

STUDENT CONTRIBUTION

Sustainable Development of Water Resources in the Mekong River Basin: Legal and Policy Implications of Dams in the Regional Context

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The article addresses the subject of dams and dam construction in the Mekong River Basin. The focus lies on whether, under the existing legal framework and in light of the Mekong dam projects, it is possible to achieve sustainable development of water resources on a regional level. As a number of these dam projects are accompanied with concern and debate regarding the environment and socio-economic impacts, the article discusses the effects noted so far and future expectations of dam usage on the Mekong mainstream and tributaries. The article will further look into the procedural elements needed for achieving sustainable development in the Mekong River Basin. The basis for this analysis is found in the relevant international and regional framework, such as the UN Watercourses Convention and the Mekong Agreement, and in regional cooperation that focuses on sustainability issues in the basin.

Keywords

Sustainable Development, Mekong River Basin, Transboundary River, Shared Resources, Hydropower Development, Mekong River Commission

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I. Introduction

The Lower Mekong River Basin (“LMRB”) is home to more than 60 million people,¹ covering parts of Cambodia, Thailand, Vietnam and Lao People’s Democratic Republic (hereinafter Lao PDR). For the majority of the basin residents, the river and its tributaries provide for fish and water supplies that are vital for securing food, income and access to fresh water. Due to significant varieties in topography and climatic features, the Mekong River Basin has evolved into a rich cradle of natural resources; the basin is only surpassed by the Amazon River Basin in terms of great diversity of flora and fauna.² The Mekong fresh water resource is essential for developing agricultural and manufacturing industries in the LMRB. Simultaneously, the natural raw energy of the Mekong mainstream and a number of its tributaries is an attractive resource that could be of great benefit to the social and economic development of the Mekong River region. Considering the multiple functions of the river, a well-established and manageable framework for water resources in the whole region is necessary for a sustainable development of the basin. Such a framework was developed in the context of the 1995 Mekong Agreement and is essential for managing the proposed dam cascades on the Lower and Upper Mekong mainstream.

The main purpose of this paper is to examine whether sustainable development of water resources is achievable in the Mekong River Basin under the existing regional and international legal framework when faced with the proposals of a far-reaching hydropower development on the Mekong mainstream. This article is composed of seven parts, including Introduction and Conclusion. Part II will briefly examine the proposal for the Mekong River development project. Part III will look closer at the regional and international legal framework concerning the usage of a transboundary river and its shared resources. Part IV will analyze the means of regional cooperation for shared water resources in the Mekong River Basin. Part V will discuss sustainability issues regarding the Mekong dams.

¹ Le-Huu Ti & Nguyen-Duc Lien, *Mekong Case Study*, UNESCO-IHP, 2 (2003), available at <http://unesdoc.unesco.org/images/0013/001332/133290e.pdf> (last visited on Apr. 1, 2012).

² Mekong River Commission (“MRC”), *Strategic Environmental Assessment of Hydropower on the Mekong Mainstream 86* (ICEM, 2010) [MRC Sea Report], available at <http://www.mrcmekong.org/assets/Publications/Consultations/SEA-Hydropower/SEA-Main-Final-Report.pdf> (last visited on Apr. 1, 2012).

II. The Mekong Mainstream Development Project: A Grand Design

The Mekong River is today faced with a number of large-scale projects and plans to harvest energy from its mainstream and tributaries. Although the Lower Mekong mainstream is relatively less developed than the Upper Mekong mainstream³ located in the Yunnan province of China, proposals indicate that the untouched energy reserves would be exploited through twelve hydropower schemes.⁴ These dams, including a river diversion project, would mainly be located in Lao PDR: at Pak Beng, Luang Prabang, Xayaburi, Pak Lay, Sanakham in the north, at Pak Chom and Ban Koum on the border with Thailand, at Lat Sua, Thakho⁵ and Don Sahong in the south. The Xayaburi hydropower dam is first in line for construction and currently under consideration by the nations of the Mekong River Commission (“MRC”) through the Procedures for Notification, Prior Consultation and Agreement (“PNPCA”). Dams have also been proposed for locations further downstream, at Stung Treng and Sambor in Cambodia. Most of these dams have MOU’s or Project Development Agreements already signed for their construction. Meanwhile, China has already dams operating or under construction in the Upper Mekong mainstream, where the plan is to increase the hydropower output through an eight-dam cascade.⁶

The Mekong hydropower plans have stirred up concern among a number of NGOs,⁷ as the mainstream projects could result in considerable impacts on the river’s flow and biological diversity. A ten-year building deferment of the mainstream projects has also been recommended for further information gathering, planning and assessment of impacts.⁸ With the pursuit of sustainable development on a regional and global level in mind, the question naturally arises whether the existing and proposed dams will do more damage than good in a long-term perspective. As there are 26 hydropower projects currently under construction on tributaries, and an additional 30 dams planned for construction within the following two decades,⁹ this question is in need of a well-

³ Known as the Lancang River in China.

⁴ See MRC Sea Report, *supra* note 2, at 30-31

⁵ A river diversion scheme (not a dam) will therefore neither have a reservoir, nor result in flooding of land. For details, see MRC Sea Report.

⁶ Of the planned eight dams, four are completed (Manwan, Dazhaoshan, Jinghong and Xiaowan), two are under construction (Gongguoqiao and Nuozhadu), and two are planned (Ganlanba and Mensong). See Map 1 (Planned Dams along the Lancang (Mekong) River, Dec. 2011).

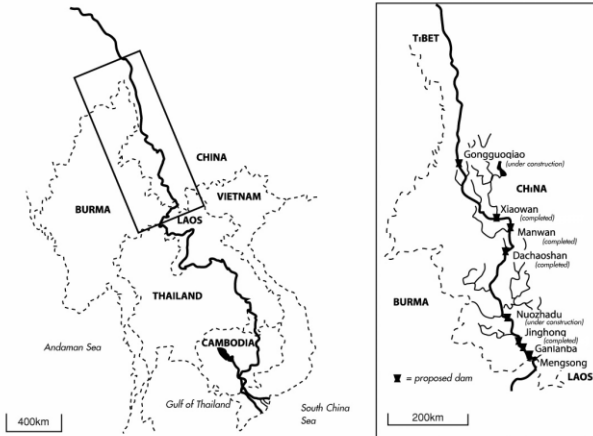
⁷ *E.g.*, International Rivers and Save the Mekong.

⁸ MRC Sea Report, *supra* note 2, at 137.

⁹ MRC, Integrated Water Resources Management-based Basin Development Strategy (“BDS”) 2011-2015, at 14,

informed and satisfying answer.

Map 1: Planned Dams along the Lancang (Mekong) River



Source: International Rivers, available at http://www.internationalrivers.org/en/china/lancang-mekong-river/map-showing-dams-planned-along-lancang-mekong-river?size=_original (last visited on Apr. 1, 2012).

