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**Governance of the Land-Water Interface in Southeast Asia:  
A Policy Reform Agenda for 21<sup>st</sup> Century Challenges**

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## **Governance of the Land-Water Interface in Southeast Asia: A Policy Reform Agenda for 21<sup>st</sup> Century Challenges**

*This paper sets out a policy and research agenda for addressing the unique governance problems of land-water interface in Southeast Asia. It traces the evolution of separate water and land policies and administrative regimes through colonial and post-colonial developments and current institutional configurations that caused the proliferation of simplistic policies and programs which ignore customary practices. It highlights how legal regimes meant for individual and commercial users fail to account for the reality of communal use. Consequently, large-scale investments in land have consistently breached customary water entitlements and vested ownership, management, and control of water in the State, thereby decoupling water rights from land-use rights. Such investments are also responsible for frequent land grabs that go hand-in-hand with water grabs, environmental degradation and resulting livelihood uncertainties. The paper recommends an enabling environment for rural smallholders and local communities so they can engage in land and water issues for better resource use and rights. Public investments must be promoted to achieve an equitable distribution of benefits and sustainable management of natural resources. This is possible only if the multiple sources of land and water rights are taken into consideration and an integrated and coherent approach for reforming land and water governance is pursued.*

Key words: Governance, Land-Water Interface, Customary Practices, Rights, and Resilience

### **I. Introduction**

Nearly two-thirds of Southeast Asia's 625 million inhabitants (including about 100 million ethnic minorities or indigenous people) live along the intersection of forests/farmlands with coastal lines, rivers, and lakes. They have longstanding, direct, and multi-faceted relationships with land, water, and natural ecosystems. The governance of these zones is challenged by the pressures exerted by economic and demographic expansion, urbanization, and climate change. This results in deforestation, land degradation, water-related disasters (droughts and floods), surface and groundwater pollution, and water scarcity. These, in turn, threaten livelihoods and pose serious risks for resilience and sustainability in the region.

Land tenure security does not translate into sustainable livelihoods if communities cannot access water use; on the other hand, water use is often denied to those groups that do not have strong land tenure security. This land-water interface has received insufficient

attention from policy-makers, academics and development practitioners. To date, land and water governance has largely been treated separately, but in recent years, a number of examples in the region demonstrate a considered approach to the land-water tenure interface may shed some insights on how countries can start to more effectively address land and water management challenges in a more integrated way. One of the most fundamental obstacles to achieving effective land governance is around the land-water nexus.

The current political context creates opportunities for better resource management. With the gradual disappearance of political and civil strife in many Southeast Asian countries today, far-reaching governance and macro-economic reforms are now addressing distortionary policies. The need to tackle structural issues has greatly increased the demand for policy research and advice in promoting sustainable development while strengthening fair and equitable access to land and water resources. Damage from and the threat of natural disasters, climate change, and land degradation create an urgency to improve governance of the land-water interface.

The Mekong Basin countries of Cambodia, Laos, Myanmar, Thailand, and Vietnam form the main geographic focus of the study, with some additional examples from China and Indonesia. Our method is historical and comparative. We first set out our view of contemporary “disconnects” that prevent better-integrated resource management. We then briefly trace the evolution of separate water and land policies and administrative regimes through colonial and post-colonial developments and current institutional configurations and examine the issues that arise from the history of disconnected policies, using specific examples. We argued that by taking the land-water nexus more firmly into account, the region will actually be able to support rural poverty reduction better, and be able to better handle the water demands of urban and hydropower too.

This paper is divided in seven sections. Section I explains the background and context for this study. Section II provide an overview of the impact of colonial legacy that introduced a new land tenure system of privileges, ignoring customary practices in disconnected

land-water management systems. The aspects of dual and non-complementary institutional arrangements and its impact are also discussed. Section III explains the transformation of land-water policies in the region during and following colonial rule, and how it has impacted modern-day governments and traditional communities. Section IV summarizes past experiences in implementing river basin management systems and integrated water resources management. Section V describes the impact of weak land-water interface in policy making. It also raises the dilemmas posed by the changing political and economic context, together with social and economic battles and challenges on the ground. Section VI an analytical basis for strengthening land-water-food-energy linkages. Section VII summarizes key conclusions and recommends an agenda for the way forward.

## **II. Colonial Legacy of Disconnected Land and Water Management**

Current policies governing land and water use in Southeast Asia have been shaped and influenced by a combination of traditional practices, colonial legacies, conflict and post-conflict political positions, economic demands, and to a lesser extent, customary practices. Absolute right over land allowed colonial powers to accumulate primary capital through land taxation, determine agrarian relations, and alter the meanings attached to land and water. This had unforeseen impacts in shaping the meaning of place and landscape in most of Asia. Two overlapping strands in the discussion on colonial transformation stand out.

Firstly, the colonial period shaped the ecology and economy of the Mekong region (including former British India and areas administered by the French) and separated the administration of land and water. Earlier, land and water formed part of the socio-economic-cultural landscape of local communities. In turn, environmental historians argued that colonialists envisaged land in the newly acquired tropics as underused or lying waste, in need of being put to better use. In which case, it is not surprising that one of their first experimental tasks was to control rivers by constructing embankments along their courses and “separating” land and water. This colonial understanding of water

sources and rivers led to engineering, legal, and management controls to stabilize land as a source of revenue.

The second is that privileges were introduced by establishing a new land tenure system that focused revenue-generation. This type of land tenure regime supported exports of multiple extractive commodities, including oil, gas, timber, and minerals. It included granting leases that sub-ordinated people's interests on land and resources to the state, and strengthened the political elite's access to land and natural resources, while local communities were excluded from the licensing processes. Over time, community and individual rights have become essentially dependent on the government discretion, giving rise to tensions/conflicts between the State and people.

The above two key policy strands resulted in significantly altering agrarian and production relations in South and Southeast Asia that have been well-documented. For the British in India and Myanmar; French in Cambodia, Laos, and Vietnam; and the Dutch in Indonesia, the region became "the great environmental laboratory" to test European theories on the purpose, use, and control of nature in all its manifestations. Annual floods became more disastrous and riverbank erosion increased. Intensive research has demonstrated the extent of transformation of the waterscapes of the then British India. It unleashed a cycle of interventions on land and water that changed production relations and exacerbated power inequalities within communities. Institutional responses failed to appreciate the dynamic nature of land and water governance. This led to the proliferation of simplistic national and regional policies and programs that yielded limited results (Chapman and Rudra, 2007; D'Souza, 2007; Lahiri-Dutt, 2008; Jägerskog, A., Zeitoun, M.; and Kurien et al 2006).

