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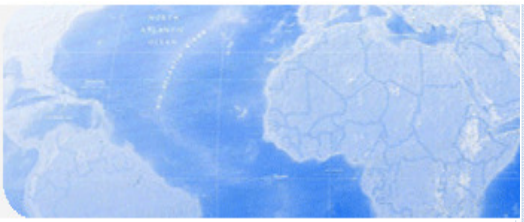

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# Preliminary Analysis of Water Security in the Mekong River Basin

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## Abstract

The political climate in Southeast Asia is primed and on the cusp of a transformation. The purpose of this study is to discern both the existence and strength of the relationship between water security and regional integration in the Mekong River Basin. Water is an over-arching integrator, connecting and encompassing the prevailing tendency to focus separately on political and economic security. To frame water as a central driver enables a discussion of regional integration that is both fundamental, as well as comprehensive, yielding substantive conclusions to the benefit of creating a successful community in the Mekong River Basin.

KEYWORDS: *water security, regional integration, hydropower, sustainable development, geopolitics, Mekong River Basin, Southeast Asia, rapid economic development*

## ACRONYMS

| | |
|---|---|
| ADB | Asian Development Bank |
| ASEAN | Association of South East Asian Nations |
| GMS | Greater Mekong Subregion |
| HDI | Human Development Index |
| ICT | Information and Communications Technology |
| Lao PDR | Lao People's Democratic Republic |
| LPI | Living Planet Index |
| MC | Mekong Committee |
| MRC | Mekong River Commission |
| PRC | People's Republic of China |
| SEA | Strategic Environmental Assessment |
| UNEP | United Nations Environmental Programme |
| USD | United States Dollars |
| WWF | World Wildlife Fund |

# Introduction

## The Mighty Mekong: the River, the People, and the Geopolitical Setting

Mae Khong, the Mekong River, is simply the Mother. From her source high in the Tibetan Plateau, she runs 4,800 km through the Southeast Asian mainland to the South China Sea. The ecological region of the river basin spans 795,000 square kilometers and encompasses 60 million people from almost 100 distinct ethnic and linguistic groups (WWF 2012). The course of the Mekong runs through the Yunnan Province in China, falling rapidly to form the border between Laos and Burma. From here the river flows through Thailand, Lao PDR and Cambodia, joined by the Tonle Sap near Phnom Penh; the Tonle Sap River and lake system alternates between tributary and distributary of the Mekong, depending on the latter's flood level. The Mekong Delta in Vietnam begins officially at the break of the Bassac River, the first and main distributary of the Mekong. The seasonal flow patterns of the Mekong are marked by a wet season from May through to November, with floods that account for 85 to 90 percent of the total river flow peaking in September. During the dry season, the discharge of the river can be as low as 2,000 meters cubed per second (WWF 2012).

The Mekong River Basin[1] is one of the most biodiverse ecosystems on Earth. Since 1997, over 1,500 new species have been discovered and documented. In terms of fish biodiversity, the Mekong is second only to the Amazon, providing habitat for over 1,200 different species. Per unit area, the Mekong exceeds the Amazon in fish diversity. More than 80 percent of the fish species are migratory, some traveling several thousands of kilometers seasonally. The river is the most productive inland fishery in the world, accounting for more than 25 percent of global freshwater catch, about $1.4-3.9 billion USD a year (WWF 2012).

Agriculture provides an economic livelihood for over 60 percent of the Mekong River Basin's inhabitants (MRC 2010). Flow regimes and flood patterns are especially critical, as they carry and spread nutritious silt. The sediment builds up in the Mekong Delta, where it creates alluvial floodplains and coastal habitats in Cambodia and Vietnam, stimulating agricultural productivity in the Lower River Basin. Large irrigation projects in the Upper River Basin withdraw water from the river system, which have potential harmful externalities for fisheries and agriculture downstream. This has stimulated a movement towards the proliferation of paddy fields, which though they do require large amounts of irrigation water, are efficient in re-using and capturing this water while at the same time providing a cradle for fisheries.

[1] I will use the terms Mekong River Basin and Greater Mekong subregion interchangeably, though to be precise, the second of these is a convention of the Asian Development Bank (ADB) to describe the natural economic area under the developmental project of the same name.

The Greater Mekong region is one of the most densely populated areas on Earth, and as part of the Asia and Pacific region, is home to nearly two-thirds[2] of the world's poor[3]. The floodplains and fisheries of the Mekong River are a vital source of food security and livelihood for the more than 60 million people living in the Greater Mekong. In fact, around 75 percent of the Mekong River Basin population directly depend on the river as their life source (MRC 2010). For thousands of years, the cultural development of the region has been shaped by the Mekong's natural resources. The rural majority of the population live on subsistence agriculture and fishing.