Map 2: Location of Proposed Mekong Mainstream Dams



Source: Cronin and Hamlin, Mekong Turning Point: Shared River for a Shared Future, available at http://www.stimson.org/images/uploads/research-pdfs/SRSF_Web_2.pdf (last visited on Apr. 1, 2012).

Table II-1: Characteristics of the Proposed Mainstream Dams

	Location	Height	Reservoir area (km ²)	Length of dam (m)	Plant Design Discharge (m ³ /s)	Installed capacity (MW)	Live storage (mcm)*
Pak Beng	Lao PDR	76	87	943	7250	855	442
Luang Prabang	Lao PDR	68	90	1106	3812	1410	734
Xayaburi	Lao PDR	32	49	810	6018	1285	225
Pak Lay	Lao PDR	35	108	630	4500	1320	384
Sanakham	Lao PDR	38	81	1144	5918	660	106
Pakchom	Lao PDR	55	74	1200	5720	1079	12
Ban Koum	Cambodia Thailand	53	133	780	11700	1872	0
Lat Sua	Lao PDR	27	13	1300	10000	686	0
Don Sahong	Lao PDR	10.6-8.2- 8.3	290 (ha)	1820-720- 2730	2400	240	115
Thakho diversion	Lao PDR	n/a	n/a	Channel 1800m	380	50	n/a
Stung Treng	Cambodia	22	211	10884	18493	980	70
Sambor	Cambodia	56	620	18002	17668	2600	465

*The mainstream projects have limited storage capacity. As a comparison, the Chinese Xiaowan and Nuozhadu dams have 9,800 and 12,400 mcm respectively of active storage.

Source: Compiled by the author¹⁰

available at <http://www.mrcmekong.org/assets/Publications/strategies-workprog/BDP-Strategic-Plan-2011.pdf> (last visited on Apr. 1, 2012).

¹⁰ MRC Sea Report, *supra* note 2; BDS 2011-2015, *supra* note 9. See also Electric Power Plants in Laos, available at <http://www.docstoc.com/docs/39375076/Electric-Power-Plants-in-Laos> (last visited on Apr. 1, 2012).

III. Legal Framework

States have the sovereign right to exploit their own resources;¹¹ “state sovereignty – as it is understood today – entails the authority of states to use resources under their sole ownership at their discretion, even inefficiently.”¹² Water resources in international watercourses, however, need special consideration due to their transboundary character.¹³ What happens in one State may also have great impacts on another. A sustainable approach to the management of shared water resources is naturally desired when there is risk of border-crossing harm or unwanted impacts.

A. UN Watercourses Convention

In 1997, the UN General Assembly adopted the Convention on the Law of the Non-Navigational Uses of International Watercourses (hereinafter UN Watercourses Convention). Although some 106 countries voted in favor of the Convention, it is not yet in force; only 24 contracting States have ratified it so far.¹⁴ Cambodia, Lao PDR, Thailand and Vietnam were in favor of its approval, but none of them has signed it. China and Myanmar have so far refrained from joining the Convention. In particular China has long been protective of its sovereign rights to water resources in line with the Harmon Doctrine of absolute territorial sovereignty.¹⁵

The UN Watercourses Convention encompasses a number of principles reflecting customary international law. It can be considered “the most comprehensive and important codification of international watercourse law.”¹⁶ The three main principles

¹¹ See Stockholm Declaration princ. 21; Rio Declaration princ. 2. Both Principles are, however, limited to transboundary effects that cause damage to other States or areas outside of national jurisdiction.

¹² EYAL BENVENISTI, SHARING TRANSBOUNDARY RESOURCES: INTERNATIONAL LAW AND OPTIMAL RESOURCE USE 204 (2002).

¹³ Considerations should be given to other riparian States’ rights when a project may subsequently affect these States, as concluded from the case of the Lac Lanoux Arbitration (Fr. v. Spain) regarding plans for a French hydro-electrical power plant that would change the flow in the River Carol and affect Spanish farmers. See the Lac Lanoux Arbitration (Fr. v. Spain), 24 I.L.R. 101. (Arb. Trib. 1957).

¹⁴ As of January 6, 2012.

¹⁵ According to the Harmon Doctrine, States are allowed “absolute sovereignty over water within their territory”, without any need to pay regard to impacts of their usage on other States. It thus allows for an unrestricted use of water resources in the part of a transboundary river that is located within the own territory. Although it may be an attractive approach to water allocation among many upstream States, the Harmon Doctrine does not represent a part of modern customary international law. See P. BIRNIE, A. BOYLE & C. REDGWELL, INTERNATIONAL LAW AND THE ENVIRONMENT 540ff (3rd ed. 2009)

¹⁶ Bennett Bearden, *The Legal Regime of the Mekong River: A look back and some proposals for the way ahead*, 12 WATER POL’Y 10 (2010).

are: (1) equitable and reasonable utilization of water resources in the own territory;¹⁷ (2) the prevention of significant harm to other watercourse States;¹⁸ and (3) prior notification of planned measures to other watercourse States that may be adversely affected.¹⁹ 'Equitable utilization' is the most widely accepted principle for water allocation in the international community as it identifies a basis of shared sovereignty between the riparian States.²⁰ In this regard, Article 5 provides that the usage of international watercourses shall be carried out with a view of attaining an optimal and sustainable utilization that is "consistent with adequate protection of the watercourse." A guide has also been laid down in Article 6 in form of a non-exhaustive list of relevant aspects, which includes geographic, climatic and ecological factors; social and economic needs; people depending on the watercourse; effects on other States and the availability of alternatives to a particular usage.²¹

The obligation to prevent significant harm is stipulated in Article 7(1), which states that all appropriate measures shall be taken to not cause significant harm to other watercourse states when using an international watercourse within the own territory. This is not a reference to "an absolute prohibition of all harm"; it is a requirement to exercise due diligence in regard to watercourse uses.²² Moreover, tolerable levels of damage could be avoided with a number of procedural obligations set out in the Convention, such as cooperation,²³ prior notification, consultation and data exchange.²⁴ Disputes should be settled through negotiations and fact-finding, as laid down in Article 33.

Article 10(1) of the UN Watercourses Convention provides that: "In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses." Special regard has to be given to vital human needs; assuring sufficient water for drinking, sanitation, and nutrition should be a priority. A usage hindering the fulfillment of these needs cannot be viewed as sustainable or equitable.²⁵ Also, when an agreement or custom state otherwise, such as giving priority to specific uses, those provisions take precedence over the Convention.²⁶ Article 3(1)

¹⁷ UN Watercourses Convention art 5.

¹⁸ *Id.* art. 7.

¹⁹ *Id.* art. 12.

²⁰ Birnie *et al. supra* note 15, at 541.

