since the early 2000s, the Cambodian government has initiated many hydropower projects that have granted more and more Cambodians access to electricity and improved living standards. In the area of human security, a significant number of Cambodians have achieved freedom from want. However, many villagers who have been resettled to make room for dams have encountered fundamental difficulties as a consequence. For example, construction of the Lower Sesan II Dam (LS2) required relocating around 1,500 households, which have subsequently struggled with undrinkable water, an ability to acquire land titles, obstacles to home ownership, a lack of teachers in schools, and a degradation of traditional culture. Hydropower dams in Cambodia would seem to sacrifice human-security, because the improved human security of wide swaths of Cambodians comes at the expense of the human security of the residents of resettled villages. In order to address resettled villagers' living difficulties this research involves a transdisciplinary approach. Transdisciplinary research seeks to address real-world problems, rather than academic contrivances by integrating knowledge from academic and non-academic stakeholders.

### **Problem Statement / Background:**

Since Cambodia's civil war ended in the 1990s, the Cambodian government has been pursuing economic development through such economic incentives as tax holidays and tariff exemptions for foreign investors. Foreign direct investment (FDI) in Cambodia in 1998 was a mere US\$242 million rising by 2017 to an impressive US\$2.78 billion.<sup>1</sup> Foreign investment has created job opportunities, which have, both directly and indirectly, reduced poverty in Cambodia. Gross domestic product (GDP) per capita in Cambodia in 1998 was US\$290 but, by 2017, it had risen to US\$1 230.<sup>2</sup> The poverty rate in Cambodia between 2007 and 2014 dropped from 47.8% to 14% of the population (Asian Development Bank 2018). It was understood that the more foreign investment Cambodia could attract, the more electricity the country would need. However, Cambodia lacked the capacity to provide itself with sufficient energy until then, relying heavily on two sources of electricity. The first was oil products, such as kerosene and diesel, to generate electricity, which accounted for 90% of Cambodian electricity production (Urban *et al.* 2015: 234). The second was electricity imported from Vietnam, Thailand, and Laos. Indeed, because Cambodia needed to import both oil to generate electricity - and electricity itself - from neighbouring countries, electricity costs in Cambodia have been the highest in the world (Urban *et al.* 2015: 235). The government, firmly in the control of the Cambodian People's Party (CPP), has asserted that "the high cost of electricity affects all productive sectors and hinders industrial investments and competitiveness" (Royal Government of Cambodia 2006: 24). Thus, securing a stable and sufficient supply of electricity has become an important objective

<sup>1</sup> <https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=KH>.

<sup>2</sup> <https://data.worldbank.org/indicator/NY.GNPPCAPCD?locations=KH>.

for the CPP government.

Since the early 2000s, the CPP government has prioritised hydropower projects in its energy policy, initiating many hydropower dams: in 2008 the Lower Sesan II Dam (400 MW); 2010, the Kamchay Dam (193 MW); 2012 the Stung Atay Dam (120 MW); 2014, the Stung Russey and the Chrum Krom Dams (338 MW); and 2015, the Stung Tatay (2015 MW). So far, the percentage of Cambodian electricity production attributable to hydroelectricity has increased. In 2010, hydroelectricity accounted for only 2.61% of electricity production, but the figure had soared to 60.52% by 2014.<sup>3</sup> Meanwhile, electricity production from oil, gas, and coal sources plummeted: dropping from 95.07% in 2010 to 38.90% in 2014.<sup>4</sup> After the CPP government prioritised hydropower-dam projects, the percentage of Cambodian people who could access electricity increased significantly. While in 1998, the Cambodian population was nearly 12 million, and only 18.67% of them could access electricity,<sup>5</sup> in 2014, the population in Cambodia was around 15 million, and an astonishing 60% of them could access electricity.<sup>6</sup>

Yet, while living standards for many Cambodian people have improved, other Cambodians have faced significant hardship because they had to relocate away from the sites of hydropower dams. The relocation of villagers to make way for the Lower Sesan II Dam (LS2) is a good example. The LS2 is Cambodia's largest hydropower project, the construction of which has displaced around 1,500 households, most of which hailed from three villages: Sre Sronok, Krabei Chrun, and Kbal Romeas. Many resettled, dam-affected, villagers are from indigenous groups such as the Brao and the Phnong. They rely on the Del to grow upland rice, cassava, taro, sesame, and pineapples. Also, they collect non-timber forest products (NTFPs) and catch freshwater fish for daily consumption and in order to gain extra income. Just as important to these people as the forests and waterways themselves, so is their religion, which makes sense of forests and rivers by invoking the spirits that inhabit these places. The spirits can "ward off disease, poor crop harvests, or other calamities" (Colm 2000: 36). The villagers regularly worship their forests and rivers to show their respect to the spirits. The villagers have not held a formal gathering for worship since their resettlement to sites that are close to neither rivers, nor forests.

Moreover, the dam-affected villagers' livelihood in the resettled sites has deteriorated. In February 2013, the National Assembly of Cambodia approved the Law on the Cambodian Government's Guarantee of Payments to Hydropower Lower Sesan 2 Co., Ltd (the "LS2 Law"). The benefits that the LS2 Law guaranteed to the relocated villagers are (1) "to provide thousands of jobs for local people and increase incomes for communities indirectly to reduce poverty"; (2) "to create beautiful eco-tourist sites"; and (3) "to obtain proper and new houses with adequate infrastructure and modern irrigation" (Kimkong *et al.* 2013: 48).

Yet the CPP government and the dam-builder have not fulfilled their stated commitments. First, the resettled dam-affected villagers' knowledge is steeped in agriculture, waterways,

3 <https://data.worldbank.org/indicator/EG.ELC.HYRO.ZS?locations=KH>.