The imprints of colonial rule are evident not only in land-water-natural resource management but also in urban architecture and city planning, segregation of settlements, and the importance attached to primary cities as conduits for exploitation, transportation hubs, and centers of colonial power. Secondary towns served as regional centers of trade,

agricultural markets, military garrisons, or hill stations and were connected to primary cities by roads, railway, or waterways. Working quarters and colonial settlements were confined to certain places in the city; the traces of these are still evident. Thus, colonial rule brought about fundamental changes in land and water use and their management.

### **III. Understanding Land-Water Policy Contexts in 1950s through 1980s**

To start with, a brief discussion on water rights and its relevance to land tenure and broader development policy context would be useful. While land rights' issues are largely local and national, water resources often cut across modern state and nation boundaries, making water issues part of regional geo-politics as well, thereby adding more complexity to the issue. In Asia, the Tibetan plateau in China is the source of the Indus, Brahmaputra, Irrawaddy, Salween, and Mekong river systems. South and Southeast Asian countries (Cambodia, India, Laos, Myanmar, Nepal, Pakistan, Thailand, and Vietnam) depend on water from these sources for their agriculture and industrial, urban, and rural development. Although most Asian governments tend to cooperate successfully around water, it has also been a point of conflict. This ranges from transboundary disputes across Mekong River nations (China, Thailand, Myanmar, Cambodia, Laos, and Vietnam), legal action between South Asian neighbors, and political tensions in South China Sea that hamper equitable access for fishing and marine resources. It is well acknowledged among governments that competition for water for agriculture and hydro-power generation involves river deviation and dam development (e.g., across Mekong in China). Such a deviation often results in corresponding reduction of access to resources for vulnerable groups such as lowland farmers and forest-dwelling communities. In the trans-boundary context, few mechanisms have been established to mitigate negative impacts on affected communities (for example: communities located downstream and across a national border from a dam project).

That said, post-colonial era, the national governments in the region were seemingly no better at understanding the land-water nexus, as they continued the colonial policy of separating land and water through myriad complex policies and laws. One of the key

disconnect created by colonial policies and continued by later day governments relate to protection and recognition of customary practices and rights to land and water. For long, customary rights and local traditions have been a sufficient basis for tenure security and water use arrangements. In addition, in many countries customary land tenure and water rights have been influenced by religious principles and law too (e.g., in Thailand, Laos and Myanmar Buddhist traditions have played a significant part in prompting land and water uses). Most colonial regimes in Southeast Asia allowed natives to continue their customary systems and practices but this did not provide them with secure formal tenure and water access rights, thus setting up a plural legal system that remains to be addressed.

An additional disconnect—created by colonial policies and later continued by modern governments—arises between legal regimes meant for individual and commercial users and the reality of communal use, and between customary practices and local traditions. Most Southeast Asian nations’ modern land tenure and water permit systems are best suited for urban properties and users or rural smallholders. They either do not target or cannot effectively cope with communal arrangements, because they are focused on individual registration and access systems. Water is generally considered a public good (increasingly as an economic good and therefore privatized too). Customary entitlements to water for agricultural and household purposes are considered a subsidiary component of land rights. However, the recent spate of large-scale investments in land and natural resources has consistently breached customary water entitlements. Ownership, management, and control of water has been taken over by the State, thus decoupling water rights from land-

**Box Item 1**

**Cambodia: Land-Water Systems Under the Khmer Rouge Regime**

Post-colonial period, national governments were no better in understanding land-water nexus. In fact, Pol Pot-led Khmer Rouge regime in Cambodia (1975-77) completely destroyed hydrological imbalance in the country. The Khmer Rouge leaders focused on the creation of irrigation systems as a key to obtaining better agricultural growth and outputs. The regime sponsored the creation of a grid of irrigation canals. Instead of using land contours, they decided to simplify and standardize everything and canals ran from east to west and south to north without any consideration of natural water flow. Control structures were non-existent and upland areas drained rapidly flooding lowlands. Another scheme was to construct dykes in flat earth areas that had no alignment with an assessment of water flows and natural drainage systems. The improper dykes and resultant flooding left large farmland areas uncultivable for more than three following decades and loss of livelihoods for many farming households for long.

use rights. Large-scale land concessions have been granted in prosperous and economically significant areas, such as forests and mining land, which are also perennial water sources. It also occurred in mountainous regions (e.g., Myanmar, Laos, and Vietnam) and upland areas (e.g., Myanmar), which are well-suited for export crops such as tea. Most of these areas were inhabited by indigenous and ethnic communities who largely held customary rights to land and resources (e.g., Laos, Myanmar, Thailand, China, and Indonesia). Land tenure security does not translate into sustainable livelihoods if communities cannot access water; however, water use is often denied to those groups that do not have strong land tenure security. As owner of water resources, mostly the State retains a much stronger role in regulation of water quality and quantity in a public interest than in land tenure. In this regulatory role, the state does not always respect and protect the rights of informal water users and their entitlements – largely due to lack of participatory and transparent negotiations with large-scale investors in land and water.

This leads to our next point: Is access to water a right, a commodity to be purchased or a public service? The emphasis tends to be on use of water and related resources for production for export rather than national or local energy needs (e.g., prescriptive nature of agricultural support and rice cultivation in Vietnam, Myanmar and Thailand; rationale for investments made in building Nam Theun dam in Laos), leading to worse outcomes for local communities in terms of food, water, livelihoods insecurity and environmental degradation.

With regard to spatial fit, economic concentration has followed colonial patterns, mostly occurring in large cities, fueling growth and productivity increases. As core areas of large cities become congested and land rents increase, water shortages occur and growth shifts and expands outward toward peri-urban and outlying areas.<sup>1</sup> The recent phase of economic development policies are witnessing erosion of customary practices and

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<sup>1</sup> For example, Thailand's 2011 flood inundated 90 billion square kilometers of land, more than two-thirds of the country, ranking the natural disaster as the world's fourth costliest disaster (as of 2011) with the death of 884 people and close to one-third of the country's agricultural and fishing areas severely inundated and rendered unproductive. Rice production fell by an estimated 20 percent. The 2015 floods in Myanmar left around 20 percent of three million hectares of cultivable land degraded or non-productive. Refer to [www.thaiwater.net](http://www.thaiwater.net) for more details on the subject.

traditions with regard to land and water too (e.g., Thailand, parts of Myanmar, China, and Sabah and Sarawak in Malaysia).