²¹ UN Watercourses Convention art. 6 (a), (b), (c), (d) and (g), available at http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf (last visited on Apr. 1, 2012).

²² Birnie *et al. supra* note 15, at 551.

²³ UN Watercourses Convention art. 8.

²⁴ *Id.* art. 11 & 12.

²⁵ Birnie *et al., supra* note 15, at 564.

²⁶ UN Watercourses Convention art. 7.

states that the Convention will not affect agreements that are already in force. The second paragraph of Article 3, however, adds that parties to existing agreements “may, where necessary, consider harmonizing such agreements with the basic principles” found in the Convention.²⁷

B. The Mekong Agreement

The key regional agreement regarding sustainable development in this area is the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (Mekong Agreement) of 1995. Although the Mekong Agreement was concluded two years prior to the UN Watercourses Convention, they contain similar provisions. This is because the ILC draft articles on the non-navigational uses of international watercourses were used as reference for both.²⁸ The Mekong Agreement was concluded between the LMRB countries, namely Cambodia, Thailand, Vietnam, and Lao PDR. It is working as a general framework governing sustainable management and development of the Mekong River Basin. Article 1 of the Mekong Agreement lays down the area of cooperation as follows:

To cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin including, but not limited to, irrigation, hydro-power, navigation, flood control, fisheries ... in a manner to optimize the multiple-use and mutual benefits of all riparians and to minimize the harmful effects that might result from natural occurrences and man-made activities.²⁹

The parties have further agreed to protect the “environment, natural resources, aquatic life and conditions, and ecological balance” of the Basin from any potential harmful effects that may result from development plans or water uses,³⁰ by cooperating on the basis of sovereign equality and territorial integrity.³¹ Concerning the harm arising from

²⁷ *Id.* art. 3 (1) & (2). An ICJ case regarding the Gabčíkovo-Nagymaros Project, Hungary v. Slovakia (1997) is noticeable. The case concerned a hydroelectric dam project on the Danube River, diverting 80-90 percent of the flow away from Hungary, which subsequently led Hungary to pull out of the project. The Court took notice of the “need to reconcile economic development with protection of the environment” as “aptly expressed in the concept of sustainable development.” It thus concluded that for the purposes of the case, the parties should ‘look afresh’ at how the environment was being affected by the activities in the river. See Case concerning the Gabčíkovo-Nagymaros Project, (Hung. v. Slov.), 1997 I.C.J. (Sept. 25).

²⁸ Bearden, *supra* note 16, at 8

²⁹ Mekong Agreement art.1.

³⁰ *Id.* art. 3.

³¹ *Id.* art. 4.

the development and use of water resources in the Basin, the State parties have agreed to make every effort in preventing harmful effects that may occur to the environment, and to immediately cease any use that may cause substantial damage.³² If such substantial damage has already occurred, States will be responsible for it under international law.³³

Like the UN Watercourses Convention, the use of water should be carried out in a reasonable and equitable manner pursuant to all relevant factors and circumstances.³⁴ The Mekong Agreement has, however, been criticized as an “agreement to agree,”³⁵ without any real provision on water allocation. “Reasonable and equitable utilization” is considered too indistinct to achieve any actual results.³⁶ Another noticeable issue is the lack of a clear definition of ‘substantial damage’ in the Agreement. Article 7 suggests that State parties are permitted to cause some level of ‘insignificant harm’ as long as it does not turn into any substantial damage.³⁷ Due to the unclear meaning of sustainable damage, it is also difficult to know when this transition actually takes place.

Moreover, the Mekong Agreement requires notification and prior consultation for projects on the mainstream, where more specific provisions and instructions are set out in the PNPCA from 2003 and its guidelines from 2005.³⁸ The notification should be submitted to the Joint Committee of the Mekong River Commission (“MRC”), including a feasibility report, implementation plan, schedule and all other available data.³⁹ The timeframe for prior consultation is six months, with the possibility of extension when necessary.⁴⁰

The timeframe for the Xayaburi hydropower project, the first project to be considered under the PNPCA, ended in April 2011. However, the members of the Joint Committee did not come to an agreement regarding the dam project. Instead, they have agreed to take the consultations to a ministerial level. In December 2011, the Council members decided that it would be necessary to conduct further studies on impacts from the proposed mainstream schemes.⁴¹ Additional information is still needed over more

³² *Id.* art. 7.

³³ *Id.* art. 8.

³⁴ *Id.* art. 5.

³⁵ Bearden, *supra* note 16, at 10

³⁶ ASIT BISWAS, MANAGEMENT OF TRANSBOUNDARY WATERS: AN OVERVIEW, IN MANAGEMENT OF TRANSBOUNDARY RIVERS AND LAKES 12 (2008)

³⁷ Bantita Pichyakorn, *International Watercourses Law: The Experience of the Mekong River Basin*, in INTERNATIONAL WATERCOURSES LAW FOR THE 21ST CENTURY: THE CASE OF THE RIVER GANGES BASIN 178 (S. Suvedi ed. 2005).

³⁸ See Guidelines for the Implementation of the Procedures for Notification, Prior Consultation and Agreement of 2005

³⁹ PNPCA sec. 4.1 & 4.2.1.

⁴⁰ *Id.* sec. 5.5.

⁴¹ MRC, Further study on impact of Mekong mainstream development to be conducted, say Lower Mekong Countries (Dec. 8, 2011) available at <http://www.mrcmekong.org/news-and-events/news/further-study-on-impact-of-mekong>

than one year after the prior consultation process began. It is perhaps a testament to a regional framework that is still too immature to address the proposed development projects in a satisfying way. This highlights the importance of putting more effort into the implementation of the Agreement and its procedures.

C. Sustainable Development of Water Resources

Agenda 21 states that freshwater resources are to be protected to satisfy the “needs of all countries for their sustainable development.”⁴² It further links the protection of water quality, water quantity and aquatic ecosystems with protective measures for other objectives, such as the supply of drinking water and food production. Scientific understanding of natural systems and technological development are also necessary for a full protection of the environment.⁴³ Their progression is thus important from a perspective of sustainable development.

Although the concept of sustainable development is the core essence of the Mekong Agreement, it has not been specified within the framework of the Agreement. Instead, sustainable development of water resources has been defined as “a balance reached between the maintenance of the adequate quantity and the preservation of good quality of water.”⁴⁴ Five elements of sustainable water development have been identified regarding the Mekong regime: (1) the right to use water; (2) the protection of water and prevention of water degradation; (3) the maintenance and conservation of water flow; (4) an ecosystem related approach; and (5) the procedural elements to achieve sustainable water development⁴⁵ including Environmental Impact Assessment (“EIA”), stakeholder participation, and access to information. These elements are a good basis for analyzing sustainability and development in regard to transboundary water resources.

mainstream-development-to-be-conducted-say-lower-mekong-countries; Lower Mekong countries take prior consultation on Xayaburi project to ministerial level (Apr. 19, 2011), available at <http://www.mrcmekong.org/news-and-events/news/lower-mekong-countries-take-prior-consultation-on-xayaburi-project-to-ministerial-level> (all last visited on Apr. 1, 2012).