The Mekong River Basin is divided into two parts, the Upper Mekong Basin and the Lower Mekong Basin. The Upper Mekong Basin includes the source of the river and the flow through the Yunnan Province in China[4]. The Lower Mekong Basin is composed of the five remaining riparian countries: Burma, Lao PDR, Thailand, Cambodia and Vietnam. Thailand is the wealthiest of the lower riparians, with only 8.1 percent of her population in poverty (CIA 2012). Of the six riparians, Thailand and Cambodia are the only two democracies, and of these two, Thailand the only somewhat functional democracy, albeit a recent development since a new constitution was adopted in 2007. Decades of political turmoil in Cambodia have hindered political and economic development, making the country the poorest of the Greater Mekong Subregion (CIA 2012). The Tonle Sap Lake and water system - the largest freshwater body in Southeast Asia - is located in Cambodia. Cambodia and Lao PDR are the poorest of the riparians, with over 30 percent of their combined population living below poverty and very low literacy indexes compared to the rest of the region. Geographically, they represent the largest portions of the Mekong River Delta, with 86 and 97 percent, respectively, of their total area within the basin. Vietnam plays the role of regional power alongside Thailand, and controls the Mekong Delta and discharge into the South China Sea. Burma, despite recent political reform and the adoption of a nominally civilian parliamentary government in March 2011, has historically been a side-actor in the development of the Mekong River Basin. The country's border with the Mekong River is short - 265 km -, and the former military junta in power established a politically closed regime. China holds a particularly influential position within the Mekong River Basin, as the source of the river and the thus most upstream riparian. Academically, China is more often not tabulated as a member of Southeast Asia; thus frequently discounted from regional integration efforts in the region (Backer 2006).

[2] Where the estimate of two-thirds, as put forth by the ADB, is a measurement of the portion of the world's poor that inhabits the whole Asia and Pacific region, a total of 2 billion people. Throughout this paper, the Asia and Pacific region refers to Australia, Bangladesh, Cambodia, People's Republic of China, India, Indonesia, Japan, the Democratic People's Republic of Korea, the Republic of Korea, the Lao PDR, Malaysia, Mongolia, Burma, Nepal, New Zealand, Pakistan, Papua New Guinea, the Philippines, Sri Lanka, Thailand, Timor-Leste, and Viet Nam.

[3] Poverty is explained here by the ADB definition; in the Asia and Pacific region 1.8 billion people live on less than $2 USD a day and 903 million (the majority of which are concentrated in the Greater Mekong subregion) live on less than $1.25 USD.

[4] The Mekong River also flows through Qinghai Province and the Tibet Autonomous Region, but since this is only briefly and the river flow is such that the two regions are not part of the Mekong River Basin ecosystem (WWF 2012), they will not be part of this paper's discussion.

However, China's policy decisions directly influences the choices all downstream countries along the Mekong can make: 16 percent of the Mekong River's total discharge originates in China (WWF 2012). Therefore, inclusiveness requires the identification of the Yunnan Province – and thus the Chinese government – as part of the Mekong River Basin region. Comparatively, despite controlling the source of the river, only 3 percent of China lies within the Mekong River Basin to the 97, 36, 86, and 20 percent of Lao PDR, Thailand, Cambodia, and Vietnam respectively.

In the geopolitical context of the Greater Mekong, the dichotomy upstream/downstream is a valuable explanatory characteristic of the riparian's preferences and interests within the river regime. The increasing development and expansion of the navigation and hydropower sectors of the Mekong regime, and the damming and re-routing of the river these implicate, promulgate this asymmetric relationship and set up a foundation for the distribution of power amongst the riparian countries. I identify China, Burma, Thailand, and Lao PDR as upstream countries and Cambodia and Vietnam as downstream countries.

The economic value of the natural capital of the region is substantial. In addition to the contribution of the fisheries detailed above, river dependent agriculture is also highly productive: bringing in $4.6 billion in paddy rice growth and up to $574 million in riverbank gardens per year. The total hydropower potential of the Mekong was last estimated at 30,000 MW for the Lower Mekong Basin alone, only 10 percent of which has or is being currently developed (MRC 2010).


**Figure 1.1:** Mekong River Basin

# EXPLANATORY FRAMEWORK *and* METHODOLOGY

## The Purpose and Research Question

The purpose of this study is to discern both the existence and strength of the relationship between water security and regional integration in the Mekong River Basin.

Three basic assumptions set the logical foundation for all further analysis: *first*, the Mekong River as a water source has an inherent interconnected character. The Mekong River Basin is a region defined by a collective transboundary dependence on the same water resource.

*Secondly*, there is steadily increasing pressure on water resources as a result of rapid development. Rapid development is to be defined in this context as the nature in which the water resources are used. Within the last few decades, economic growth and growing population pressures have contributed to widespread pollution, land degradation, and depletion of natural resources. This shift from a subsistence use of water resources to a push for industrialised harnessing of the Mekong River Basin's potential has presented a developmental challenge in water security.

*Thirdly*, there is a conscious effort towards regional integration in the Mekong River Basin. In this assumption, the term 'regional integration' denotes the physical manifestation of integration in formal organisations. The conscious effort at the basin-wide, national, and civil society levels should be understood as the building of a physical framework for an already existing non-physical Mekong River regime. This ideological regime derives from the experience formulated set of norms, rules and decision-making procedures the regional actors have converged upon in their dealing of water-sharing issues.

From these three assumptions, I thus present the following hypothesis:

> *Water security is the central force for regional integration in the Mekong River Basin.*

There are two important dimensions in the wording of this thesis: a thematic and a geographic component. In the operationalisation of it, integration will be the dependent variable, with water security as the determinant.

The scope of this paper narrows around hydropower development in the Mekong River Basin. Hydropower development has an almost emblematic role in the debate over water resource management and encompasses the other sectors[5] of interest to water resource protection and management. Thus it relates to major issues and challenges in the water sphere. Note that energy independence does not equal energy security, and I am not referring to hydropower in the language of energy security. The aim is to operationalise water policy into the social, political, and economic realms.