In sum, we see that nearly two centuries of colonial rule have virtually erased traditional systems of land and water access and governance with post-colonial governments choosing to continue the bifurcated administration of land and water introduced by colonial rulers. While the importance of land and water for rural life and livelihoods is widely acknowledged, the governance of land and water is still largely unrelated and disconnected.<sup>2</sup> This government attitude ignores traditional land-use practices and tenurial arrangements linked to water entitlements among farming and fishing communities. As a result, individual and community access to land and water are threatened and that indigenous and ethnic minority communities continue to lose their traditional access to use of resources, all of which undermine their livelihoods.

The challenges enumerated above led to the emergence of river-basin management systems from the 1950s to the 1980s. It was recognized that the effective protection of land-water resources cannot be achieved by land or water institutions independently. It was against this backdrop that the Committee for Coordination of Investigations on the Lower Mekong Basin—the Mekong Committee—was set up in 1957 under a statute endorsed by the United Nations (UN). This body established formal multilateral cooperation between Cambodia, Lao PDR, Thailand, and Vietnam. The Agreement on Cooperation for Sustainable Development of the Mekong River Basin (MRC) or the Mekong Agreement was signed in April 1995, to establish the MRC as an independent multilateral agency no longer under the UN umbrella.

#### **IV. Limitations of River Basin Management and Integrated Water Resources Management Systems.<sup>3</sup>**

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<sup>2</sup> Some unpredictable policies have also been enacted for land and water management. For example, Pol Pot's Khmer Rouge regime in Cambodia (1975-77) destroyed much of the hydrological balance in the country. Improper dykes and the resultant flooding left large farming areas uncultivable for decades.

<sup>3</sup> The analysis here is limited to land-water interface and not the outcomes or results of frameworks such as Mekong River Commission.

The parallel and separate systems for land and water administration should not in principle lead to ineffective governance as long as there is alignment and coordination of policies, procedures and programs across systems. Given that land and water governance is ultimately shaped by social, political and economic factors, there will be no one-size-fits-all solution for improved land and water governance. But this is easier said than done. First of all, the nature of property rights over land, water and water infrastructure vary substantially, not only from country to country but also from scheme to scheme. Experiences and various studies undertaken on land-water management show a lack of the periodic and intensive consultation and cooperation required among land and water agencies to meet the wide-ranging objectives of good ecological status and better food security.

While engagement across countries is driven by political priorities, institutional coordination was missing even within the country and across various ministries and agencies. Available information shows that land and water sectors are independently managed and administered in all countries in Southeast Asia and China, possibly reflecting the independent evolution of modern land and water governance systems. While this arrangement, in theory, should not lead to ineffective land and water governance, the reality is that lack of policy coherence and alignment of activities across systems leads to weak governance which, in turn, undermines the establishment and development of efficient, sustainable and equitable large-scale agricultural land investments. The upshot is that existing land and water rights holders and the environment get short-changed and the objectives of the government and investors on land also become compromised.

A study of land tenure and water rights in Thailand and Vietnam in the mountainous forest regions (Neef, 2006) showed that communal forms of resource management have come under increasing pressure due to private investments and poor understanding of land-water interface in formulating development policies and programs. This was the case even in Thailand, which pursued export-led growth and was showcased by international agencies as a Newly Industrializing Economy during the 1980s. Studies

showed that Thailand's investments in large-scale hydropower dams and contract farming during 1970–80 did not yield equitable benefits for all. Its economic success in the 1980s resulted in several problems of physical and social development, including concentration of industries, resource depletion, and environmental fallout, such as severe flooding in 2011 and the damage it caused to land and water resources.

The other recurrent problem is largely due to the fact that land and water rights were seen separately as most governments prefer to enforce “conditional use rights” to land and water (i.e., putting land into productive use and payment of water fee). However, most governments do not define the term “productive use”. This has left much discretion at the hands of subnational government institutions responsible for monitoring fulfillment of requirements, and have often opened the door for abuse and manipulation by influential groups within the community. Importantly, the condition imposed on payment of water use fee on farmers who hold customary tenure makes them vulnerable to fluctuations in harvest and income, and to losing their land after bad harvest. As a result, the water fee payment mechanisms has always undermined tenure security that was enjoyed by communities under the customary practices and arrangements.

The concept of Integrated Water Resource Management (IWRM) caught the imagination of policy makers sometime late-1980s and gained currency thereafter. It assumed that the introduction of IWRM principles would help to develop institutions for river basin management. At the national level, IWRM was addressed through the establishment of an enabling institution, cost sharing and recovery, water use rights, and assigning responsibilities for respective national apex water bodies, local governments, service providers, water user organizations, and the private sector.<sup>4</sup> This approach provided a fresh opportunity to overhaul the institutional frameworks and define clearly the role and responsibilities of each stakeholder. Apart from the national governments, regional entities like Mekong River Commission also embraced this concept to achieve desired results.

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<sup>4</sup> In 2003, Asian Development Bank took the initiative to establish the Network of Asian River Basin organizations to share knowledge and build capacity for IWRM in river basins throughout Asia and Pacific region.

A critical review of the work of the IWRM (Third World Water Forum, 2003 in Kyoto, Japan) highlighted positive outcomes from the then ongoing efforts to develop capacities, share information and knowledge on better water governance. It also concluded that despite significant investments made, the institutions that are involved in water management are loosely connected and lack basic coordination and are often at the periphery of the water management agenda – significantly divorced from the programs (e.g., land use planning) that better water management would benefit; the predominance of isolated institutions locked up in narrowly defined activities with no interactive learning process will continue to hamper national aspirations to manage water; and that to change this situation will require innovative reforms in national institutions and institutional learning.