⁴² Agenda 21 ch. 18:7.

⁴³ *Id.* ch. 18.

⁴⁴ Bantita Pichyakorn, *International Watercourses Law: The Experience of the Mekong River Basin*, in Subedi, *supra* note 37, at 175.

⁴⁵ Bantita Pichyakorn, Sustainable Development and International Watercourses Agreements: The Mekong and the Rhine, 11 (Draft 30 June 2002), available at <http://weavingaweb.org/pdfdocuments/CDGFfinalPaperSunnyPichyakorn.pdf> (last visited on Apr. 1, 2012).

IV. Cooperation for Shared Resources in the Mekong River Region

Millions of people living alongside the Mekong River are dependent on its natural flow and ecosystems for food, income, and water for sanitation and irrigation purposes. Regional cooperation for managing and developing the Mekong River is mainly carried out by the MRC, whose main purpose is to oversee any joint or national initiative for developing the river. Other organizations have also put their focus on sustainable development regarding shared resources in the Basin.

A. The Mekong River Commission

The Mekong River Commission (“MRC”) was created in 1995, when Thailand, Cambodia, Lao PDR and Vietnam signed the Mekong Agreement.⁴⁶ It is “a supranational organization designed to oversee the sustainable development of the Mekong River,”⁴⁷ with the authority of entering into agreements and obligations with donors or the international community.⁴⁸ As neither China nor Myanmar has joined the Agreement and the MRC, the competence of the Commission is restricted to the LMRB. Both China and Myanmar are, however, dialogue partners;⁴⁹ they could become parties to the Mekong Agreement in accordance with its Article 39.⁵⁰

The MRC consists of three standing bodies: the Council, the Joint Committee, and the Secretariat.⁵¹ The Council is in charge of policymaking for the sustainable implementation of the Agreement. The Joint Committee is to implement the Council’s guidelines in order to formulate a basin development plan and to collect data. It is also responsible for supervising the Secretariat and resolving disputes between member States. The Council handles disputes, as well. The Secretariat is to provide technical and administrative support. It also sets up the annual work program and prepares for other required activities and documents.⁵²

⁴⁶ Earlier attempts for regional cooperation can be seen in the Mekong Committee and its successor, the Interim Mekong Committee.

⁴⁷ Joshua Freeman, *Taming the Mekong: The Possibilities and Pitfalls of a Mekong Basin Joint Energy Development Agreement*, 10 ASIAN-PAC. L. & POL’Y J. 454 (2008-2009).

⁴⁸ Mekong Agreement art. 11.

⁴⁹ MRC, Upstream Partners, available at <http://www.mrcmekong.org/about-the-mrc/upstream-partners-2> (last visited on Apr. 1, 2012).

⁵⁰ It reads: “Any other riparian State, accepting the rights and obligations under this Agreement, may become a party with the consent of the parties.”

⁵¹ Mekong Agreement art. 12.

⁵² *Id.* arts. 18 (Council), 24 (Joint Committee) & 30 (Secretariat).

B. The Association of Southeast Asian Nations

The Association of Southeast Asian nations (“ASEAN”)⁵³ has created a basic framework for the ASEAN-Mekong Basin Development Cooperation. The objectives of the cooperation include the enhancement of “economically sound and sustainable development of the Mekong Basin.”⁵⁴ The ASEAN is governed by a set of principles for the cooperation, where it “utilizes resources fully and ensures stable and sustainable development leading to improved management of natural resources and protection of the environment,”⁵⁵ as well as “complements cooperation initiatives currently undertaken by the Mekong River Commission, donor countries and other multilateral agencies.”⁵⁶ The ASEAN holds observer status in the MRC; it can participate in formal meetings held by the Commission⁵⁷ in order to coordinate and develop work strategies within the ASEAN.

C. The Greater Mekong Subregion

The Greater Mekong Subregion (“GMS”) consists of Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam. It governs the whole Mekong River Basin. A “program of subregional economic cooperation” between the States along the Mekong River was created by the Asian Development Bank (“ADB”) in 1992, as a tool for boosting their economic interactions.⁵⁸ The ten-year’s strategic framework (2002-2012) for the GMS program focuses on the protection of the environment and promotion of sustainable use of shared resources. This framework includes that “[e]nvironmental considerations must be at the forefront of all decision-making regarding development projects,” as cooperation is critical for finding solutions to transboundary issues arising from “unintended negative outcomes” in the development process.⁵⁹ As a result, the strategic framework contains the initiatives for sub-regional monitoring of the cumulative environmental impact of development, sound practices for sustainable use

⁵³ Consisting of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. See Association of Southeast Asian Nations, available at <http://www.aseansec.org/18619.htm> (last visited on Apr. 1, 2012).

⁵⁴ Basic Framework of ASEAN-Mekong Basin Development Cooperation Kuala Lumpur of 1996 art. 1 (i).

⁵⁵ *Id.* art. 2 (iii).

⁵⁶ *Id.* art. 2 (iv).

⁵⁷ MRC, Development Partners & Partner Organizations, available at <http://www.mrcmekong.org/about-the-mrc/development-partners-and-partner-organisations/> (last visited on Apr. 1, 2012).

⁵⁸ Asian Development Bank (“ADB”), Greater Mekong Subregion Overview, available at <http://beta.adb.org/countries/gms/overview> (last visited on Apr. 1, 2012).

⁵⁹ ADB, BUILDING ON SUCCESS: A STRATEGIC FRAMEWORK FOR THE NEXT TEN YEARS OF THE GREATER MEKONG SUBREGION ECONOMIC COOPERATION PROGRAM, 28ff (2002). (A new framework for 2012-2022 was endorsed in December, 2011).

of shared resources and participation in international environmental initiatives.⁶⁰ The issues of the upcoming strategic framework will be related to energy, the development and use of indigenous and renewable resources such as hydropower,⁶¹ as well as the environment. Environmental considerations will include the conservation of biodiversity and capacity building for an increased environmental awareness and management performance.⁶²

V. Sustainability of the Mekong Dams

One of the most significant development projects found on rivers is the construction of dams. More than 45,000 dams were counted in over 140 countries by the year 2000;⁶³ the question of their relation to sustainable development should be answered. Since ancient times, riparian societies have experienced various natural and man-made changes to rivers. These changes have resulted in diverse effects on people's way of life.⁶⁴ Naturally, this applies to the Mekong River Basin, as well. The main risks against a flourishing Mekong River arise from "eco-damaging development practices" that threaten the harmonization of economic and environmental objectives.⁶⁵ If the issue of hydropower through the proposed dam cascades is managed properly, the enormous supply of raw energy from the Mekong mainstream could give the Basin a much desired economic and developmental boost.