Geographically, the analysis will be subdivided into three levels: the basin-wide level, including the efforts of international actors in the Southeast Asian region; the national level, for the countries of China, Thailand, Lao PDR, Cambodia, and Vietnam[6]; and the civil society level.

## The Intention of the Study

This study hopes to present a look into the role of water security in the Greater Mekong. The rise of the Southeast Asian mainland as a global actor has focused the eyes of the world on the growing pains of the Greater Mekong's developmental adolescence and the important repercussions this economical boom could have – and, in fact, has already had – on the unique and rich environment of the region. The political climate in Southeast Asia is primed, on the cusp of a transformation; a study of the driving factors towards a successful community, should yield serious conclusions to the benefit of policy makers.

There is a two-fold intent to this study. *First*, there is a prescriptive aim to outline a path towards a successful political and economic community in the Southeast Asian mainland. Studying the existence and strength of the dependent relationship between water security and integration will build a deeper understanding of how to proceed with community efforts in the Mekong River Basin.

*Second*, there is a normative aim to highlight the potential of water resource management in the Mekong River Basin. The Mekong has the opportunity to be a model for successful sustainable development framed within a functioning regional framework. The geopolitics of water security in the Mekong see themselves played out in other transboundary river basins, with notable mention to the Nile Basin regime in Northeastern Africa. Comparatively, both regimes exhibit a similar distribution

[5] The other sectors specified for "sustainable management and development of water" under the 1995 Mekong River Commission Agreement: irrigation, navigation, flood control, fisheries, timber floating, recreation and tourism.

[6] Burma, due to historical political tensions, marginal involvement in regional initiatives and the new political situation, will not be included in the study.

of power crafted along the asymmetry of preferences based on the upstream/downstream dichotomies. The building of a regional voice out of a common need for a successful water-sharing regime can serve as a template for approaching water security on a global scale.

## Theoretical Framework

The theoretical model for analysing the research question comes from the Arild Underdal framework of evaluating environmental regimes. This research study is fundamentally a case study, investigating a contemporary phenomenon within its real-life context. An 'integrator' is a socially constructed concept, thus making the case study a behavioral study by force. The ideas presented and discussed are subjective by nature due to the qualitative character of the collected data. In the compilation of the data then, 'integrator' must be rigidly conceptualised so as to be adapted to quantitative analysis.

Three fundamental questions must be carefully answered (Underdal 2002: 5): *one*, what precisely constitutes the object to be evaluated? *Two*, against which standard is this object to be evaluated? And *three*, how do we go about comparing the object to this standard?

The object to be evaluated is the dependence of regional integration on water security. This object is contextualised within the Mekong River Regime, and in this regard is evaluated in directly in conjunction with the efforts towards achieving cohesive water resource protection and management. From the literature, there are three objects of assessment: *one*, the output; *two,* the outcome; and *three*, the impact. The output is to be understood as regime formation. In the output, I comprehend the norms and principles upon which the regime is formed (Underdal 2002: 8).

The outcome and the impact are closely related, but strive to reconcile the two approaches towards integration in the Mekong River Basin; that is, top-down integration with bottom-up integration schemes. The outcome focuses on regime implementation. Within the regime framework, the policies pursued by the actors must be desiccated to determine the institutionalisation of the norms and principles of the regime. The non-committal nature of norms and principles – as enumerated in joint agreements and initiatives – must be guarded against. For a meaningful analysis of integration brought about by water issues, the outcome must demonstrate appropriation of responsibilities and the issue itself by the actors. With such aim, the outcome compartmentalizes the adopted and lasting changes in actor behavior.

The impact, in parallel to the outcome, seeks to objectify the environmental response to the policies and projects undertaken by the regime. Underdal underlines this third object as an object of critical importance for the theoretical analysis of environmental development. Whereas the outcome refers to

the changing nature of the actors, the impact seeks to put into a variable the actual success of regime implementation (2002: 11).

In the hypothesis, the 'central driving force' is a social concept. As such, it has to be adapted to quantitative analysis; in other words, the establishment of a scale and clear indicators with which initiatives in the Mekong River Basin by defined actors can be evaluated with the least subjectivity. The research interest is the dependence of regional integration on water security; what must be measured is the regional integration with information from water resource development. In establishing a theoretical framework and methodology for regional integration, there are two templates concerning what to measure: should the measurement be based affirmatively on more cooperation between the actors or on better substantive results, that is, the effectiveness. Integration, respectively, has both width and depth, and thus must measure both the degree of cooperation, and the effectiveness of this cooperation.

The scale for measuring integration must be based on both cooperation and effectiveness. I have to this effect employed a reworked scale as set forth by Underdal, presented in FIGURE 2.1. For the establishment of a baseline, I have looked to the history of water resource management in the Mekong, and the nature of the birth of the Mekong River Regime as a global endeavor.

| 0 | | MAX |
|---|---|---|
| Joint deliberation but no joint action. | → | Coordination through fully integrated planning and implementation with centralised appraisal of effectiveness. |