4 <https://data.worldbank.org/indicator/EG.ELC.FOSL.ZS?end=2016&locations=KH&start=1990&view=chart>.

5 <https://data.worldbank.org/country/cambodia>; <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=KH>.

6 <https://data.worldbank.org/country/cambodia>; <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=KH>.

and forests, but many job positions for LS2 operations require technical expertise, which means that villagers are unlikely to work for the LS2. Second, the CPP government has created a security checkpoint outside the dam site. Ever since December 2017, when tensions between the government and the resettled villagers peaked, local police officers have patrolled the dam site. Outsiders are unlikely to access the dam. Third, the resettled villagers' relocation sites have wells with tainted water, poorly constructed and vermin-infested houses, inexistent land titles, a dysfunctional home-ownership system, and schools that, though recently built, lack teachers. Villagers were frustrated because they had to spend considerable money, if any was available, on drinkable water, housing repairs, and their children's out-of-town studies.

### **Research questions**

Since the end of the Cold War, a host of issues have attracted the world's attention, and they include climate change, environmental degradation, and pandemic diseases. To understand these issues, scholars and policy-makers must transcend the expertise of individual disciplines because the issues are highly complex. Transdisciplinary call these issues "wicked" problems given their intractability. Wicked problems are "pressing problems, even crises, reaching in multiple domains or dimensions and involving not just academic disciplines and the interplay among them but also practitioners seeking solutions in the real world outside the academy" (Bernstein 2015: 7). Academic and non-academic stakeholders have used transdisciplinary methods to study these "wicked" problems. Thus, in transdisciplinary research, research questions are geared, not toward academics but towards real life. Against this backdrop, the research question in the present study is practical: how can the resettled villagers' livelihood be restored to pre-displacement levels?

### **Project title: Forest and Power: British India and Siam Contestation on the Salween Forest Region 1880s-1939 (Amnuayvit Thitibordin)**

Amnuayvit Thitibordin's project emphasizes the contestation of a forest area on the Salween River from the 1880s to the interwar period. The Salween forest transverses then British India's and Siam's borders. This project focuses on the development of forestry science and its territorializing of forest and the demarcation of borders. The project is divided into two parts. The first part of the project surveys the development of the forestry science at a global level. During the period under review, forestry science was exported from British India to Siam. In fact, it was developed to utilize forest resources. The second part looks at the present practice of forestry science on the opposite side of the border and its consequences. Because of the politico-economic setting in Siam, Siamese forest management diverged progressively from its British Indian origins. Choosing the forest area along the Salween River will demonstrate how the two states developed a different forest management system for the Salween River ecological system. The project will explore archives in Thailand and Great Britain to look both

into a contest over forests that traversed the border area and also the unfolding of events linked to forest management.

### ***Problem statement/ background:***

British India and Siam relied on forestry science for the control of natural resources in the Salween River region contested by these two parties. Unlike direct political control exercised through force and coercion, forestry science provided a new perspective for Siam's border area, especially the scientific knowledge on fauna, flora, terrain, and climate. Hence, forest science had equipped the state with new knowledge and drew the state's attention to the border area. Control of forests and border became a major socio-economic and political issue. State patronage of science went beyond the adoption of forestry science: other branches of science such as cartography and geology were also adopted. Accordingly, it profoundly empowered the direct administrative system of centralized States such as border posts, police forces, and identification documents came into existence.

From 1880s to 1912, British India and Siam struggled for the control of forestry. The year 1912 marked the end of the contest over border issues because Siam surrendered some area on the left bank of the Salween River to the British India government. Meanwhile, from 1912 to the interwar years, the role of forestry science still prevailed, but its role evolved from merely wood harvesting to forest conservation, thus easing the tensions between British India and Siam. Moreover, perspectives on border issues also evolved: the existence of poachers and fugitives encouraged both British India and Siam to collaborate on border patrolling in order to prevent cross-border criminality and other illegal acts.

### ***Research question(s):***

1. How did forestry science affect the management of the Salween forests on the British India-Siam border?
2. Does Siamese forestry management differ from the original British India version. If yes, why and how?
3. How does the management of forests affect border demarcation and the reterritorialization of the State and its borders?

### **Project title: Infrastructure Development, Environmentalism and Global Discourse in the Salween Peace Park, Myanmar (Sally Beckenham; Robert A. Farnan)**

This project explores the intersection of infrastructure development, environmentalism and global discourses in the context of the Salween Peace Park (SPP) in southeast Myanmar. Considerable attention in anthropology and political ecology has been paid to the social and environmental impacts, and the countervailing environmental movements, that arise in response to large-scale infrastructure projects- such as the 1,365MW Hatgyi dam on the Salween River - and the activities of extractive industries, Acting as a form of technology that reterritorializes

the commons, such infrastructure projects are central in public controversies that both risk inflaming conflict and, also, undermining regional integration and security. In this project we seek to sharpen the focus on the role played by global discourses, such as cultural heritage and indigeneity, which increasingly shaped the contours of not only these public controversies, but also broader peacebuilding efforts in Myanmar and the role of environmentalists therein. This will enable us to better appreciate the complex interactions linking environmentalism and the political struggle for the commons. The project draws on the burgeoning academic literature in critical security, indigeneity and cultural heritage studies respectively. In doing so the project goes beyond articulations of enclosure - that traditionally inform discussions of the commons - to examine how practices of reterritorialization are being reconfigured by civil society for the purpose of environmental conservation and peacebuilding.