A. An Overview: Features of the Mekong River Basin

Measuring 4,800 kilometers in length, the Mekong River sets off from an altitude of over 5,000 meters on the Tibetan Plateau, running through a number of zones in the Basin until it reaches the South China Sea. The Mekong River Basin covers a drainage area of 795,000 square kilometers in total. The river's average discharge amounts to 15,000 cubic

⁶⁰ *Id.*

⁶¹ ADB, THE GREATER MEKONG SUBREGION ECONOMIC COOPERATION PROGRAM STRATEGIC FRAMEWORK 2012-2022: BACKGROUND PAPER 14ff (Aug. 2010), available at <http://www.adb.org/sites/default/files/gms-ec-framework-2012-2022.pdf> (last visited on Apr. 1, 2012).

⁶² *Id.* at 16.

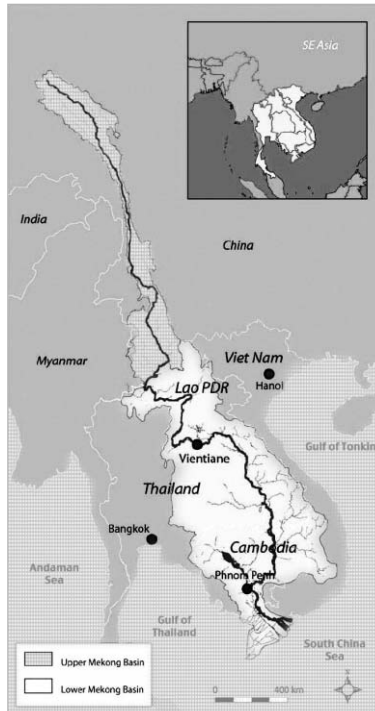
⁶³ WORLD COMMISSION ON DAMS, DAMS AND DEVELOPMENT: A NEW FRAMEWORK FOR DECISION-MAKING 8 (2000). [WCD Report 2000]

⁶⁴ *Id.*

⁶⁵ Adam Rix, *The Mekong River Basin: A Resource at the Cross-Roads of Sustainable Development*, 21 TEMP. ENVTL. L. & TECH. J. 103 (2002-2003)

meters per second, leading to around 475,000 million cubic meters of water that annually pours into the South China Sea.⁶⁶

Map 3: The Mekong River Basin



Source: MRC, Work Programme 2011, available at <http://www.mrcmekong.org/assets/Publications/strategies-workprog/work-program-11.pdf> (last visited on Apr. 1, 2012).

The Mekong Basin has an average population density of 71 persons per square kilometer.⁶⁷ As the Mekong Delta has more than 17 million residents living in its area, the Delta holds an estimated population density of 260 persons per square kilometer.⁶⁸ More than 60 million people inhabit the LMRB, accounting for over 40% of the full number of citizens of the Lower Mekong countries.⁶⁹ Many people here are dependent on the climate for fisheries and agricultural activities as the seasonal changes in the

⁶⁶ Ti & Lien, *supra* note 1, at 1-2.

⁶⁷ World Resources Institute, *Watersheds of the World 2005*, at 1, available at http://earthtrends.wri.org/maps_spatial/watersheds/asiaoceania.php# (last visited on Apr. 1, 2012).

⁶⁸ Rix, *supra* note 65, at 117.

⁶⁹ Ti & Lien, *supra* note 1, at 2.

Mekong Basin have great effect on the amount of water flowing through the mainstream and its tributaries. The rainy season is characterized by a massive quantity of additional water in the river, which annually threatens to cause serious flooding and harm in the delta, along the mainstream and the larger tributaries. The dry season, on the other hand, brings the risk of drought due to a severe decrease in the river's natural flow regime. Apart from restricting navigation on the mainstream and leading to a noticeable lack of water for domestic and agricultural uses, water shortage in the river may also result in an increased amount of salt water entering the delta.⁷⁰

The upper Mekong is exclusively confined in the southern Chinese territory. The landscape is featured by rugged mountains and occasional woodlands; 75 to 85 million tons of vital river sediment are produced here every year.⁷¹ China also has a number of hydropower dams operating in the region, with several dam projects on the planning stage or under consideration. Myanmar's portion of the basin is distinguished by rugged terrain and contributions of large quantities of water. The region offers its inhabitants possibilities for income through forestry and cultivation in the 'Golden Triangle.' Lao PDR also has territory covering rugged terrain with several mountains reaching over 1,500 meters. The Thai part is heavily populated with a number of central municipalities within its area.⁷² The entire Mekong Delta is rich in agriculture, often called Vietnam's 'rice bowl' as it produces massive amounts of rice annually, for both domestic use and export.

B. Decision-Making Process

The report of the World Commission on Dams ("WCD") from 2000 - Dams and Development: A New Framework for Decision-Making (hereinafter WCD Report 2000) - contains the most clear and comprehensive set of existing guidelines for water and energy projects. The Commission identified five core values: (1) equity;⁷³ (2) efficiency; (3) participatory decision-making; (4) sustainability; and (5) accountability. These values address the main concerns for improving the development process and its outcomes. Moreover, the WCD Report presents seven strategic priorities for decision-making based on the need to recognize the rights and to assess the risks of all affected parties: (1) gaining public acceptance; (2) comprehensive options assessment; (3) addressing existing dams; (4) sustaining rivers and livelihoods; (5) recognizing entitlements and sharing benefits; (6) ensuring compliance; and, (7) sharing rivers for peace, development

⁷⁰ *Id.* at 2-3.

⁷¹ Rix, *supra* note 65, at 106ff.

⁷² *Id.* at 112.

⁷³ Mainly in terms of allocation of derived benefits in regard to those adversely affected.

and security. Towards an equitable and sustainable development, these strategic priorities will serve as guidelines for the successful integration of social, economic and environmental aspects into decision-making for dams and their potential alternatives.⁷⁴

The WCD Report refers directly to several principles found in the Rio Declaration, giving their immediate relevance to identifying existing rights in the management of water and energy resources.⁷⁵ It also points out the provisions for ensuring State compensation and prioritizing the development of law for victims suffering from environmental damage.⁷⁶

The WCD proposed that a “rights-and-risks” approach should be maintained as a tool for decision-making and future planning. This approach was based on the “recognition of rights” and the “assessment of risks.”⁷⁷ It would thus be used to determine which actors have a legitimate place in consultations regarding water and energy policies, which issues to address, and what group of stakeholders should be granted a role in negotiating project-specific agreements, such as for resettlement or compensation.⁷⁸ For upstream and downstream communities alike, a “bundle of rights” may be identified in regard to dams and their possible effects. These may be customary and traditional rights of ownership and tenancy or of resource access and livelihood benefits. They may further range from uncodified rights to more formal ones found in legislation. Both voluntary and involuntary risk takers must be recognized as stakeholders to ensure their rights, and fair negotiations regarding the risks they bear.⁷⁹

C. Effects of Dam in the Light of Sustainable Development

Dams are neither good nor bad inherently. They are accompanied by both positive and negative impacts on the sites around them, their reservoirs and downstream communities. Sustainable development calls for the full spectrum of economic, social and environmental aspects to be examined regarding the Mekong River and its resources.