The Kyoto forum debated and opposed traditional State approach that viewed water as an economic good. Participants at this forum argued that no development initiative could be sustainable that considered water as an economic good without considering the issues of equity, social welfare and poverty. They also opposed privatization of water resources, arguing that the water sector is interrelated to many functions that demand government presence, i.e., flood control, drought alleviation, water supply, and ecosystem conservation. The right to land and access to water was seen as key to breaking out of the poverty trap and that better access to water resources could empower people, and women in particular, through a participatory management process (Kurian, 2004 and Calder 2005; and also refer to Norman Uphoff's field research reports on the Community-based Water Management Systems in Sri Lanka, Cornell University Press).

Research conducted in Cambodia by the International Water Management Institute (IWMI) provides a suitable point of reference to identify synergies and trade-offs between land-water interface and components of livelihoods. This field research highlighted the unique socio-eco-hydrological systems along Tonle Sap lake and the poor consideration of land-water interface in policy-making and governance. The studies also showed the implications for livelihoods of local communities and the sustainability of farming and fisheries in the context of rice intensification and reservoir and pond

aquaculture (de Silva, 2014; Johnston et al., 2014).

Importantly, the IWRM approach neither resolved water related issues and countries like Myanmar, Laos, Cambodia and Indonesia periodically continue to confront flood-drought cycles and faced water shortage during the dry season. The frequent flood cycles are attributed to poor land management too. A recent review in Indonesia showed that many river basins have reportedly have been downgraded by illegal logging and intense land use change in these areas. Critical land areas and deforestation scattered across the country were noted to increase from approximately 13 million hectares in 1992 to 21 million hectares in 2001 and yield up to 45 million hectares in 2005 (Fulazzaky, 2014). Experience in Laos is no different too (Ministry of Agriculture and Forestry, 2015). All these point out that the ongoing industrialization and urbanization have put further strain on the nation's water resources due to water quality degradation. Another criticism relates to poor understanding of customary land and water tenure practices that continued in IWRM too. Despite its stated emphasis on stakeholder participation, in practice IWRM approaches in Southeast Asia were no better in understanding of the customary practices that prevails in land while such a grasp is generally absent in case of water management. This was well-demonstrated when outcomes of river-basin management systems were analyzed (Newson, 1997).

Overall, the debates on river-basin management showed serious limitations in the use of simple institutional models for managing land and water resources. For example, literature on river-basin management has begun to challenge the notion of creating a perfect “spatial fit,” a concept that underlies a purist interpretation of river-basin management. A principal criticism was that political boundaries cannot define biogeophysical properties and that new institutions established without reference to biophysical systems will inevitably create new boundary problems and fresh mismatches. This situation was well-demonstrated in the Mekong Region where administrative and policy boundaries were drawn based on political necessities rather than consideration of ecological attributes.

In the 1990s, the debate on land governance triggered a broader debate on access to and use of natural resources and poverty reduction. These debates occurred in the 1990s within the realm of poverty reduction and an effort to understand political economy and collaborative problem-solving processes. It highlighted the importance of pragmatic, managerial attempts to engage in a policy-fix but yielded only marginal results. The ongoing debates at various forums and platforms about how to manage trans-boundary waters reflect the tense reality seen in the basins themselves. Those appealing for collective action for strengthening land governance and water rights are pitted against the promoters of unilateral action and increased privatization. Getting trans-boundary water resource management “right” is urgent to secure the livelihoods of billions of people and sustain the resource across the region. Importantly, it emphasized the importance of interactive forms of governance in policy making. Such forms of governance often proved to be open and permitted knowledge exchanges. These struggles produce policy outputs that directly or indirectly influence the society and governance.

In sum, the phases of “river basin management” and ‘integrated water resource management’, land and water witnessed debates on determining the optimal units of governance for various policy fields, especially relating to the distribution of public goods. The central argument concerns the serious limitations of reorganizing water management around political boundaries instead of natural ecosystem boundaries. The boundaries at stake here relate often to political responsibilities and social spheres of influence rather than physical territories. It is along these boundaries, where the jurisdictions and interests of organized actors overlap, that conflict between formal institutions most commonly arises.

## V. Impact of Poor Land-Water Governance on Farming Communities<sup>5</sup>

### *Land grabs and water grabs*

Growing pressures for food and fuel production to meet increased market demand led to governments acquiring land at a rapid pace triggering concerns on subordination customary claims and local livelihood traditions. As available data on large-scale investments in land shows investors often take advantage of the lack of legal protection for local communities to force already vulnerable and indigenous populations off their lands to establish plantations or large-scale hydropower systems. Large-scale investments require not only land areas but also substantial quantity of water to obtain optimal productivity and outputs. The relative availability of land and water resources attract medium- and large-scale investors in the so called ‘land grabs’. However, the implications of ‘water grabbing and rapidly growing inequalities have received limited attention as yet. In reality, large-scale investments are not merely land grabs but also ‘water grabs’.

An important impact of large-scale State land leases or investments is the local populace’s declining access to productive resources. In rural Laos, Cambodia, and Myanmar (and in China and Indonesia), common property resources (CPRs), or communal land areas including grazing pastures, contribute significantly to food security, especially for the poor. The degradation of CPRs while the dependence of the poor on CPRs increases represents an invisible process of rising poverty and diminishing access to land and resources. Several farmers interviewed claimed that their access to grazing lands and lakes/ponds, required for livestock, is declining largely due to the government takeover of land for other purposes and the lack of alternatives. Non-recognition and non-enumeration of communal pastures and community water bodies and the poor’s dependence on them are responsible for growing rural poverty among farming

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<sup>5</sup> On this subject, a number of case stories are available and we have limited our references to [www.thaiwater.net](http://www.thaiwater.net), [www.iwmi.cgiar.org](http://www.iwmi.cgiar.org), [www.ivl.se](http://www.ivl.se) (Swedish Environmental Research Institute), and [www.swi.org](http://www.swi.org) (Stockholm International Water Institute), and Haefele, E (2013): *Governance of Common Property Resources*, Resources for the Future, New York, USA. Also, refer to Shivakumar and U Saw Hlaing (2015).

communities (Meinzen-Dick, R and Lee Ann Jackson, 1996 and reports published by accessible at [www.iwrm.cgiar.org](http://www.iwrm.cgiar.org))

As a result, the rural poor – particularly those engaged in farming both in upland and lowland areas – disproportionately carry the costs of weak land-water governance. Communities’ potential loss of access to land and water, such as public or private investments in forest or upland areas (e.g., industrial projects like the cement factory in Laos; hydropower dam in Vietnam; conservation projects in Myanmar or Vietnam) have led to deteriorating social relations and conflict. Furthermore, modern water management policies generally tend to ignore traditional tenurial and land and water use arrangements, including slash-and-burn agriculture and other activities of upland communities are further aggravating tenure insecurity. Women and children are a particularly vulnerable subset of these affected populations, who due to the ‘informality’ of their rights and lack of power are poorly compensated when they lose access to land and water resources. In that sense, better interactive governance of land-water is the foundation for agricultural development and general prosperity.