***Problem statement/ background:***

The Salween Peace Park (SPP) initiative is based in the mountainous Mutraw district in Karen State, Myanmar. The park was first proposed in 2016 as a collective effort between the Karen Environmental Social Action Network (KESAN), a civil society organisation, the Mutraw Forestry Department, and the Karen National Union (KNU), along with three hundred community representatives drawn from across the three townships of Mutraw district. The proposed park comprises 5,200 square-kilometres of one of the last remaining intact riparian ecosystems in mainland Southeast Asia. Described as “a vision for an indigenous Karen landscape of human-nature harmony”, the ambitious initiative is aimed at preserving this rich biodiverse landscape, as well as the cultural heritage and local governance practices of the Karen population. The major motivation behind the peace park initiative is resistance to several proposed infrastructure developments, including gold mining and a series of hydropower projects including the Hatgyi dam. These have come to represent, in a microcosm, the reterritorialization of the commons brought about by infrastructure projects, involving the Myanmar government and various transnational public-private partnerships.

In the academic literature there are two key, interrelated, elements missing in many discussions of competition over the regional commons. The first is the way in which infrastructure developments are acting as technologies that reterritorialize the commons. Discussion around reterritorializing the commons are traditionally framed in terms of enclosure, most commonly in the form of privatization or public-private partnership control over lands, forests or water bodies (Woods 2011; Buchanan, Kramer, Woods 2013). Less work has been undertaken to explore how infrastructure developments more specifically foster these dynamics of reterritorialization (Cowen 2014). It is our contention that such infrastructures, whether extractive industries or energy projects (Simpson 2017), bring with them unique challenges to the regional commons and modes of reterritorialization, and this project illustrates these dynamics.

The second missing element relates to the literature on the burgeoning global discourses of indigeneity and cultural heritage. Literature exploring indigeneity in Myanmar has tended to prioritize, either general discussions of the status of the political discourse in the country

(Baird, 2016; Morton, 2017), or the connection of the discourse with identity and the politics of rights for social groups in clearly defined cases (Thawngmung, 2016; Morton, 2016). Yet the notable influence of the global discourse of indigeneity in the advocacy and campaign work for the SPP (KESAN, 2017) suggests that we must also explore how it is influencing much broader dynamics of peacebuilding and even national security. Similarly, the global discourse of cultural heritage features strongly in material on the SPP (KESAN, 2017), but the academic literature exploring cultural heritage in Myanmar (Philp, 2010; Facchinetti, 2014; Morris, 2015; Moore *et al.*, 2016) has not generally addressed how this discourse shapes public controversy and civil society advocacy around infrastructure, or broader peacebuilding and security issues. This project addresses this gap, questioning how these global discourses are affecting the struggle for the commons in the context of controversy around infrastructure development and are thereby implicated in issues of national security.

#### **Research question(s):**

The first aim is to make sense of the complex relationship between infrastructure development, regionalisation and the emergence of public controversies along the Salween river. In other words, how is infrastructure reterritorializing the commons and in turn generating public controversies?

Public controversies over the commons entail the increasing influence of so-called global discourses. The second question is therefore: to what extent are global discourses of cultural heritage and indigeneity informing these public controversies, and reshaping the advocacy work of environmental civil society groups and individuals in the context of the SPP?

The final aim is to understand how these discourses are mobilizing civil society in the context of Myanmar's ongoing peace process, a process which is critical to achieve broader regional integration aims. How is the struggle for the commons undertaken by these environmentalists and their political allies being linked to broader peacebuilding initiatives in Myanmar and beyond?

### **MODULE 3. TRANSITION INTO A LOW-CARBON ECONOMY**

The final theme of WPI, "transition into a low-carbon economy", entails two research projects. The first examines sustainable energy transition in ASEAN, considering the political economy of the electricity sector and under what conditions entry of more sustainable technologies might occur. The second explores international cooperation through knowledge exchange networks between Southeast Asian cities. Here, the particular interest is how ecological knowledge for improved city planning, for example on energy efficiency, is facilitated by these regional and global knowledge networks.

**Project title: Towards low carbon economies in Southeast Asia? The prospects for emerging and disruptive technologies in electricity in Indonesia and Thailand (Andrea Valente)**

ASEAN and ASEAN members face formidable energy security challenges in a changing energy landscape. Southeast Asia represents one of the most dynamic parts of the global energy system, with an energy demand that has grown by 60% over the past 15 years. At the same time, it is considered to be among the most vulnerable regions to the effects of climate change. Indeed, ASEAN countries have travelled a long way, and many are taking concerted steps, both individually and collectively, to address energy security and environmental concerns. However, as a number of observers have indicated, although the efforts to balance economic growth and environmental sustainability are growing, they are often overshadowed or hindered by other concerns. Against this background this project intends to shed light on the sustainability dimension of energy security in the Southeast Asian context. More broadly this project will assess the dynamics of the transition to a low carbon economy by focusing on the policy-making process in the electricity sector in two key countries, namely Indonesia and Thailand. The project will narrow its focus to concentrate on if, and how, technology – both emerging and/ or disruptive - impacts on the policy-making process and the prospects of successfully upgrading to low(er) carbon scenarios.

**Problem statement/ background:**

Global energy trends show a world in transition. A changing energy landscape is obvious through, inter alia, an energy demand scenario driven by non-OECD countries and impacted by deployment of energy efficiency technology; a deceleration in world demand for oil as a result of the climate and environmental agenda; gas emerging as a transitional primary energy source; and new supply sources unlocked by technology developments (e.g. shale, alternative energy sources, energy efficiency enablers) at competitive prices. Southeast Asia as a region was traditionally neglected in world affairs, however, a number of studies solely dedicated to energy in this region (eg. Hartman & Nakano 2017) suggest there is a shift in perceptions about this region's relevance as an important player in global energy, not only on the demand side, but also regarding supply and distribution networks. Sound economic growth in the past two decades - and expectations for further growth in the future - have brought about immense possibilities but also enormous challenges and uncertainties in the energy field, urging the study of the implications for national, regional and global energy markets. If Asia at large is now considered the new key driver for global energy demand, Southeast Asia definitely represents one of the most dynamic parts of the global energy system, with an energy demand that has grown by 60% over the past 15 years (IEA 2017). Additionally, Southeast Asia is considered to be among the most vulnerable regions to the effects of climate change (IEA 2017: 43).