**Figure 2.1**: Scale for Measure of Integration

*Source: Underdal 2002, 5*

With the scale established, the thematic and geographic concerns of the study are contextualised into six indicators, which will serve to measure integration as driven by water security at the three levels of the study - that is the basin-level, national-level, and civil society level. The actors at each level have been limited and clearly enumerated. The decision to use the actors chosen is based on the extent to which the actors play a role in the reality and future success of regional integration in the Mekong River Basin. This determination was done independently of water security concerns, in order to attempt to keep the nature of the study empirical. I present the following indicators, which I determine as the most cohesive and comprehensive framework for the analysis of water security as an integrator in the Mekong River Basin:

| | BASIN-LEVEL | NATIONAL-LEVEL | CIVIL SOCIETY LEVEL |
|---|---|---|---|
| **ACTORS** | MRC, ASEAN, ADB | China, Burma, Thailand, Lao PDR, Cambodia, Vietnam | identity groups, socio-economic groups |
| **INDICATORS** | - extent of economic, political ties<br>- successful basin-wide projects | - amount of funds and task forces assigned to basin-wide issues (especially water security)<br>- number of visits/meetings with officials from other riparian nations | - self-identification of individuals (ASEAN membership vs. national identity vs. cultural-historical group identity)<br>- involvement (yes or no) |

## ANALYSIS *of the* TERMS

The idea of water as an integrator has the nature of falling dominoes. The potential scope and breadth of the topic is wide. However, as much as I would like to deal with the facets of water security such as food security, livelihood prosperity, urban water management, rights of water and water as a res communis, my study will rely on a clear set of indicators and themes, which will be discussed here. As per the theoretical framework established, the examination will derive from a measure of the indicators defined in an effort to assess the scaled level of integration.

### Water Security through the Hydropower Sector

The study strives to focus on the themes that best represent water as an integrator. Though water security language is less institutionalised than food security for instance – given the longer historic tradition of food security in international dialogue – water security has, in the last decade particularly, been transformed into almost a buzzword; a complex issue, which cuts across food and energy security, standards of living and livelihood, economic development, and political stability. As formally defined by the UNESCO-IHE, water security involves the protection of vulnerable water systems and

the protection against their effects – such as floods and droughts – as well as the sustainable development of water resources.

Hydropower spans the three components of water security: protection, development, and access. As has been discussed, river flow regime suffers alterations from the building of dams. Regional efforts and policies in the sector of hydropower will by necessity address the range of water security.

Thematically, hydropower is tied to science - research -, technology - the application of existing science -, and climate change, prevailing themes in the recent dialogue for progress in Southeast Asia. ASEAN's recent initiatives have pushed towards fostering a habit and culture of technical research and innovation for Southeast Asia. The development and promulgation of Information and Communication Technologies (ICT), and the expansion of a connectivity network are clearly the two major directions of economic development in the region as of now. Climate change is directly linked with the manner in which hydropower development is approached; as a theme, it contextualizes the vulnerability as per protection and development of water resources.

Hydropower is a sensitive political issue, due to the magnitude of the investments required, the size of the projects themselves, and the ecological and resettlement consequences of these projects. Though these might appear to render hydropower an unwieldy indicator of integration, it is precisely because of these factors that hydropower is especially suitable. Whereas irrigation, capacity building, and fisheries differ in meaning at the national-level, the consequences and qualities of hydropower mean all states essentially face the same pressures and challenges, albeit with asymmetrical preferences in terms of policy approach.

## Mekong River Regime

Although 'institutions' and 'regimes' are two terms sometimes used interchangeably, it is important to establish a clear distinction between them in order to approach the process of regional integration in the best manner possible. Robert Keohane defines regimes as "institutions with explicit rules, agreed upon by governments, that pertain to particular sets of issues in international relations" (Keohane 1989: 4). The use of the word institution in the definition of a regime restricts the likely possession of a legal personality, omitting agreements based on informalities. Furthermore, Keohane's definition limits the actors to governments. The distinction between institutions and regimes is thus necessary to a study of an evolving water-sharing regime in the Mekong; to analyze the initial progress, legal character and explicit rules that are not required.

To this end, I employ the definition of regimes put forth by Stephen Krasner. A regime is defined as "sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actor's expectations converge in a given area of international relations" (Krasner 1983: 2). Further specification defines principles as beliefs about facts and causation; norms as standards of behaviour defined in terms of rights and obligations; rules as specific prescriptions for action; and decision-making procedures as the commonly accepted practices for implementing policy choices. Utilising Krasner, there are three crucial differences between an institution and a regime: *one*, the actors do not have to be governments; *two*, the language is such that regimes 'converge', meaning the actors comprehend similar but not identical ideas about regime scope; and *third*, there is no physical manifestation required.

The objective here is to determine the extent of existence of what I formalize to the 'Mekong River Regime': an over-arching regime without one set physical manifestation where the main idea is cooperation on water resource protection and development in the Mekong River Basin. In this case, the Mekong River Regime is a 'regime', not an 'institution'; in fact, a regime which finds itself expressed in several formal institutions. The regime is fundamentally a cohesion of territorial interdependence and common challenges and interests.

## Regional Integration

Integration is the dependent variable in this study and the primary focus of the research. The goal is to determine water resource development and water policy as a regional integration factor. There are several components to developing a working definition of regional integration, such that it may be utilised to draw conclusions: the objective nature of the community to be established; the directional approach of integration; the traditional forms of state-led organisation at the national level; and the changing relations between the region and other regions around the world. In addition, two further key factors must be considered as per the process of integration: *one,* whether the integration is closed or open; and *two,* the depth of the integration, both within the exiting regional and national political framework of the region and also the extent to which social exclusion is reduced towards the development of an inclusive civil society (De Lombaerde and Van Langenhove 2007).

The objective nature of the community to be established suffers from a dichotomy to economic community and political community. In the Mekong River Basin, regional integration documents and agreements have been organised as per these two templates. Economic community is fundamental to the region's future economic growth due to the interconnected nature of the Mekong mainstream.