### *River-Bed Farming*

In the dry zone and delta regions of Myanmar and in rain-fed areas in Vietnam, Laos and Cambodia, river-bed farming is a popular off-farm income source. Alluvial soil and moisture make riverbeds suitable for seasonal vegetable cultivation, during the dry season. Access to riverbeds is generally allowed by the village chief and covers at least a month’s income needs for a household in these countries. However, with disconnected land-water management systems in most countries in the region, riverbeds do not feature in rural development programs or long-term strategies to improve landless households’ access to land. On the other hand, river-bed areas are leased by local governments to investors for constructing residential areas or tourism facilities that permanently damage opportunities for river-bed farming among poorer groups.

### *Fishing Community's Woes*

Documented instances of investments in land and water during 1980–90 nearly all the Mekong river basin nations have reported extensive changes in the course of rivers and significant erosion of river banks. These investments are supposedly made “for the greater good of the country”. In the bargain, local communities have lost both access to land and water. For example, on the upper Mekong, by 2009, China had constructed four giant dams that completely modified the course of the river, the riverbed area, and submerged or rendered uncultivable large tracts of farmland affecting the livelihoods of about 60 million people in Cambodia and Vietnam, who have since then frequently reported blockage of fish migration and silting of fertile rice fields. By 2010, Laos completed the first dam on the main stem of the Lower Mekong River in Southeast Asia in the hope of becoming the region’s hydroelectric powerhouse. In Mon state in Myanmar, the local government reported extensive changes in the course of rivers and huge erosion of river banks along the Martaban Gulf over the past few years.<sup>6</sup> Fishing communities there have lost their river-side homesteads and are forced to move further inland and have lost access to their traditional fishing livelihoods (e.g., Martaban Gulf in Mon State of Myanmar and along Mekong tributaries in Cambodia and Vietnam). Evidence also suggests that local communities have lost access to both land and water.

Based on detailed field research, Ziv et al (2012) highlighted that the Mekong River Basin, site of the biggest inland fishery in the world, was undergoing massive hydropower development and that planned dams will block critical fish migration routes between the river’s downstream floodplains and upstream tributaries. Here we estimate fish biomass and biodiversity losses in numerous damming scenarios using a simple ecological model of fish migration. The land-water framework led to an analysis detailing trade-offs between dam locations, power production, and impacts on fish resources. The research found that the completion of 78 dams on tributaries, which have not previously been subject to strategic analysis, would have catastrophic impacts on fish productivity and biodiversity. Authors argued for a reassessment of several dams planned, and call for a new regional agreement on tributary development of the Mekong River Basin.

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<sup>6</sup> Personal interview with Mon state ministers in November 2016.

Importance of tenure security along coastal lines is underlined by improved village incomes from better access and governance of mangroves. For the coastal poor, have long recognized the ecological and socio-economic values of mangrove ecosystems to their lives and livelihoods. Well-protected mangroves, for example, have been dubbed the ‘supermarkets’ of the coastal areas (IUCN, 2006). These resources at times provide an escape route out of poverty. For many coastal communities, there is increasing concern about the status of coastal areas, mangrove ecosystems, and fishing rights. For many coastal communities in southern Thailand, which are hosts to a large part of Thailand’s mangrove ecosystems, there is increasing concern about the status of these ecosystems. Mangroves ecosystems had already been under threat in Thailand since 1970s from coastal developments including hatchery, aquaculture, tourism-related infrastructure, and so on. Concerns about mangrove ecosystems have been heightened following the devastation of the Indian Ocean Tsunami. After the tsunami in 2004, the interface between the customary and local institutions and government institutions proved to be valuable in restoring the land and fishing rights of affected families and women in particular. Recent studies along the coastal areas has

**Box Item 2**

**The Case of Shrimp and Rice Farming in Rakhine, Myanmar**

In the Rakhine state of Myanmar, one of the most common source of local conflicts results from access to land and water for shrimp farming and rice farming. A 2013 study of the compatibility of rice and shrimp farming in in two villages in Meybon township found that shrimp breeders tend to be wealthy businessmen from nearby towns who either acquired property under the previous government or have bought or rented land cheaply at a time when some farmers were desperate for income. While large surfaces of lands have been acquired through confiscation, persuasion and other coercive measures under the previous government, these lands’ registration status is largely unclear and since the governmental shift of 2010, businessmen networks have had to ramify at the village level to include villagers’ names for property.

Tensions between the landless and landed households already exist. In one village it was reported that some land owners said that they were now afraid of landless people as if they staged a protest, they might get into trouble. The lucrative returns from shrimp-farming has made some farmers and businessmen relatively rich; at least compared to their rice farming neighbours. This adds to the potential for jealousy and possibly conflict.

At the technical level, much conflict between rice and shrimp farmers centers around the (mis)management of saline water flooding rice fields from broken embankments or shrimp farming neighbours, or both. This problem can occur at any time during the rice farming cycle but seems to be particularly acute at the land preparation stage, seedling stage and panicle development stages if the shrimp farmer is slow to drain salt water from the land area.

Source: Field research notes of Sue Mark, December 2016.

shown that these ecosystems provide food security and livelihoods to coastal inhabitants through the service provision of fisheries nursery and habitat. Studies have concluded increase in village-level incomes among two-thirds of the villages in Thailand and Indonesia (World Bank, 2014; and UN-FAO, 2010).