Clearly, ASEAN as a whole and its members individually thus face formidable energy security challenges. The awareness of these challenges has long been present across the region.

The institutionalisation of energy cooperation efforts within ASEAN has been discussed since the early 1980s and has since translated into a whole energy cooperation structure (AMEM, SOME, ASCOPE, APSA, to name but a few mechanisms). The importance of energy cooperation lays in the awareness that ensuring uninterrupted energy availability is vital to the economic resilience upon which the ASEAN Vision is based. Despite the plethora of subtopics within the issue of energy security, and the voluminous amount of literature pertaining to Southeast Asia, this project departs from the main assumptions. It is argued that there still is a tendency to neglect the political processes operating within nations. Clearly, the future energy scenario in Southeast Asia will be determined by the interplay of energy, economic, environmental, and demographic indicators and, more importantly, by the understanding that governments develop of that interplay. The adoption and implementation of policies that aim at a transition to a low carbon economy are ultimately dependant on the policy-maker's subjective interpretation and prioritisation of short or long-term objectives. Overall this project will assess the dynamics of the transition to low carbon economies by focusing on the policy-making process behind the electricity sector in two countries – Indonesia and Thailand. However, given the complexity of this endeavour, the project will narrow its ambition to concentrate on if, and how, technology - whether it be emerging and/ or disruptive - impacts on the policy-making process and therefore the prospects of successfully moving to low(er) carbon scenarios.

Focusing the analysis on electricity is linked to the fact that this sector will account for the largest share of the increase in final consumption. On the one hand, there is a rising urban middle class, which is more demanding of energy resources; on the other hand, countries across the region have pledged to curb energy poverty, which also equates to growing energy demand. In this context, investment into energy infrastructure is needed, and the next few years will be decisive as to determine whether the future is low or high-carbon or, in other words, “in determining the energy path forward; clean or dirty” (Blume & Hang 2018). Rising energy needs run in tandem with the energy transition, which is opening up the possibility of new and more affordable policy options. Energy efficiency incentives and new (low carbon) technology options are offering new ways to pursue complementary objectives of energy security, affordability and environmental stewardship. For example, solar energy is potentially likely to overshadow hydropower as an energy source in the region. It has the advantage of potentially not requiring occupation of the land – through floating solar projects - combined with the fact that it is highly cost-competitive. As a disruptive technology it would dramatically change power generation in the region, which, in turn, would have considerable geopolitical consequences.<sup>7</sup>

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7 See “Solar Surge Threatens Hydro Future on Mekong”, available at <https://www.voanews.com/a/solar-surge-threatens-hydro-future-mekong/4341660.html>

### **Research question(s):**

1. Are policy-makers committed to low-carbon economic growth and are their energy strategies conducive to that goal?
2. Are governments prone to search (invest in) or accommodate (receive and implement) new (emerging/ disruptive) technologies in their energy portfolio? In other words, are governments proactive or reactive?
3. Is this a top-down or bottom-up process? That is, are policy-makers influenced by systemic factors (e.g. global environmental discourse and/ or regional institutional mechanisms) and/or national or sub-nations actors (e.g. business groups/ civil society)?

### **Project title: International cooperation of SEA cities – the environmental dimension (Tomasz Kamiński)**

Although environmental policy is formulated at the national and supranational level (e.g. EU, UN), the subnational units bear the responsibility for its practical implementation. Cities consume over two thirds of the world's energy and account for more than 70% of global CO<sub>2</sub> emissions. As a consequence, the position of city governments on ecological issues became an important factor for the general success of global sustainable development. We also observe the development of global environmental networks of subnational governments, whose goals are mainly related to producing and sharing ecological knowledge. Academic literature on this environmental dimension of cooperation is way too much concentrated on Western regions/cities leaving a gap as far as Southeast Asian (SEA) subnational units are concerned. This research project seeks to analyse SEA cities' participation in translocal environmental networks within the context of the production and the sharing of ecological knowledge. On the basis of case studies an analysis is to be made of the driving factors, obstacles and the impact of the participation in the networks.

### **Problem statement/ background:**

Cities account for about 70% of greenhouse gases (GHG) emission and urban areas in Asia account for about half of the region's GHG emissions (Marcotullio, Sarzynski, Jochen, & Schulz, 2012). Due to this fact a solution to global environmental problems cannot be effectively found without active participation of those cities. Cities have a responsibility to create solutions to climate change, but they also have the capacity to do so. Having common profiles, they can network, collaborate on solutions and disseminate best practices. In order to do this, cities group in transnational (translocal) municipal networks such as C40 Cities, the Global Covenant of Mayors for Climate and Energy or ICLEI - Local Governments for Sustainability. While these networks have similar goals however they might formulate them differently, as can be seen with the example of C40 and CityNet:

*“We connect actors, exchange knowledge and build commitment to establish more sustainable and resilient cities” (CityNet)*

*“support cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change” (C40)*

Despite these different formulations ultimately their activities concentrate on mutual learning and capacity-building in order to undertake climate change mitigating actions in order to reduce GHGs and climate risks. Urban climate networks have become prominent forms of governance by providing a variety of opportunities for sharing knowledge and expertise. In doing so they have attracted a great deal of attention from academia seen in three streams of literature that illuminate this phenomenon. Firstly, the literature on paradiplomacy and city-to-city diplomacy (eg. Curtis 2014, Pietrasiak *et al.* 2018) and in particular, studies that examine the foreign activities of subnational actors from an environmental perspective (eg. Eatmon 2009). Kuznetsov (2015) has argued that the existing literature on “green” paradiplomacy can be divided into three main types: case studies of regional cross-border environmental projects; the development of global environmental networks of subnational governments and the treatment of subnational governments on issues related to the global environmental agenda.