Political community has generally been treated as a side-effect of an economic community; political stability and security in the Mekong area bring with themselves territorial disputes and ongoing conflict in the area. Objectively, closer integration of the region's economies will foster a market for trade and investment, which will lead to a greater dialogue between its members. Initiatives in connectivity and the implementation of free trade have increased the free movements of people, labour, goods, and capital. Politically, the community which has developed focuses on common mainstream issues, such as pressing water resource development concerns. The maturing of an effective water-sharing regime based on cohesive regional stances on policy issues is the objective.

Two approaches to regional integration must be reconciled: the top-down direction and the bottom-up direction. The top-down direction is characterised by the following question: is water security driving global actors to perpetuate regional integration? The bottom-up approach asks: is water resource management driving regional actors to pursue integration to best resolve associated problems? Both of these questions can be answered affirmatively in the Mekong River Basin. From a historical perspective, water resource development framework began as a UN initiative, demonstrating the interest by global actors for a comprehensive and coordinated water-sharing regime in the Greater Mekong. In the last two decades however, increased connectivity and the ease of communication have put the member nations of the Mekong River Basin on the soap box, and given a larger voice to the sectors of civil society that find themselves most affected by the effects of water resource management. Integration in the Mekong has both a top-down and bottom-up direction.

The operationalisation of integration does not dispense with a discussion as to the intrinsic value of integration itself. In this research, it has been implicitly assumed that integration is an intrinsic good. This assumption is not made lightly. Regional integration is not an end in itself. Regional integration is desirable as part of a global process towards a more open world community. There is a shift in world order such that the traditional understanding of the nation state as a sovereign actor to conceptualize voice and identity is transforming to a new global political structure. Integration is thus a process to support economic growth, a more open political environment, and social equality. Regional agreements serve to promote greater efficiency in development for all; tending away from the zero-sum games known previously, towards a comprehensive system which seeks to mitigate negative externalities.

# EMPIRICAL FINDINGS *and* DISCUSSION

The Greater Mekong region is defined by a collective transboundary dependence on the same water source. In other words, the quantity and quality of the water each riparian draws from the river is directly dependent on the policy choices of the other riparians. This characteristic results in a collective sharing of both benefits and externalities.

In order to demonstrate the historical relationship between water resource management and integration, a brief history of the integration framework therein will be outlined. Hydropower figures prominently in the region's water-sharing initiatives, demonstrating the capacity of hydropower to encompass the intricacies of water security into a narrower definition, meanwhile also remaining sufficiently comprehensive.

Most importantly, I will define the rapid development in the Greater Mekong region. In the definition of rapid development, I will subdivide and discuss the pressures that have lead to environmental transformation and a transformation in the use of natural resources of the basin. The approach will be holistic, under the lens of water security -in particular hydropower development.

## A Brief History of Water Resource Development in the Mekong Basin

Formal regional efforts towards water resource management and development in the Mekong River Basin date back to 1946, and the establishment of the United Nations Economic Commission for Asia and the Far East, ECAFE. Of course, historically, the lower riparians especially have cooperated in the joint development of the Mekong River for a long time. The choice of beginning the account of water resource development within the Mekong with ECAFE comes from the call in 1951 by the organisation for a technical study of Mekong flood patterns to shape the development of the Lower Mekong Basin for the next 40 years. This technical paper, published in 1952, sets the first combined initiative towards a coherent policy for water management (ECAFE 1952). The commitment by ECAFE the UN represents the UN's "first direct involvement in international river basin planning" (Jacobs 2002), and was intended to establish a model for water resource development that could be implemented elsewhere.

The Mekong Committee (MC), formally the Committee for Coordination and Investigations of the Lower Mekong Basin, was established in October 1957. The mandate of the Committee, as set for in

Article 4 of its stature, calls for it to "promote, coordinate, supervise and control planning and investigations of water resources development projects in the lower Mekong Basin". The Committee was given power to make special financial and technical funding requests[7] and recommend water-sharing policy to the riparian governments. Under the MC, two important papers were drafted and presented: the Wheeler Report in 1957, financed by the US Department of the Interior and focusing on engineering aspects of basin development; and the White Report in 1962, which was privately funded and dealt with primarily social and economic issues. The MC was driven by foreign funds and experts; retrospectively not presenting a conscious riparian-lead initiative towards regional development (Molle 2009). Of the ambitious large-scale projects actuated, the political climate was such that only a few of the short-term projects were completed. The Nam Ngum Dam, completed in 1971, is considered the "only truly intergovernmental project achieved" (Makim 2002), tying Laos to Thailand through the sale of electricity.

The Mekong Committee was keen to expand its jurisdiction and mandate vis-a-vis the four riparians and thus increase the overall effectiveness by becoming a pseudo-regional power. In 1975, the MC adopted the *Joint Declaration of Principles for Utilisation of the Waters of the Mekong Basin*, which was intended as a compulsory body that would demand the riparian members to water-sharing policies. Article 10 of the Joint Declaration required unanimous consent for all mainstream development and inter-basin diversion. The declaration, though the official framework of Mekong regional development for the next two decades, de facto failed to successfully establish a comprehensive water-sharing regime, indicating the initiative for regional water resource management efforts would have to come from the riparian members themselves, rather than be imposed on them from the top-down.