1. Economic Effects

Dam constructions may result in long-term benefits for the local economy, if they are

⁷⁴ WCD Report 2000, *supra* note 63, at 214.

⁷⁵ *Id.* at 201.

⁷⁶ *Id.* at 202. For details, see Rio Declaration princ. 13.

⁷⁷ *Supra* note 63, at 206.

⁷⁸ *Id.* at 207 & 210.

⁷⁹ Achim Steiner & Lawrence Haas, *The Report of the World Commission on Dams: Some Implications for Energy Law*, in *THE LAW OF ENERGY FOR SUSTAINABLE DEVELOPMENT* 243ff (R. Lyster *et al.* eds. 2005)

planned carefully. Infrastructures, such as roads, electricity power lines and social services, are installed during the construction process. Careful planning of these would allow settlement and connect local economies to national markets. The construction of dams and related infrastructures would also provide for job opportunities.⁸⁰ About 400,000 jobs can be expected for the construction and operation of the proposed mainstream projects.⁸¹ Direct job creation is presumed to result in about 7.9 billion US dollars in wages; nearly 85% would be connected with the construction phase.⁸² Apart from these jobs, employment will also be provided by newly created ventures that operate by the supply of water and electricity.⁸³ Considerable benefits can also be observed for employees, construction companies and suppliers of equipment and materials. The LMRB would however stand for less than half of the project inputs and receive most engineering services and technical equipment from abroad.⁸⁴

China, a major dam builder on the Mekong River, is mainly focusing on constructing infrastructure and increasing capacity to maintain its economic growth. These aspects, together with significantly escalating oil prices, are said to be the main reasons behind China's plans to exploit the hydropower in the Upper Mekong River.⁸⁵ Exploitation of hydropower in the Mekong River may also reduce regional tensions caused by rising oil costs. China, Thailand and Vietnam have found the growing prices to be a massive problem as they all depend greatly on oil imports.⁸⁶ Recently, the entire Mekong region imports fossil fuels that account for about 22% of electricity generation, which is likely to increase. A staggering 90% of the electricity generation in the LMRB comes from hydrocarbons. At the same time, approximately 74 million people, or 20% of the Mekong Region, are without electricity in their homes.⁸⁷ A domestic supply of hydropower could deliver many positive results in terms of development. By 2025, the Mekong mainstream dams would equal about 16% (or 13427 MW) of total installed hydropower capacity in the region. Hydropower potential in tributaries could, however, take care of a large part of the national energy demand, as only 6-8% of regional power needs would be covered by the mainstream dams.⁸⁸

⁸⁰ WCD Report 2000, *supra* note 63, at 99ff.

⁸¹ BDS 2011-2015, *supra* note 9, at 19.

⁸² MRC Sea Report, *supra* note 2, at 54.

⁸³ WCD Report 2000, *supra* note 63, at 101.

⁸⁴ MRC Sea Report, *supra* note 2, at 54.

⁸⁵ Freeman, *supra* note 47, at 457.

⁸⁶ *Id.* at 459.

⁸⁷ MRC Sea Report, *supra* note 2, at 47.

⁸⁸ *Id.* at 49ff.

Table V-1: National Power Demand Forecasts for the LMB Countries by 2025

	Cambodia	Lao PDR	Thailand	Vietnam	TOTAL/ Regional
Peak Demand (MW)	2,401	2,696	53,824	72,445	130,366
National Energy Demand (GWh/yr)	14,302	16,060	339,479	450,618	820,458
Xayaburi	19,740	46,054	-	-	65,794
Percent contribution of LMB mainstream hydropower to national demand*	13.8%	28.7%	11.6%	4.4%	8.3%
Percent contribution of LMB mainstream hydropower to peak demand					11.3%

* It is assumed that 90% of LMB mainstream power generation is for export to Thailand and Vietnam, with 10% for domestic demand

Source: ICEM, MRC Sea Report (Table 6)

Data regarding cost performance in the WCD Knowledge Base also imply that sizeable capital cost overruns are often brought about by large dam projects.⁸⁹ Even smaller projects may experience the same problem. An example from the Mekong Region is the Pak Mun dam in Thailand, a medium-sized hydropower dam that had a 68% overrun. Reasons for cost variations can be found in four categories, of which one refers to “the poor development of technical and cost estimates and supervision by sponsors.”⁹⁰ This highlights the need of developing countries receiving both financial and technical assistance in their development process, especially because dams, even without cost overruns, are very expensive projects.

2. Environmental Effects

The WCD Report implied that large dams would lead to a number of negative and multifaceted impacts on ecosystems.⁹¹ To see the full implications of dam constructions may take time as some impacts would not be seen until the dam is fully operating.

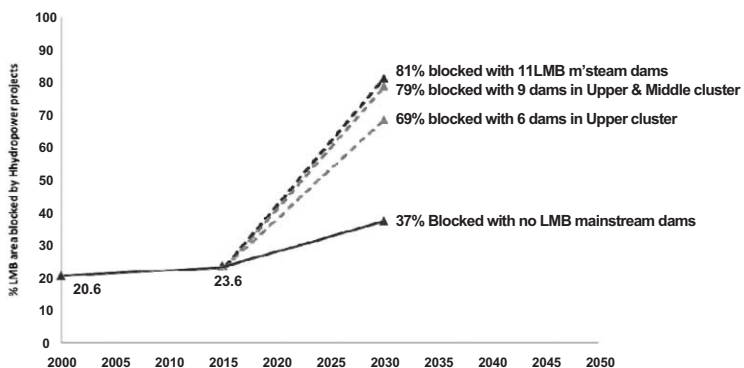
⁸⁹ WCD Report 2000, *supra* note 63, at 39.

⁹⁰ *Id.* at 40.

⁹¹ Ecosystem impacts can fall into the following three groups: first-order impacts that involve physical, chemical and geomorphological results *seen* from blocking a river or altering its flow; second-order impacts that include changes in primary biological productivity of ecosystems; and third-order impacts that involve changes to fauna (*e.g.* fish) due to first – and second order impacts. *Id.* at 74.