Secondly, there is a growing number of monographs and papers dealing with the role of cities in environmental governance (eg. Happaerts *et al.* 2010, Bouteligier 2013, Lee 2015). Yet, like the scholarship on paradiplomacy, the literature on environmental governance also very much concentrates on Western actors. Finally, the project seeks to build on the literature on knowledge production and sharing. There are a number of theoretical papers (eg. Jasanoff 2004, Gururani & Vandergeest 2014) on production, circulation and consumption of ecological knowledge as well as cities that learn and innovate through networking with other cities (Campbell 2012). Once again this existing academic literature is very much concentrated on Western regions/cities leaving a gap as far as South East Asian subnational units are concerned.

### **Research question(s):**

1. How do SEA subnational units engage in multi-city networks?
2. What are the driving factors and obstacles for their participation?
3. How do SEA cities take part in ecological knowledge production and sharing and what is their impact on international environmental regimes and standards?

## 5. CONCLUSIONS

That there are multiple contestations over the environment in the Southeast Asia is obvious. We seek to analyse them through three lenses of the 'commons' and with the focus on co-production of ecological knowledge. Employing a multidisciplinary approach, we will be able to connect issues of geo-politics and hydropolitics with, for example, the livelihoods of fisherfolk communities, inter-state efforts to develop environmental governance with paradiplomatic activities of city authorities, the historical practices of managing the Salween River ecological system with present ways of exploitation of natural resources. Each of the individual projects will contribute to workshops and policy papers issued by WPI and the results will also be disseminated in seminars and at various conferences.

## 6. BIBLIOGRAPHY

- Aradau, C., J. Huysmans, A. Neal & N. Voelkner (2014). *Critical Security Methods: New Frameworks for Analysis*. London: Routledge.
- Asian Development Bank (2018). Basic Statistics 2018, <https://www.adb.org/countries/cambodia/poverty>.
- Augsburg, T. (2014). 'Becoming Transdisciplinary: The Emergence of the Transdisciplinary Individual'. *World Futures* 70(3–4): 233–247.
- Baird, I. (2005). 'Mekong River Fish Conservation Zones in Southern Laos: Assessing Effectiveness Using Local Ecological Knowledge', *Environmental Management* 36 (3): 439–454.
- Baird, I. (2007). 'Local ecological knowledge and small-scale freshwater fisheries management in the Mekong River in Southern Laos'. In N. Haggan, B. Neis & I. Baird (eds.) *Fishers' Knowledge in Fisheries Science and Management*, Paris: UNESCO.
- Bakker, K. & G. Bridge (2006). 'Material worlds? Resource geographies and the 'matter of nature''. *Progress in Human Geography* 30(1): 5–27.
- Bellamy, A. J., M. McDonald (2002). 'The Utility of Human Security': Which Humans? What Security? A Reply to Thomas & Tow'. *Security Dialogue* 33(3): 373–377.
- Bernstein, J. (2015). 'Transdisciplinarity: A Review of Its Origins, Development and Current Issues'. *Journal of Research Practice* 11(1): 1–15.
- Biba, S. (2012). 'China's continuous dam-building on the Mekong River', *Journal of Contemporary Asia*, 42 (4).
- Biba, S. (2018). 'China's 'old' and 'new' Mekong River politics: the Lancang-Mekong Cooperation from a comparative benefit-sharing perspective.', *Water International*: 1–20.
- Boer, B., P. Hirsch, F. Johns, B. Saul and N. Scurrah (2016). *The Mekong: A Socio-legal Approach to River Basin Development*. Abingdon UK: Earthscan.