From 1978 to 1992, the MC was reshaped into the Interim Committee for Coordination of Investigations of the Lower Mekong Basin by Thailand, Lao PDR and Vietnam, the rise of the Khmer Rouge in Cambodia calling for this shift if regional development in the Mekong was to continue. With the withdrawal of the US from Southeast Asia in 1975[8] and the decrease of all funds from the UNDP to zero by 1976, the riparians had to forgo an aim for comprehensive development along the Mekong mainstream for a set of smaller and national projects. Where the *Indicative Basin Plan* published by the MC in 1970 had been extensive, outlining 180 total possible plans, of which 17 were large-scale long-term projects for the whole Mekong mainstream, the 1987 *Revised Indicative Basin Plan* was decidedly less ambitious, detailing only 29 total plans, all of small national-scale (Mekong Secretariat 1970).

[7] The financial and funding requests were mostly directed towards international partners of the Committee; the US representing the major fraction as the Cold War American government was keenly interested in Southeast Asia as a critical region beside Mao's Communist China. During the Cold War, the riparian governments (and chief amongst these, Thailand), received substantial economic aid from the US.
[8] The Vietnam War ended in 1975.

In 1992, Cambodia applied for readmission to the Interim Committee, causing a temporary crisis that almost resulted in the complete disbanding of the regime when Thailand threatened to walk out. This crisis, coupled with the economic transition towards market-oriented system in Laos and Vietnam, as well as the restoration of regional stability with the signing of the 1993 Paris Peace Accords in Cambodia prompted a renewal of international concern for the area. The return of Western bilateral aid agencies, the UN, the World Bank, the Asian Development Bank, and other international actors propelled the adoption of the 1995 *Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin*. The agreement founds the Mekong River Commission (MRC), a new arrangement – separate, and in fact disbanding the MC – for the reinstitution of cooperative efforts between the four riparians.

The MRC has consciously attempted to foster a basin-wide holistic approach to development, focusing on "bottom-up" (MRC 2001) solutions and the livelihoods of the basin inhabitants. In 2001, the Commission released a *Work Programme* that explicitly rejected the project-oriented focus of the 1970 and 1987 *Indicative Basin Plans*, shifting towards an emphasis on management and preservation of existing resources (Jacobs 2002).

The history of water resource development as a regional study highlights the establishment of the MRC. However, regional cooperation in the Mekong River Basin is not tied to the MRC. Since 1992, many other institutions have contributed to the Mekong's regional development and provided forums for integration. Among these, ASEAN and the ADB are key actors;the four riparians all members. In fact, the ADB's GMS Programme is the principal framework for directing economic development assistance (Molle 2009). The social, economic and environmental transformation of the region has attracted international attention and this in turn has propelled internally initiated commitment to the expansion of comprehensive water resource development.

As a final note, and with regards to the historical development of water resources, it is of interest to call attention to the predominance of the hydropower sector. The nature of the projects undertaken by ECAFE, the MC, and the Interim Committee thus far have been designed to harness the hydropower potential of the Mekong River. The agriculture and fisheries sectors have not historically been areas of focus for comprehensive river development. Here again, the asymmetric relationship of upstream and downstream participants due to the Mekong River's geography play a role in determining the potential areas of collaboration. This historical perspective does not mean that agriculture and fisheries are lesser important sectors than hydropower. However, efficient water use for agriculture and the health of the river fisheries are tied to management of the river flow. The character of hydropower is such that, intuitively, it would be the first sector demanding regional cooperation; the power of upstream damns to deviate and restructure the river flow is an issue of regional concern that cannot be ignored.

**Table 4.1**: Brief History of Water Resource Development in Mekong

| | | HIGHMARK(s) | MEMBERS | MAJOR PARTNERS |
|---|---|---|---|---|
| 1946 | **ECAFE** | ECAFE Report (1957) | Thailand, Laos, North and South Vietnam, Cambodia | US, UNDP |
| 1957 | **Mekong Committee** | Wheeler Report (1957), White Report (1962), Indicative Basin Plan (1970), Joint Declaration (1975) | Thailand, Laos, Vietnam, Cambodia | US, UNDP |
| 1975 | *US Withdraws from Southeast Asia* | | | |
| 1978 | **Interim Committee** | Revised Indicative Basin Plan (1987) | Thailand, Laos, Vietnam | Japan |
| 1992 | *ADB launches Greater Mekong Sub-region (GMS) Programme* | | | |
| 1995 | **Mekong River Commission** | Agreement for the Cooperation (1995), Work Programme (2001) | Thailand, Laos, Vietnam, Cambodia, China (observer state), Burma (observer state) | UN, ADB, Japan |

## Pressures and Challenges in the Mekong River Basin

In the last decade, there has been a transformation in the use of the natural resources of Mekong River Basin which has lead to environmental degradation (WWF 2012). There is marked increase in foreign investment in the region; a figure which has doubled in the last eight years (ADB 2012). Trends

demonstrate a tendency for developers to externalize costs, and for basin-wide authorities[9] to forgo a systematic assessment of mainstream projects for negative socio-political and environmental impacts. There is a general feeling that these impacts can be mitigated and transcended, leading to a lack of technical investigation and coordinated river basin development.

A distinct set of pressures and challenges on the Mekong River Basin's water resources have emerged in the last two decades (Oxfam 2007). The pressure is two-fold, stemming from *one*, rapid economic growth, in the form of commercialisation and industrialisation; and *two*, demographic boom and transition. From these two sources of pressure, the region faces the challenge of addressing sustainable development of food production, livelihood security, and hydropower infrastructure expansion.