Downstream effects can reach several hundreds of kilometers and, in some cases, far beyond the boundaries of the river channel.⁹² The Lower Mekong Region is wealthy in terms of fish species diversity; fisheries are subsequently the main industry under which community livelihoods and culture are sustained. Dams would have drastic effects on the aquaculture in the Basin. The Pak Mun dam caused a radical drop in upstream fish catches as it hindered fish migration from the Mekong River upstream into tributaries of the Mun River.⁹³ Losses up to 80% in fish catches reportedly stirred up local villagers. Although a fish ladder was applied, only 96 of the former 265 fish species remained.⁹⁴ Moreover, due to the use of hydropower reservoirs, sediment from China has decreased considerably, affecting the spread of essential nutrients and decreasing the level of oxygen. This may ultimately lead to fish death and advantageous conditions for diseases like malaria. As dams drastically change the natural flood cycle, up to 90% of the fish that reproduce in submerged lands in the Mekong River Basin may be affected.⁹⁵ The planned dam cascades may also have great impacts on endangered species, such as the Irrawaddy Dolphin, the Mekong Giant Catfish and the Siamese Crocodile.⁹⁶

Figure 1: Barrier Affects of the LMB Mainstream Dams: Area of the LMB Catchment (%) Blocked to Fish Migrations by the Upper, Middle and Lower Clusters of Dams



Source: ICEM, MRC Sea Report (Figure 43)

⁹² *Id.* at 112.

⁹³ *Id.* at 84.

⁹⁴ Rix, *supra* note 65, at 113.

⁹⁵ *Id.* at 107.

⁹⁶ MRC Sea Report, *supra* note 2, at 90.

The timing, duration and frequency of floods are all vital elements for the continued existence of plant and animal communities downstream. The key variable for these aquatic ecosystems is thus the river's flow regime.⁹⁷ One important phenomenon can be viewed in the Tonle Sap when the area is subject to heavy flooding. The flow of the Tonle Sap reverses, pushing water back up the Tonle Sap's riverbed and thus results in the flooding of the shallow wetlands. This area is an especially important asset to Cambodia, as fisheries in the lake provide for 80% of the protein found in the Cambodian diet.⁹⁸

Another concern, as seen with the Chinese dams, can be found in the sediment-free water and the possibility that it may increase the amounts of erosion on its way downstream the river.⁹⁹ The planned dam cascades on the mainstream Mekong may result in radical changes on the natural cycle of the Tonle Sap lake through alterations in the flow regime, as well as erosion from dam uses. The cumulative impact of the dams may therefore lead to severe impacts for other riparian nations.

However, dams may also provide for some noticeable benefits to the LMRB countries. During the rainy season in Southeast Asia, rivers may grow over 10 times the size of the dry season.¹⁰⁰ The Chinese dams in the Upper Mekong River would play a useful role in irrigating water. This would help balance out the existing flood and drought patterns that characterize the Lower Mekong River.¹⁰¹

3. Social Effects

There are numerous benefits provided by large dams. Some of these are socio-economic services, such as the supply of water, electricity and flood control. In a number of cases, the provision of these benefits may actually continue past the timeframes that were originally proposed.¹⁰² As the planning, construction and operation of dams have caused various changes in people's lives, a large part of these has led to negative social and human impacts. In the early stages of dam projects, residents around a potential reservoir site often experience fear and concern. This kind of psychological stress cannot be successfully transformed into any economic quantity or term. It is nonetheless a critical issue.¹⁰³

The construction and operation of a dam have impacts reaching further than the

⁹⁷ WCD Report 2000, *supra* note 63, at 78.

⁹⁸ Freeman, *supra* note 47, at 463.

⁹⁹ *Id.* at 463.

¹⁰⁰ WCD Report 2000, at 11.

¹⁰¹ Freeman, *supra* note 47, at 458.

¹⁰² WCD Report 2000, *supra* note 63, at 120.

¹⁰³ *Id.* at 99.

immediate location of the proposed site. Affected populations include a range of people, such as directly relocated families and their host communities. Changes in the river's flow and its ecosystem can also greatly affect the lives of other riverine communities, especially those downstream of dam projects.¹⁰⁴

In the Mekong Basin region, construction of the Pak Mun dam led to the displacement of 241 families in 1991. When the dam was completed, another 1,459 households were counted for resettlement. In total, more than 6,000 households were affected, mainly by livelihood losses.¹⁰⁵ The currently proposed dam projects on the Mekong mainstream would require almost 107,000 people to relocate. In addition, over two million people residing within and around the dam sites could suffer from indirect impacts.¹⁰⁶ Some of the projects would resettle villages that have already been displaced within the past 15 years; some groups would even experience their fourth relocation within such a short period of time.¹⁰⁷

Table V-2: Preliminary Totals of People Directly Affected by the Mekong Mainstream Dams

	Dam name	Total Affected Villages	Total Affected HHs	Total Affected Persons	Number of Resettled Villages	Number of Resettled HHs	Number of Resettled Persons
1	Pakbeng	57	6831	35365	28	774	6700
2	Louang Prabang	36	2516	12966	36	2516	12966
3	Xayaboury	29	1988	4378	10	391	2130
4	Pak Lay	27	1079	19046	16	n/a	6129
5	Sanakham	10	800	4000	10	800	4000
6	Pak Chom	2	107	535	2	107	535
7	Ban Koum	4	187	935	4	186	935
8	Lat Sua	0	n/a	n/a	n/a	n/a	n/a
9	Don Sahong	4	14	66	4	14	66
10	Thakho	0	0	0	0	0	0
11	Stung Treng	21	2059	10617	21	2059	10617
12	Sambor	n/a	1020	19034	n/a	n/a	19034
Preliminary Totals		190	16601	106942	131	6847	63112

Source: ICEM, MRC Sea Report (Table 24)

¹⁰⁴ *Id.* at 16.

¹⁰⁵ *Id.* at 104.

¹⁰⁶ MRC Sea Report, *supra* note 2, at 108-109.

¹⁰⁷ *Id.* at 112.

At times, relocation sites have been chosen without any considerations to the affected people. Such experiences have been noted in Hoa Binh in Vietnam and Sirindhorn in Thailand.¹⁰⁸ The Houay Ho dam in Lao PDR led to the displacement of among 800 families of the ethnic minority Nya Heun. People were reported to experience severe food shortage, lack of suitable land for agriculture and insufficient supplies of clean water.¹⁰⁹ Indigenous people and ethnic minorities are among the most vulnerable groups who have often been poorly defined or inadequately protected under the domestic legal framework. Their entitlements have usually been overlooked in the development process.¹¹⁰ Support programs are not adequately provided to the affected communities in the Lower Mekong Basin.¹¹¹

VI. The EIA, Stakeholder Participation and Access to Information

The impacts of dam construction and operation should be dealt with in an integrated manner according to sustainable development. It becomes obvious that EIAs are needed for analyzing probable 'gains' and 'pains' in the original project plan. The Rio Declaration,¹¹² the Johannesburg Plan of Implementation¹¹³ and the UN Watercourses Convention¹¹⁴ require the performance of EIAs.