- Bond, J., L. Shereet. (2012). 'Mapping Gender and the Responsibility to Protect.' *Global Responsibility to Protect* 4(2): 133–153.
- Bouteligier S. (2013). *Cities, Networks and Global Environmental Governance*, London: Routledge.
- Boykoff, Maxwell T. (2016). *Contentious Geographies: Environmental Knowledge, Meaning, Scale* (Routledge Studies in Environmental Policy and Practice). London: Routledge.
- Bracken, L. J., H. A. Bulkeley, & G. Whitman. (2015). 'Transdisciplinary Research: Understanding the Stakeholder Perspective.' *Journal of Environmental Planning and Management* 58(7): 1291–1308.
- Brochmann, M. & N. P. Gleditsch (2012). 'Shared Rivers and Conflict – A Reconsideration.' *Political Geography* 31 (8): 519-527. <https://doi.org/10.1016/j.polgeo.2012.11.001>.
- Buchanan, J.; T. Kramer and K. Woods (2013) 'Developing Disparity: Regional investment in Burma's borderlands' *Transnational Institute (TNI) and Burma Centre Netherlands (BCN)* available at <https://www.tni.org/files/download/tni-2013-burmasborderlands-def-klein-def.pdf>.
- Budds, J. (2016). 'Whose Scarcity? The Hydrosocial Cycle and the Changing Waterscape of La Ligua River Basin, Chile.' In Maxwell T. Boykoff (ed.). *Contentious Geographies: Environmental Knowledge, Meaning, Scale* (Routledge Studies in Environmental Policy and Practice). London: Routledge, pp. 59-78.
- Busbarat, P. (2018). *Grabbing the Forgotten: China's Leadership Consolidation in Mainland Southeast Asia through the Mekong-Lancang Cooperation*, Singapore: ISEAS Yusof Ishak institute.
- Campbell T. (2012), *Beyond Smart Cities. How Cities Network, Learn and Innovate*, Abingdon UK: Earthscan.
- Colm, S. (2000). 'Conserving the Ancestral Lands of Cambodia's Indigenous Communities'. *Indigenous Affairs* 4: 30–9.
- Cowen, D. (2014) *The Deadly Life of Logistics: Mapping Violence in Global Trade*, Minneapolis MN: University of Minnesota Press.
- Curtis S. (eds) (2014), *The Power of Cities in International Relations*, London: Routledge.
- Eatmon T. (2009). 'Paradiplomacy and Climate Change: American States as Actors in Global Climate Change,' *Journal of Natural Resources Policy Research* 1 (2): 153-165.
- Elhance, A. P. (1999). *Hydropolitics in the 3rd World: Conflict and cooperation in International River Basins*. Washington, DC: US Institute of Peace Press.
- Elmhirst, R., C. Middleton & B. Resurreccion (2018). 'Migration and Floods in Southeast Asia: a mobile political ecology of vulnerability, capability, resilience and social justice'. In C. Middleton, R. Elmhirst and S. Chantanavich (eds) *Living with Floods in a Mobile Southeast Asia: A Political Ecology of Vulnerability, Migration and Environmental Change*, Abingdon UK: Earthscan, pp. 1-21.
- Facchinetti, S. (2014) 'Cultural heritage management in Myanmar: A gateway to sustainable development' *European Institute for Asian Studies Briefing Paper 6* available at [https://s3.amazonaws.com/academia.edu.documents/35922998/EIAS\\_Briefing\\_Paper\\_2014-6\\_](https://s3.amazonaws.com/academia.edu.documents/35922998/EIAS_Briefing_Paper_2014-6_)

- Facchinetti.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1532556734&Signature=fl9KjQBlKxWrxDQDwM5DB0N8Og%3D&response-content-disposition=inline%3B%20filename%3DStefano\_Facchinetti\_Cultural\_Heritage\_Ma.pdf.
- Förstner, U., W. Solomons, R. Allen & W. H. Rulkens (2014). *Sand Mining: Environmental Impacts and Selected Case Studies.*, Heidelberg / New York: Springer.
- Fouksman, E. (2017). 'Civil society knowledge networks: how international development institutions reshape the geography of knowledge.' *Third World Quarterly* 38 (8): 1847-1872, DOI: 10.1080/01436597.2016.1233490.
- Fox, M.-J. (2004). 'Girl Soldiers: Human Security and Gendered Insecurity.' *Security Dialogue* 35(4): 465–479.
- Gibbons, M. et al. (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies.* London: Sage.
- Gizelis, Theodora-Ismene & Amanda Wooden (2010). 'Water resources, institutions, and intrastate conflict.' *Political Geography* 29(8): 444–453.
- Godemann, J. (2008). 'Knowledge Integration: A Key Challenge for Transdisciplinary Cooperation.' *Environmental Education Research* 14(6): 625–641.
- Gray T., A. Phommachak, K. Vannachomchan, F. Guegan (2017). 'Using local ecological knowledge to monitor threatened Mekong megafauna in Lao PDR', *PLoS ONE* 12 (8).
- Gururani, S. & P. Vandergeest (2014). 'Introduction: New Frontiers of Ecological Knowledge: Co-producing Knowledge and Governance in Asia.' *Conservation and Society* 12(4): 343-351.
- Happaerts S., K. van den Brande, H. Bruyninckx. (2010). 'Governance for Sustainable Development at the Inter-subnational Level: The Case of the Network of Regional Governments for Sustainable Development (nrg4SD)'. *Regional & Federal Studies* 20 (1): 127-149.
- Hartman G, J. Nakano (2017). *Southeast Asia in Global Energy Markets. Trends, Challenges, and Policies*, A report in the CSIS-Pertamina Southeast Asia Energy Security Roundtable Series.
- Hayward, P. (2012). 'Aquapelagos and aquapelagic assemblages.' *Shims: The International Journal of Research into Island Cultures*, 6 (1): 1-11.
- Heland, Franciska van & Julian Clifton (2015). 'Whose Threat Counts? Conservation Narratives in the Watakobi National Park, Indonesia.' *Conservation and Society* 13 (2): 154-165.
- Henderson, Barney (2010). 'Singapore accused of launching <Sand Wars>'. Telegraph.co.uk, February 12, 2010. <https://www.telegraph.co.uk/news/worldnews/asia/singapore/7221987/Singapore-accused-of-launching-Sand-Wars.html> (last accessed May 18, 2018).
- Hirsch, P. (2016). 'The shifting regional geopolitics of Mekong dams.' *Political Geography* 51: 63-74.
- Hirsch, P. & K. M. Jensen (2006). *National Interest and Transboundary Water Governance in the Mekong.* Sydney: Australian Mekong Resource Centre, University of Sydney.
- Ho, S. (2014). 'River Politics: China's policies in the Mekong and the Brahmaputra in comparative perspective.' *Journal of Contemporary China* 23(85): 1-20.
- Ho, S. (2008). 'Japan's Human Security Policy: A Critical Review of Its Limits and Failures.' *Japanese Studies* 28(1): 101–112.