According to the Living Planet Index (LPI), the Southeast Asia region has undergone the most rapid economic transition in the world since 1970. This economic growth has been characterised by export-oriented industrialisation, where new markets are characterised by aggressive competition and not easily accessible to the large majority of the riparian population. Commercialisation of agriculture has shifted production from traditional forms to the cultivation of cash crops. This last trend has been coupled with the establishment of private tenure rights over common property resources (Oxfam 2007).

The demographic context of the region has also undergone a transformation. The population in the Asia and Pacific region grew from 1.2 billion to 2.6 billion in the last four decades (ADB 2012). This has been accompanied by large-scale migration to urban centers; the rate of urbanisation is projected to increase in the next five years, with the urban population in the four riparians already near one-third of their total populations (CIA 2012). The Human Development Index (HDI), which compiles the indicators of longevity, knowledge and standard of living, has improved and is projected to continue to do so in all the Lower Mekong Basin countries[10] (World Bank 2012). As living standards increase, the demand for energy and more water-intensive food culture increases as well. A negative externality of increasing living standards is the widening economic gap as a result, producing a heavily stratified society that marginalizes the rural population and minorities.

Industrialisation and urbanisation led to electricity-dependent sectors within society, spawning a growing market with pressing and immediate needs. Private companies and financiers are capitalising on this demand. However, their methods bypass the sustainable development dictations of the MRC, ADB, and other such regional actors, exploiting mines and expanding plantations for oil and biofuel

[9] Specifically, the MRC, the ADB and the national governments of the lower riparians.
[10] The HDI of Thailand is the highest, with Vietnam near the average for the whole of Asia, and Lao PRD and Cambodia below this average.

production. Hydropower is also been taken advantage of[11], resulting in a proliferation of dams which do not consider the livelihood of those affected or the overall affect on the river flow regime. (please note damn is a swear word in English whereas a dam is a water barrier so be careful not to confuse!)

To alleviate these pressures and promote a sustainable development that would comprehensively take into consideration economic, socio-political, and ecological aspirations, the Mekong authorities must coordinate a response to the challenges of food production, livelihood security, and hydropower development. There are three key determinants towards addressing these challenges: the rural inhabitants of the Mekong River Basin, the ecosystem's health, and the river flow regime. Additionally, though not included in the original enumeration, climate change does present a major challenge in the Mekong region. Climate change is primarily an ecological phenomenon, though acerbated and worsened by human activity. Further, as it relates to the region's people, biodiversity and natural resources, the threat of climate change falls under the previously discussed pressures and within the framework of the present challenges.

The impact of development on natural resource-dependent communities is exemplified by the overall decrease in health as a result of the decline in overall dietary nutrition. The shift towards aquaculture and new forms of agriculture has radically changed the context of ownership of rivers and forests. This shift has had a large impact on the rural inhabitants of the Mekong River Basin, who depend on common property resources for their survival, both in terms of household consumption and income security. The lack of suitable land and insufficient knowledge of new techniques destabilize the traditional relationship between the people and the natural resources. To exemplify the impact of rapid economic development in the region, the decline of the Mekong fisheries is widely studied. Increases in population, expansion of markets, use of modern fishing equipment, irrigation projects, and the building of damns have decreased both numbers and aquatic diversity. Both food security and livelihood improvement of the rural inhabitants of the Mekong have traditionally been tied to the sustainable harvesting of natural resources. This is not to say that 'traditional culture' should be enshrined: cultures are not static. However, economic development in the region should be mitigated for the impact on all sectors of the basin population, allowing for the appropriation of scientific discoveries in the fields of agriculture, water-use, health, as well as technological advances, by the rural populations and minorities.

The growing energy and electrical needs of the Mekong River Basin have caused enthusiasm in the development of hydropower along the mainstream. The energy potential of the Mekong River is substantial, and as of 2010 only 10 percent of the hydropower in the Lower Mekong region has been

[11] Let it be noted, however, that hydropower when developed sustainably represents a huge economic potential in the Mekong area. Sustainable development of hydropower and the damns constructed therein demands careful consideration to the manner in which projects are developed: an analysis of the livelihoods of those affected, and technical studies of the affect on the river flow regime.

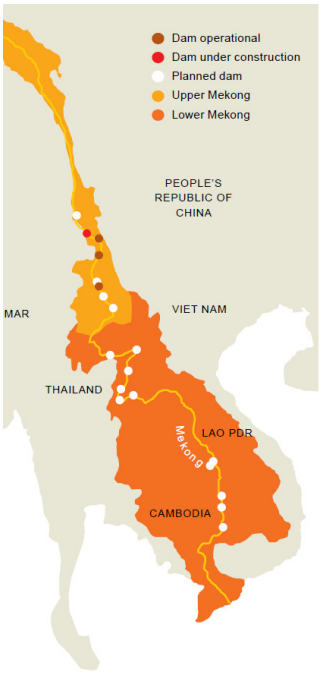
harnessed. The economic benefits of sustainable development of hydropower for poverty alleviation and improving livelihoods are increasingly recognised at both the basin-wide and national-level, but there are clear consequences that stem from the manner in which this development is conducted. The expanding hydropower system is currently export-oriented, and thus does not 'power regional progress[12]' as the MRC aspires to. In a study conducted by the WWF, the correlation between investor-owned damns and the positive effects of hydropower development for the people of the Mekong show a clear opposed relationship.