Mangroves have been under threat from coastal developments including hatcheries, aquaculture, tourism-related infrastructure, etc. Recent studies have shown the negative impact of large-scale aquaculture and shrimp farming in mangroves and coastal ecosystems in south Thailand and in parts of China, Indonesia, Vietnam, Cambodia, Philippines, and Myanmar. The rapid proliferation of tourism facilities also wreak havoc on the natural environment and affect the lives and livelihoods of countless traditional farming and fishing communities. Resort and real-estate developers undertake “land grabs” and even “sea grabs” to develop commercial water-based tourism activities such as cruising, boating, and diving (e.g., Phuket in Thailand and Bali in Indonesia). Massive reclamation projects for tourism development often result in unmitigated disasters for marine ecosystems.<sup>7</sup>

### *Sand Mining*

Instances of sand mining, or export purposes, along Mekong river basin is increasingly common. For example, recent instances of large-scale sand-mining in Cambodia have raised concerns about a lack of institutional coordination and poor governance of land and water. For example, a report published by the UN in 2015 showed that between 2006 and 2014, Cambodia exported \$752 million in sand to Singapore. A civil society memorandum to the Cambodian government noted that the governments of Vietnam, Indonesia, and Malaysia had banned or restricted sand exports to Singapore due to environmental concerns caused by using heavy equipment machinery to dredge along the river. In 2015, the Cambodian government finally put a hold on new applications for licenses to conduct sand-dredging operations in the country’s rivers and lakes so that the environmental and social impact could be studied. However, it is unclear if these moves

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<sup>7</sup> Anita Pleumarom, a researcher on tourism issues in Asia and Pacific, provided details from her archives published in her blog on Third World Tourism.

have had any effect, as civil society reports continued sand mining and growing threats to farmland areas and fisheries in Tonle Sap and along Mekong.<sup>8</sup>

### *Dams and Water Diversion*

Large-scale land conversion is typically associated with mass diversion of water from natural points and leaves rural and small holdings with frequent drought-flood cycles or declining productivity. The New Economic Mechanism in *Laos* was launched in 1986, initially emphasizing reforms aimed at liberalization of foreign investment (which attracted investors mostly from Thailand) and use of natural resources. This resulted in investments in large-scale hydropower dams since 1990s. The hydropower cascade that began in the late 1990s is a case study on how government poverty-reduction commitments can be undermined, particularly in the absence of revenue management or legally enforceable contracts to share benefits with affected people.

A series of field studies were carried out by civil society groups since the early 1990s around the largely controversial Nam Ngum 2 dam in Laos. These have shown that the impact of hydropower development on the rural poor will depend largely on the concrete and formal mechanisms to guarantee that affected villagers benefit directly from the revenue earned by hydropower projects (e.g., Rivers International, 2006). Civil society has consistently argued that decisions on proceeding with hydropower projects were taken even before individual and cumulative environmental and social impacts had been fully assessed. Uncoordinated development and poor basin management thus pose major risks to local communities, as well as to investors.

Field evidence suggests that land and water rights inequity affect not only poorer communities, but also ethnic and racial minorities (e.g., frequent conflicts over access to and use of traditional fishing rights along the coastal areas in Thailand, Myanmar, Vietnam, and Cambodia; the Rohingyas in Rakhine State of Myanmar are not readily allowed to benefit from dams and irrigation).<sup>9</sup> Civil society groups have argued that

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<sup>8</sup> For example: The Cambodia Daily (December 16, 2016 and January 24, 2017) and the Phnom Post dated October 19, 2016.

environmental arguments are also closely related: property rights provide an incentive to protect the resource and, without property rights that are enforced, resources often become degraded.

Further, efforts to battle poverty and food shortages are being undermined by massive land use changes for tourism purposes in coastal and marine areas. The rapid proliferation of tourism facilities that often take the form of mega-resorts, including hotels, residential housing, golf courses, marinas, shopping centres, and even landing strips for private jets, wreaks havoc to the natural environment and affects the lives and livelihoods of countless traditional farming and fishing communities. Not only do “land grabs” by resort and real estate developers pose a rampant problem, “sea grabs” for the development of commercial water-based tourism activities such as cruising, boating and diving, are also common place. Moreover, massive reclamation projects for tourism development may result in unmitigated disasters for marine ecosystems. (Examples of local resistance against reclamation projects in Phuket, Thailand; Benoa Bay/Bali in Indonesia; Penang in Malaysia; Manila Bay in the Philippines).

## **VI. Emergence of Governance and Nexus Frameworks**

In the late-1990s, “institutional development” and “governance” were acknowledged as principled thinking and institutionalized settings for collective decision-making, where a plurality of actors with different resources and strategies continuously engaged in addressing political conflicts and policy formulation both at national and regional level. With regard to land and water, interactive governance involves consensus-seeking deliberations among policy experts and relevant stakeholders. Learning from those experiences and in response to new thinking among policy makers, for example, the European Union members embraced the concept of “interactive governance” for water management during the 1990s. The Water Framework Directive was adopted in 2000 as a guideline for river-basin management across member states (Moss, 2003).

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<sup>9</sup> Field research notes of Sue Mark, 2016.

While discussions on “governance” took center-stage during the early 2000s, the concept of “nexus thinking” was first conceived by the World Economic Forum in 2011 to promote the use of resources to provide basic and universal rights to food, water, and energy security. Nexus thinking is advocated as an advance on current and often sector-specific governance of natural resource use. More recently, a small but growing body of research has highlighted the value of interface and nexus-based approaches for evaluating the effects of development on livelihoods and for promoting sustainable livelihood practices. Examples of how sustainable rural livelihoods can be promoted in harmony with the nexus framework come from several sustainable development initiatives in Thailand, Vietnam, and China, such as rainwater harvesting systems for smallholders using small-scale water capture and storage systems.

Highlighting the importance of better land-water governance, the International Food Policy Research Institute (IFPRI) found “a definite (inverse) correlation between access to land rights and hunger” in analyzing its 2012 Global Hunger Index. The report highlighted that depriving people of access to land and water made them hungry, and agri-businesses and other concession drivers did not feed them. In 2012, based on its research in the region, the Asian Legal Resource Centre (ALRC) brought to the attention of the UN Human Rights Council the deterioration of food security among farmers and indigenous and ethnic peoples in Southeast Asia. It argued that policies governing land, water and natural resources and rural development had failed to ensure livelihoods and food security for rural populations and had left unpunished human rights violations by national and multinational corporations.<sup>10</sup>

Nexus thinking, in the form of integrating water security with agriculture, energy and climate concerns, is normatively argued to help better transition societies towards greener economies and the wider goal of sustainable development. Yet several issues emerge from the current debate surrounding this concept, namely the extent to which such

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<sup>10</sup> von Grebner, Klaus, *et al.* 2012. *2012 Global Hunger Index*. Bonn: International Food Policy Research Institute, Concern Worldwide, and Welthungerhilfe and Green Scenery. <http://www.ifpri.org/publication/2012-global-hunger-index> accessed on December 10, 2016.

conceptualizations are genuinely novel, whether they complement (or are replacing) existing environmental governance approaches and how – if deemed normatively desirable – the nexus can be enhanced in national contexts. In recent times, the debate is also gradually expanding to cover land and related issues thus forming a chain i.e., land-water-agriculture-energy and climate concerns (Benson et al. 2015). Researchers and policy makers have acknowledged that one of the most fundamental obstacles to achieving effective land governance is around the land-water nexus.