- Hochadel A. (2018), *Local Leadership in a Global Era. Policy and Behaviour Change in Cities*, Basingstoke UK: Palgrave Macmillan.
- IAE (2017). *Southeast Asia Energy Outlook 2017*, <https://www.iea.org/southeastasia/>.
- Jasanoff, S. (2004). *States of Knowledge: The Co-Production of Science and Social Order*. London: Routledge.
- Johnson C., N. Toly, H. Schroeder (2015). *The Urban Climate Challenge. Rethinking the Role of Cities in the Global Climate Regime*, London: Routledge.
- Keskinen, M., K. Mehtonen & O. Varis. (2008). "Transboundary cooperation vs. internal ambitions: the role of China and Cambodia in the Mekong region", in N. Pachova, M. Nakayama & L. Jansky (eds.) *International Water Security: Domestic Threats and Opportunities*, Tokyo: UN University Press.
- Kimkong, H., H. Samchan, S. Thea, S. Vichet, L. Rasmey. (2013). *Improving Hydropower Project Decision Making Processes in Mekong Basin: Case Studies of Lower Sesan 2 and Kamchay Hydropower Projects*, Cambodia. Phnom Penh: Royal University of Phnom Penh (RUPP) Department of Environmental Science.
- Kuznetsov, A. (2015). *Theory and Practice of Paradiplomacy. Subnational Governments in International Affairs*. London: Routledge.
- Lam, P. (2013). 'Japan's Human Security and Peace-building: Between Aspirations and Limitations'. In: Purnendra J., P. Lam (eds) *Japan's Strategic Challenges in a Changing Regional Environment*. Singapore: World Scientific, pp. 177-200.
- Lamb, V. (2018). 'Who knows the river? Gender, expertise, and the politics of local ecological knowledge production of the Salween River, Thai-Myanmar border.' *Gender, Place, and Culture*. DOI: 10.1080/0966369X.2018.1481018.
- Latowa, S. (2014). 'Ironi Festival Teluk Palu Ditengah Gencarnya Reklamasi.' <http://www.mongabay.co.id/2014/10/09/ironi-festival-teluk-palu-ditengah-gencarnya-reklamasi/> (last accessed May 25, 2018).
- Leach, M., L. Mehta and P. Prabhakaran (2016). 'A gendered pathways approach.' In: Leach, Melissa (ed.), *Gender Equality and Sustainable Development*, London: Routledge, pp. 1-33.
- Lee, S. (2015). 'Benefit sharing in the Mekong River basin.' *Water International* 40(1): 139-152.
- Lee, T. (2015). *Global Cities and Climate Change. The Translocal Relations of Environmental Governance*. London: Routledge.
- Lefebvre (1991). *The Production of Space*. Oxford, Cambridge: Blackwell.
- Linton, J. (2010). *What Is Water? The History of a Modern Abstraction*. Vancouver BC: University of British Columbia Press.
- Linton, J. & J. Budds (2014). 'The hydrosocial cycle: Defining and mobilizing a relational-dialectical approach to water.' *Geoforum* 57: 170-180.
- Low, Setha M. (2017). *Spatializing Culture. The Ethnography of Space and Place*. London: Routledge.
- Low, Setha M. (2009). 'Towards an anthropological theory of space and place.' *Semiotica* 175: (1): 21-37.

- Luft G. & A. Corin (2009), *Energy Security Challenges for the 21st Century: A Reference Handbook*, New York: Greenwood Publishing.
- Magee, D. (2012). 'The Dragon Upstream: China's Role in Lancang-Mekong Development'. In: J. Öjendal, S. Hansson & S. Hellberg (eds) *Politics and Development in a Transboundary Watershed: The Case of the Lower Mekong Basin*, Dordrecht: Springer, pp.171-193.
- Marcotullio P., A. Sarzynski, J. Albrecht, N. Schulz (2012), The geography of urban greenhouse gas emissions in Asia: A regional analysis, *Global Environmental Change* 22 (4): 944-958.
- Marschke, M. (2012). "Koh Sralao village, Cambodia: living at the margins." In: J. Rigg & P. Vandergees (eds.), *Revisiting Rural places: Pathways to Poverty and Prosperity in Southeast Asia*, Singapore: NUS Press / Honolulu HI: University of Hawaii Press, pp. 250–268.
- Massey, Doreen (2005). *For Space*. Los Angeles, London: Sage.
- Middleton, C. & J. Allouche (2016). 'Watershed or Powershed?: A critical hydropolitics of the 'Lancang-Mekong Cooperation Framework.' *The International Spectator* 51(3): 100-117.
- Mirumachi, N. (2015). *Transboundary Water Politics in the Developing World*. London: Routledge Earthscan.
- Moore, E., U San Win & P. Phyo Kyaw (2016) 'Water Management in the Urban Cultural Heritage of Myanmar', *Water in Southeast Asia* (4) 2: 283-305.
- Morris, J.A. (2015) 'Rebuilding a troubled nation, one brick at a time: Cultural heritage and the law in Myanmar', (accessed at <https://law.wm.edu/academics/intellecualife/researchcenters/postconflictjustice/documents/morrison.paper.pdf>).
- Morton, M. F. (2016) 'Decolonizing methods: Akha articulations of indigeneity in the Upper Mekong Region', *Asian Ethnicity* 17 (4): 580-595.
- Namey, E., G. Guest, L. Thairu, and L. Johnson (2008). 'Data reduction techniques for large qualitative data sets.' In Guest, G. and K. MacQueen (eds.) *Handbook for Team-based Qualitative Research*. Lanham MD: AltaMira Press, pp. 137-162.
- Nicolescu, B. (2014). 'Methodology of Transdisciplinarity.' *World Futures* 70(3-4): 186–199.
- Nijbroek, Ravi P (2014). 'Mangroves, mudbanks and seawalls: whose environmental knowledge counts when adapting to sea level rise in Suriname?' *Journal of Political Ecology* 21: 533-550.
- Nurmilawaty (2015). 'Persepsi Masyarakat Mengenai Dampak Tambang Galian C di Kelurahan Buluri Kecamatan Ulujadi.' *Geo Tadulako* 3 (1): 1-15. (accesd at <http://jurnal.untad.ac.id/jurnal/index.php/GeoTadulako/article/view/5836>).
- Osborne, M. (2009). *River at Risk: The Mekong and the Water Politics of China and Southeast Asia*, Sydney: Lowy Institute.
- Onishi, K. (2007). 'Interstate negotiation mechanisms for cooperation in the Mekong River Basin', *Water International*, 32 (4): 524-537.
- Onishi, K. (2011). 'Reassessing water security in the Mekong: The Chinese rapprochement with Southeast Asia', *Journal of Natural Resources Policy Research*, 3 (4).
- Padmalal, D. & K. Maya (2014). 'Sand Mining: The World Scenario.' In Ulrich Förstner, Wim Solomons, Rod Allen & W. H. Rulkens (eds). *Sand Mining: Environmental Impacts and Selected Case Studies*. Heidelberg/ New York: Springer. (position 1541-2029 (Kindle Edition)).