The increasing development of water infrastructure may result in the alteration of river flow regimes. Three major negative externalities arise from unregulated projects conducted without proper risk assessment: disruption of fisheries; increased vulnerability to climate change; and conflict of interests along the upstream and downstream dichotomy.

There is no current technological advancement that can successfully reconcile fish migrations as vast and diverse as those along the Mekong River with large-scale damn infrastructure. This is especially important since 70 percent of the fish harvested from the river are large-distance migratory species. The disruption of their migration routes by dams separates the fish from their spawning grounds and depletes the fisheries. Vulnerability to the impacts of climate change also increases with the alteration of river flow regimes. The Mekong River's natural seasonal flooding patterns transport nutrients and sediments are interrupted by damns, causing saline intrusion, water level changes, and both coastal and river bank erosion.

The power distribution as per the geopolitical implications of the upstream and downstream position of the countries within the Mekong River Basin is especially destabilised by the increased development of water infrastructure. The initiation of hydropower projects on the mainstream creates potential conflicts between upstream and downstream riparians are they are forced to compete for water resources. Recently, China has embarked on a project to build a cascade of dams on the Lancang and Nu-Salween River, in the Upper Mekong, a plan which raises concern about the downstream impacts. The implications of these asymmetries in water use create tensions and instabilities which shape the future of regional security.

[12] Where progress indicates the eradication of poverty, the kick-starting of development by providing economic opportunities for the Mekong inhabitants and rural electrification.




**re 4.1:** Damns in the Mekong River Basin

*:e: ADB & WWF 2012*

## The Regional and Global Significance of Water Security

According to the United Nation's enumeration of global challenges for the 21st century, water ranks number one. Furthermore, the top five challenges are all related to the water problem, as externalities of water security strategy: food security from both effective water usage in agriculture and successful management of fisheries; energy security from the development of sustainable sources, such as hydropower.

The front line is all water. Climate change, rapid economic development, population, and prosperity are all intrinsically tied to the discussion of water. In the end, these themes fall under the umbrella of water security. The impacts to agriculture, labour and migration are of particular concern to the developing areas in the world, where the three Ps are exacerbating the problem: population, prosperity – where improving livings standards are raising demand for more water-intense diets – and pollution – with rapid rates of urbanisation (Carleson 2010).

The increasing debate and discussion around international water issues has highlighted the scale of the water governance problem. Water will profoundly change the conduct of international relations in the world. There are more than 250 shared water basins in the world, whereby water sources are shared

across borders. The interdependence of these basins demands big scale integration. The necessity to effectively and successfully approach transboundary water issues begets a need for strong institutional resources; for forums where water issues can be broached and resolved. Historically, people with cultural differences and even open territorial opposition have put aside their differences when talking about water; when people talk about water issues, they do so rationally (Mount and Bielak 2011). As such, water security fosters an environment with the opportunity to resolve conflicts before they arise. This existing foundation of good institutions for problem solving kindles future cooperation in other sectors.

The water-sharing regimes in between Jordan and Israel and between India and Pakistan provide key examples as to the aforementioned significance of water as an integrator. The second case in particular demonstrates the potential strength of water-sharing regimes. The Indus Water Treaty – a water-sharing treaty brokered by the World Bank – has been in effect since 1960; the agreement has withstood three major armed conflicts between its two members, India and Pakistan, in that time. Half-a-century after its signing, the treaty demands revival and revitalisation, but there is a great deal to be saidconcerning the existence and perseverance of the water-sharing regime between the two geopolitical rivals. Water issues are a security issues: both politically and economically.

Policy makers are calling the upcoming century, the 'Asian Century'. Though an Asian century is possible, it is not preordained.[13] Security in the Southeast of Asia is not plausible without thinking about resources, especially water. And the solution to effective governance must, by necessity of the definition of water resources, be Asia-wide. There is a need for standardisation, connectivity, and confidence building that can only be approached from a regional perspective. This regional perspective cannot be met through multilateral cooperation; water security demands a greater depth in the integration process, the formation of a regime that would be not only a regional voice, but a geopolitical actor as well.

Water security is a global challenge, but the solution by necessity must be regional. The issue must be localised. The affects of water resource development and governance are felt more acutely at the level of civil society and it is therefore at this level that the solution must be contextualised.

[13] As pointed out by Rajat Nag, Managing Director General of the Asian Development Bank, at the 'ASEAN at 45' Summit held in Brussels, Belgium on 19 June 2012.

## cONCLUSION

Water security is a driver which has been downplayed in the assessments of regional integration. The conception of integration in the Greater Mekong region focuses predominantly on political and economic security as the main drivers. For the most part, political and economic security have been separately analyzed and approached. Water is an over-arching integrator, connecting and encompassing these considerations. To frame water as a central driver enables a discussion of regional integration that is both fundamental and comprehensive.

The rapid rate of development and growing interest for the community has sidetracked an assessment of the underlying drivers and aims for this community. In order to achieve the desired pan-Southeast Asian community – with the depth and scope that would characterize a global geopolitical actor – the framework of such regional integration is entirely dependent on basing integration on the factors that necessitate cooperation.

The Mekong River Basin is located at key trade routes linking South Asia to East Asia. This location not only holds the opportunity for the Greater Mekong subregion to contribute to greater growth and create jobs in the entire Asia-Pacific region, but also the opportunity to foster political stability and cross-issue cooperation. The Mekong River Basin as an interconnected region with one identity and one community as such has the opportunity to become a transportable model with beneficial spillover effects for South Asia, East Asia, and the Asian-Pacific.

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