Field studies have shown that more than half of the population in the Lower Mekong Region could experience positive changes in household food and income, if the policies are formulated based on land-water-livelihoods interface, resulting from impacts on fish, crops, vegetables, wetlands, and non-timber forest products. A longitudinal research study in China on its river basins and the overall societal and environmental vulnerability showed that while China has a fairly low level of vulnerability in these basins, its downstream influence is substantial. This setting offers a plethora of opportunities for transboundary cooperation and calls for a high level of responsibility from the upstream riparian countries (Kattelus, 2015). In Myanmar, foreign investment to intensify production from the agricultural and energy sectors may have deleterious effects on rural populations who rely on shared land and water resources but have insecure access (Kattelus et al., 2013).<sup>11</sup> Likewise, some applications of the interactive governance and nexus approaches have begun to recognize the benefit of participatory methods, although generally still at macro rather than micro levels.

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<sup>11</sup> Kattelus's (2013) work highlighted the fact that Myanmar's water-related sectors are subject to intensive changes, as the country's abundant land and water resources provide substantial scope for development and that government measures towards economic reform have led to a surge of foreign investment directed towards intensified natural resource extraction. With these on-going developments, Myanmar's future is largely dependent on how its natural resources are managed and how the benefits from the resource extraction are shared. Authors have argued that with institutional changes and new actors welcomed to the sectors, existing livelihoods and ecosystems dependent on the land and water resources are to face increasing competition for the shared resources, while lacking secured access to them. There are increasing concerns that this development is occurring at the expense of environmental and social sustainability. As one way to tackle these challenges, the land-water-food nexus approach could help in finding synergies and co-benefits across sectors by addressing the imbalances along the nexus and externalities derived from the on-going intensification.

Discussions on the interface between land and water rights should also be placed in the context of ongoing ‘modernization of agriculture’. In Southeast Asia and elsewhere too, two models of agriculture are competing in the policy arena. On the one hand, governments are calling for the promotion of agribusiness to put land and water resources to better use by attracting capital and increase agricultural productivity (e.g., large scale land acquisitions for agribusiness in Laos, Myanmar, Indonesia and others). The other model, family farming and community water management remain the backbone of rural livelihoods and advocated by civil society groups and some of the policy makers too (e.g., pilots implemented in parts of Thailand, Cambodia, Laos and Indonesia). The later model has shown to be dynamic, responsive to change and able to meet the needs of rural milieu too. The discussions on the two models currently underpin the debate on land and water reforms in all the countries including China, India, Indonesia, Cambodia, Laos, Myanmar and Vietnam (except to an extent in Thailand in the Mekong region). Recent experiences and debates on modernization and use of technology in agriculture, forest reforms, management of coastal areas all show the need for correct policy choices are fundamental for the development of land and water sources in a sustainable manner.

That said, most of the existing governance, inter-face and nexus frameworks often focus on macro-level drivers of resource-consumption patterns. However, the current pace of government policies are driven by intensive agriculture to support export of rice, coffee, and other cash crops and an emphasis on “larger scale” extraction and consumption of natural resources may lead to depletion of natural capital stocks and increased climate risk without an equitable share of the benefits. In support of this, commentators cited examples in Myanmar and Thailand (and to some extent in Vietnam), where. Unfortunately, these policies have degraded land, water, and ecosystems without increasing the levels of food security or rural welfare.

Increased pressure on water resources calls for better focus on land-water interface and restoration of resilient landscapes too. Analysts also argue that the main driver of rural landscape change is the rapid agricultural expansion and intensification required to satisfy increased food and other demands. In the quest to reach effective land

management for the optimized use of natural resources, landscape approaches are becoming widely implemented – often related to the integration of agriculture and forestry. Along with land-water nexus, the ongoing debate on landscape approaches and territorial development should also be considered. The landscape approach should be used to analyze growing pressures on land and natural resources and how these can best be met in a sustainable manner. It will also help in better managing a mosaic of land management practices too (e.g., forest conservation, forest restoration, agroforestry and sustainable forest management) and allow sustainable livelihoods for communities co-existing in the same landscapes. This approach will also bring together land users, who hold a key role to maintain and restore these landscapes.

### ***Positive Examples Do Exist***

The design and implementation of water infrastructure programs and projects (irrigation schemes, community water points, ponds etc) are embedded in complex social relations with regard to land and tenurial rights. A growing literature shows how development projects are an “arena” for different groups to strengthen their claims to land and further their interests. This was the case even where community irrigation schemes in Thailand. In many cases, the construction of a water facility has been used as a tool to challenge or consolidate land claims – for example, to emancipate a village or community that is customarily a tributary as its access to land.

Experiences in Thailand has shown that bundling water rights with tenure security with a combination of infrastructure development (or rehabilitation) and institutional reforms has improved water delivery at community level (Sangkapitux C., Andreas Neef, Ke Nunthasen and Theeka Yothapakdee, 2006). Institutional reforms in Thailand and in Cambodia (community-based fishing rights) have shown that respective farmers and fishers have greater control over access and use of both land and water. The experiences of Cambodia (2000s) and Thailand (1980s), where the formation of Water User Groups was encouraged to support small-scale farming and better use of water points, should serve as a lesson for Myanmar as it moves forward to formulate new programs to address the land-water nexus. A recent survey of community irrigation schemes in Thailand, Laos and Vietnam found that rural communities were more satisfied with small-scale irrigation schemes and aquaculture lots rather than bigger ones. The reason being the flexibility provided by small-scale projects in adapting itself to customary practices and local requirements (for example, Neef. A, Jörg Hager et al, 2006) All these experiences show that creating irrigation facilities and allocating water rights have substantially raised land tenure issues.