- Philp, J. (2010) 'The political appropriation of Burma's cultural heritage and its implications for human rights' in Michele Langfield, William Logan & Mairead Nic Craith (eds.) *Cultural Diversity, Heritage and Human Rights: Intersections in Theory and Practice*, London: Routledge.
- Pietrasiak M., G. Bywalec, T. Kamiński, D. Mierzejewski, M. Słowikowski. (2018). *Paradiplomacy in Asia. Case Studies of China, India and Russia*, Lodz: Lodz University Press.
- Pilkey, Orrin H. & J. Andrew G. Cooper (2014). 'Are natural beaches facing extinction?' *Journal of Coastal Research* 70: 431-436.
- Pongsudhirak, T. (2016). 'China's alarming 'water diplomacy' on the Mekong.' *Nikkei Asian Review*.
- Rigg, Jonathan. *Challenging Southeast Asian Development: The Shadows of Success*. London: Routledge.
- Royal Government of Cambodia. (2006). *National Strategic Development Plan 2006–2010*. Phnom Penh: RGC.
- Robbins, Paul (2000). 'The Practical Politics of Knowing: State Environmental Knowledge and Local Political Economy.' *Economic Geography* 76 (2): 126-144.
- Salter, M. B. & C. E. Mutlu (eds.) (2013) *Research Methods in Critical Security Studies: An Introduction* London: Routledge.
- Sassen S. (2012), *Cities in the World Economy*, London: Sage.
- Smil, V., & W.E. Knowland (1980) *Energy in the developing world: the real energy crisis*. Oxford: Oxford University Press.
- Sneddon, C. & C. Fox (2006). 'Transboundary River Basin Agreements in the Mekong and Zambesi Basins: Enhancing Environmental Security or Securitizing the Environment?' *Political Geography* 25: 181-202.
- Swyngedouw, E. (1999). 'Modernity and hybridity: Nature, *regeneracionismo*, and the production of the Spanish waterscape', *Ann Assoc Am Geogr* 89(3): 1890–1930.
- Thawngmung, Ardeth Maung (2016) 'The politics of indigeneity in Myanmar: Competing narratives in Rakhine state', *Asian Ethnicity* 17 (4): 527-547.
- Tian, F. & H. Liu (2016). 'China's Water Hegemony in Asia' or 'Shared Rivers, Shared Futures': Which? <http://www.chinaembassy.or.th/eng/ztbd/tl384905.htm>.
- Ty, P, A. C. M. Van Westen & A. Zoomers. (2013). 'Compensation and Resettlement Policies after Compulsory and Acquisition for Hydropower Development in Vietnam: Policy and Practice'. *Land* 2: 678–704.
- Uitto, J. & A. Duda (2002). 'Management of transboundary water resources: Lessons from international cooperation for conflict prevention.' *The Geographical Journal* 168 (4): 365-378.
- United Nations Development Programme (1994). *1994 Human Development Report 1994*. New York: UNDP.
- Urban, F., G. Siciliano, K. Sour, P. Lonn, M. Tan-Mullins, G. Mang. (2015). 'South-South Technology Transfer of Low-Carbon Innovation: Large Chinese Hydropower Dams in Cambodia.' *Sustainable Development* 23(4): 232–244.
- Waterbury, J. (1979). *Hydropolitics of the Nile Valley*. Syracuse NY: Syracuse University Press.

- Wolf, A. T. (1998). 'Conflict and cooperation along international waterways.' *Water Policy* 1 (2): 251–265.
- Wolf, A. T. (1997). 'International water conflict resolution: Lessons from comparative analysis.' *Water Resources Development* 13 (3): 333-365.
- Woods, Kevin (2011) 'Ceasefire capitalism: Military–private partnerships, resource concessions and military–state building in the Burma–China borderlands', *The Journal of Peasant Studies*, 38 (4): 747-770.
- Wouters, P. & H. Chen (2014). 'Introduction to 'The China Water Papers' – transboundary water cooperation in Asia with a focus on China.' *Water International* 39(5): 701-704.
- Wouters, P. & H. Chen (n.d). 'China's 'soft-path' to transboundary water cooperation examined in the light of two UN global water conventions - exploring the 'Chinese way''. *The Journal of Water Law* 22: 229-147.
- Zeitoun, M. & J. Warner (2006). 'Hydro-hegemony: a framework for analysis of trans-boundary water conflicts.' *Water Policy* 8 (3): 435-60.
- Zhong, Y., F. Tian, H. Hu, D. Grey and M. Gilmont (2016). 'Rivers and reciprocity: perceptions and policy on international watercourses.' *Water Policy* 18: 803-825.