An example of substandard EIA performances was the Yali Falls project. The EIA failed to address effects reaching further than eight kilometres downstream. It was initially only accountable for Vietnam, neglecting possible environmental impacts downstream in Cambodia. Moreover, there was no stakeholder participation or access to information prior to the construction and operation of the dam. Few people were aware of the dam project among the affected communities. These communities were not even involved as stakeholders in determining the effects of the dams along the Se San River in the aftermath. Article 12 of the UN Watercourses Convention regarding prior notification and sharing of data and information was not observed.¹¹⁵

¹⁰⁸ WCD Report 2000, *supra* note 63, at 107.

¹⁰⁹ *Id.* at 108.

¹¹⁰ *Id.* at 111.

¹¹¹ MRC Sea Report, *supra* note 2, at 134.

¹¹² Rio Declaration, princ. 17

¹¹³ *E.g.* Johannesburg Plan of Implementation ¶ 135, available at http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter10.htm (last visited on Apr. 1, 2012).

¹¹⁴ UN Watercourses Convention art 12.

¹¹⁵ Bearden, *supra* note 16, at 17ff.

The Mekong Agreement does not provide for any requirements regarding the EIAs, stakeholder participation, or any access to information regarding the dam projects. In the Case concerning Pulp Mills on the river Uruguay (Argentina v. Uruguay), however, the International Court of Justice concluded that: “It may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource.”¹¹⁶ The UN Watercourses Convention could also provide guidelines for the EIAs and other procedures that are not regulated in the Agreement. These gaps must be solved in an efficient and adequate manner to ensure that all potential stakeholders are addressed in the process, using the available information at hand, especially in regard to the proposed dam cascades on the Mekong mainstream.

As an additional note, the lack of “objective and in-depth analyses of the physical, economic, social and environmental impacts of large dams” covering several years after their construction is a clear deficiency in assessing the full scope of dam effects. The EIAs must take account of both positive and negative impacts for a full understanding of which benefits can be anticipated. Even if the assessment is very well-performed, only about 70-75% of the actual impacts of dams can be predicted.¹¹⁷ Supporting the EIAs through capacity building and strengthening of institutions is necessary in developing countries. As the EIAs are, in fact, merely predictions of possible outcomes,¹¹⁸ it becomes even more important to analyze potential long-term impacts a couple of years after the dam began operating. This may inevitably have a great influence on other projects that either have not been carried out yet, or are on the planning stage. It is also indispensable for ensuring that future generations are not deprived of their potential needs.

The Report on Stakeholder Consultation for the Xayaburi dam reflected the need to make relevant information public in good time before scheduled consultations and to begin consultations on an early stage of the prior consultation process. The timeframe for the consultation process (six months) was regarded too brief by the participating stakeholders. Further studies on transboundary effects, mitigation measures, benefit sharing and compensation mechanisms were also called for by the participants. They further pointed out the necessity to address these issues together with communities affected by the dam proposal.¹¹⁹ Information regarding alternatives to hydropower

¹¹⁶ See Case concerning Pulp Mills on the River Uruguay (Arg. v. Uru.), 2010 I.C.J. (Apr. 20).

¹¹⁷ Asit Biswas, *Dams: Cornucopia or Disaster?*, 20 INT’L J. WATER RESOURCES DEV. 9 (2004).

¹¹⁸ *Id.* at 9.

¹¹⁹ MRC Secretariat, *Stakeholder Consultations related to the Proposed Xayaburi Dam Project*, in Prior Consultation Project Review Report, vol. 2, 17ff (Mar. 24, 2011), available at <http://www.mrcmekong.org/assets/Consultations/>

projects should also be addressed in order to allow stakeholders to discuss the projects with all information at hand.

VII. Conclusion

The three pillars of sustainable development are inherently conflicting elements, often aiming to protect different areas of subject. Integration is not an easy task when balancing these elements. Nonetheless, it must be accomplished for the sake of a sound and sustainable development. To identify lacking elements in the national and regional governance of the river is crucial for advancing beyond the point of simply aligning with the obvious desire to achieve sustainable development.

The possibility to access and distribute information is a significant outcome of the EIAs. Consequently, it is an important part of providing good information to stakeholders. Public participation in a dam project requires that the rights of stakeholders are not neglected. In this regard, the MRC plays a large role in assuring that these procedures are carried out. Of particular importance is also the insurance of an effective framework for compensation due to resettlement,¹²⁰ as well as the recognition of ethnic minorities and women, who are often overlooked. The most noteworthy questions may therefore be how we can plan, design and construct dams best at the locations “where they are needed so that their performances in economic, social and environmental terms can be maximized and their adverse impacts can be minimized; and how we can simultaneously ensure that those who may have to pay the costs of their implementation are explicitly made their beneficiaries.”¹²¹ As it looks today, however, there is a large gap in terms of available information, data and measures necessary to ensure that well-informed and suitable decisions are made for all Lower Mekong mainstream hydropower schemes.

When looking at the possibilities of a regional cooperation covering all six Mekong nations, a potential constraint on China’s sovereign jurisdiction to exploit water resources will obviously not amount to any greater incentives for the country to join the MRC. In view of the nation’s growing hydropower needs, it will rather limit China’s own progress towards further economic development. A regional agreement regarding

2010-Xayaburi/2011-03-24-Report-on-Stakeholder-Consultation-on-Xayaburi.pdf (last visited on Apr. 1, 2012).

¹²⁰ As an example, the Thai government paid an interim compensation to the affected people of the Pak Mun dam (constructed in the beginning of the 1990s) in 2000, pending a final solution to the results of permanent loss of fisheries livelihood. See WCD Report 2000, *supra* note 63, at 104.

¹²¹ Biswas, *supra* note 117, at 14.

sustainable development of water resources in the Mekong River Basin would probably have more effect if it also regulated economic cooperation between the Basin countries. China has proven to be highly interested in the area when economic relationships are concerned, such as with the GMS and the ASEAN. A broader cooperation between the MRC and the GMS and/or the ASEAN may cover the gap between the two upper riparian States and the LMRB nations. Some kind of cooperation that directly addresses mainstream dams and their alternatives is vital for the survival of the Mekong River. With its numerous tributaries and wetlands, far-reaching chain reactions or cumulative impacts on the environment and local communities are not unrealistic outcomes of the proposed dam cascades. Needless to say, there is still much work remaining in order to achieve sustainable development in the Mekong River Basin. Its success will depend mainly on the dedication of the countries along the Mekong River and the support of regional organizations with active aid donors. Although sustainable development is achievable, the road ahead is without a doubt a long and challenging one for the Basin countries. Time will show if the political intention and regional cooperation will bring a satisfying solution for engaging all riparian nations in the process of achieving sustainable development.