**Box Item 3**

**Panglima Laot and the Trust in Traditional Land Governance Structures**

The interesting case of the customary institution in Aceh, Indonesia called Panglima Laot is a customary (*Adat*) leader responsible for coastal monitoring (distribution and management of fishing rights) has responsibility over a land-sea territory governed by customary regulations with regard to access and use of both land and sea. Today the writ of the Panglima Laot is recognized in the Law on Governance of Aceh Province and the Fisheries Law of Aceh. Those who expressed confidence in the *adat* leaders cited the latter's familiarity with the local conditions, easier accessibility and highly community-based nature of the traditional system. Local communities living along the coastal villages showed a sharp inclination towards trusting the *panglima laot* (*adat* leader for coastal monitoring) and expressed less confidence in non-traditional leaders. Traditional structures are generally seen as simpler and as promoting harmony

In sum, the political changes that ushered in since 1990s and in more recent years tend to exploit land, water and land-based resources to harness political and economic benefits. These has contributed to government's preference for a weak property rights institution. It helped arbitrary enforcement and abrogation of access and use rights, and neglected redistribution programs. However, the post-socialist era (1990s) also failed to construct institutions and clear legal instruments for secure land, water and property rights following the State's general decreasing capacity to employ excessive powers, legitimacy, and effective law enforcement.

Source: World bank (2014).

In sum, current government interventions have made land and water the center of a broader ideological struggle and geopolitical tension (e.g., contract-farming practices resulting in poor land use; tensions over lack of political will to formally recognize and protect customary tenure; and reported abuse of the Mekong River by upper riparian states and resultant land-use changes). A greater appreciation of the land-water interface would help in better and effective land governance.

## **VII. An Agenda for the Way Forward**

The discussion on land-water interface cannot be divorced from a broader context. Improved governance and local development must be linked to address the nexus/interface of interactions between issues concerning land, water, and livelihoods in a globalized and uncertain world.

The brief review here reveals a number of pertinent points. Firstly, there exists a chasm between modern water rights regimes and land rights regimes. Secondly, while the laws, policies and operational rules, at least on paper, appear relevant and adequate for sound land and water governance, their effectiveness depends on how well they are aligned, coordinated and applied. The paper shows that, at present, they are poorly coordinated and are not rigorously applied partly due to the parallel systems of land and water administration and partly because the organizations charged with the responsibility of applying the rules lack the necessary human, technical and financial resources to be effective.

As close to two-thirds of farmlands in Southeast Asia is cultivated by smallholder farmers, ensuring the survival and food security of these groups is of utmost importance. By taking the land-water nexus approach, the multi-functionality of land will be emphasized. Considering the specific role of women in agriculture, food supply and water and fuel collection, it will also generate household value and ensure that they benefit from it. Nexus in policy dialogue will require alliances and communication with stakeholders that would improve use of ecosystem services and overall development

outcomes. A recent study of the World Resources Institute (2013) shows that as pressures increase on land, water, and biological resources—and as initiatives with multiple development objectives work in the same or adjacent and connected landscapes—a new set of approaches has also emerged to address and manage these pressures and sometimes conflicting objectives. While advocating land-water nexus thinking, analysts have also been suggesting *integrated landscape approaches* bring sectors and stakeholders together to jointly plan, design, and manage their landscapes and institutional resources for improved agricultural production, biodiversity and ecosystem conservation, and sustainable livelihoods. This approach is further illustrated in WRI Study on the benefits of improved land and water management practices to farmers and rural economies include increased agricultural productivity (higher yields), increased income and employment opportunities from agriculture, and increased resilience to climate change and associated extreme weather events—such as water scarcity, intense rainfall, or droughts.

To integrate sustainable livelihoods with land–water governance, inter-linkages between these sectors must be identified, as must assets of human populations and the natural environment. Such a framework will depict land–water interactions alongside energy–food systems and livelihoods. The integration of interface, river basin management, interactive governance and nexus thinking will acknowledge the mutually dependent relationship between land–water and livelihoods: (a) water is needed to support livelihood activities such as fisheries or irrigated agriculture; (b) livelihood activities and capital may contribute to (or diminish) the conservation of land and water supplies and assist in implementing more sustainable practices in land or water use. This integrated framework can thus identify possible approaches to sustainable livelihoods.

Rural smallholders and local communities need an enabling environment to engage in land and water debate for better access to and use of resources. This is possible only through an integrated and coherent approach to customary land and water claims within formal systems. What is also needed is “a single system” for land and water resource management for agriculture, fisheries, village forests, protection of land degradation due

to floods or drought conditions, and resilience of coastal areas, particularly mangroves. Spatial planning is key to promoting cross-sectoral integration and establishing long-term, sustainable frameworks for social, territorial, and economic development. Recent government policy statements and reform agendas are beginning to acknowledge the importance of such an improved and integrated governance framework.

Transitional nations, like Myanmar or Laos, eager to catch up with their neighbors in economic development, face numerous governance challenges that cut across the land-water nexus (e.g., insecure land tenure due to shifting water lines in alluvial land, conflicts between farmers and fishermen over the damming of riverbeds, and restrictions on agricultural land use that prevent farmers from effectively dealing with high water levels). This provides a political opportunity and an entry point for reversing the cycle. This paper posits that a coherent approach to land, water, and resource policy-making and management is needed. Overlapping and conflicting institutional arrangements must be clarified and streamlined.

Future policy debate, research, and action will require a multi-faceted approach to governance challenges concerning the land-water interface, based on understandings of the precise relationships and processes operating within and across local, national, and regional arenas, and rights and use issues as perceived by interactional actors and their links with social and institutional positions. The analysis concludes that systemic, adaptive processes are needed to protect and recognize land–water interface within a long-term national development program that sustains the region’s environmental services and resources. It offers recommendations for reforming land and water governance to promote public investments that will lead to better recognition and protection of claims over land and water, and equitable distribution of benefits and sustainable management of natural resources.

*(This paper is an abridged version of a larger study that reviewed land-water interface, and customary land rights in seven countries, including China, Cambodia, Indonesia, Laos, Myanmar, and Vietnam in Southeast Asia and Pacific region during 2016. The full paper will be*

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