

The Mekong River Commission: transboundary water resources planning and regional security

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The Mekong River Commission (MRC) was established in 1995 and represents a third chapter in the Mekong Project's organizational history. The MRC's predecessors – the Mekong Committee (1957–78) and the Interim Mekong Committee (1978–95) – operated under difficult circumstances, yet made many contributions to transboundary river basin planning and international diplomacy. The MRC's 2001 Work Programme represents a shift in Mekong basin planning from the era of the Mekong Committee. This shift is largely embodied by a change from a project-oriented focus to an emphasis on better management and preservation of existing resources. The MRC is in a position to help address the related issues of population growth, environmental preservation and regional security. In doing so, the MRC will benefit from the programmes and international collaboration established by its predecessors.

KEY WORDS: Mekong River, Mekong River Commission, regional security, transboundary water management

Introduction

The Mekong River Commission (MRC) was founded in 1995 to coordinate water resources planning and development across Southeast Asia's lower Mekong River basin. The MRC's member nations are Cambodia, Laos, Thailand and Vietnam. The MRC's technical and planning arm, the MRC Secretariat, is based in Phnom Penh, Cambodia. The Commission's predecessor organizations were the Mekong Committee (1957–78) and the Interim Mekong Committee (1978–95). Through scientific investigations and smaller-scale water resources projects, these organizations promoted international dialogue and cooperation in a region marked by conflict and war.

The Mekong River Commission faces many of its predecessors' challenges, such as widespread poverty in the basin. In addition, emerging issues such as dam construction on the upper Mekong River in China and increasing demands on water and environmental resources in the lower Mekong basin may affect regional security. This paper reviews the Mekong and Interim Mekong Committees' experiences in cooperative Mekong River basin planning, then reviews the Mekong River Commission's 2001 Work Programme. It also

assesses the extent to which the Commission is merging useful, traditional programmes with contemporary planning approaches and regional realities, including the issues of food security and political security.

The Mekong River basin

The Mekong River's headwaters lie in the south-eastern Himalaya Mountains of China's Tibetan region (Figure 1). From there, the Mekong flows to the south and east on its way to the South China Sea. The Mekong flows through six nations and is the hydrologic backbone of mainland Southeast Asia. Figures for the Mekong's length vary between roughly 4200 km (Mekong Secretariat 1989) to 4889 km (Daming 1997). In terms of volume, its annual discharge of 475 billion m³ makes it the world's tenth-largest river (Daming 1997). For nearly half its length, the Mekong flows through China's Yunnan Province. The Mekong then enters the 'Golden Triangle' region, where it forms the boundary between Myanmar and Laos, then the boundary between Laos and Thailand, before flowing eastward into Laos. After turning to the south within Laos, the Mekong again forms the boundary



Figure 1 Mekong river basin
Source: Hori (2000) from UN (1957).

between Laos and Thailand, then flows into Cambodia. At the Cambodian capital of Phnom Penh, the Tonle Sap River connects the Mekong with Cambodia's Tonle Sap Lake (Great Lake). During the wet season, the Tonle Sap River carries high flows away from the Mekong to the Great Lake, which subsequently expands to the north and west. During the dry season, the Tonle Sap River reverses its flow and carries waters from the Great Lake back to the Mekong River. Below Phnom Penh, the Mekong splits into two rivers: the main-stem Mekong is the eastern branch, and the western branch is the Bassac River. Both rivers then flow into the Mekong delta of Vietnam before emptying into the South China Sea.

The Mekong River exhibits strong seasonality of runoff, especially in its lower portions, which reflects the lower basin's monsoon climate. During the rainy season (roughly June through October), surface winds are from the south and west. These moisture-laden winds produce large amounts of precipitation, especially from the orographic effect when they encounter the Annamite Mountains that straddle the Laos-Vietnam border. Highest water flow values in the lower Mekong occur during September and October and are larger by an order of magnitude, or even greater, than dry season flows. The dry season extends from December through May and has little to no precipitation. Dry season flows in the lower Mekong are sustained by snowmelt from the extreme upper basin. Dry season flows are on the order of $2000 \text{ m}^3 \text{ s}^{-1}$, in comparison to wet season water flow discharge values, which are on the order of $20\,000\text{--}30\,000 \text{ m}^3 \text{ s}^{-1}$ (Mekong Secretariat 1989). These low flows during the dry season allow salt water from the South China Sea to intrude into the Mekong Delta, which inhibits agricultural production.

Roughly 73 million people live in the Mekong River basin. This figure is projected to increase to approximately 120 million by 2025 (Kristensen 2001a). Roughly 84% of basin inhabitants live in the lower basin nations of Cambodia, Laos, Thailand and Vietnam (Kristensen 2001a). The basin is primarily rural and income levels are low, especially in Cambodia and Laos, where yearly per capita income in rural areas is US\$200 to US\$400 (Mekong River Commission 2002). Only two capital cities lie in the basin, Phnom Penh, Cambodia and Vientiane, Laos. Roughly 85% of basin inhabitants make their living directly from the natural resources base through commercial and subsistence fishing, irrigated rice production and swidden agriculture (Kristensen 2001a). Fish are especially important in the Mekong, as they comprise the main source of animal protein for basin inhabitants.

It is against this background that cooperative Mekong River planning efforts have taken place. Those efforts date back 50 years to the initial discussions regarding flood problems and comprehensive multiple purpose development for the lower Mekong basin. Over time, international cooperation on Mekong water issues has resulted in an extensive data gathering and dissemination system, advanced the understanding of the basin's ecological and physical systems, and established several smaller-scale and nonstructural programmes, such as a flood forecasting and warning system. But the most important contribution of the Mekong Committee and its successor organizations may have been in providing a forum for international dialogue on a common issue – sound Mekong River basin planning – in a region plagued by war and conflict. Security-related concerns have broadened since the 1970s and now include environment and food availability. The programmes of today's MRC stand to play an important role in helping address these contemporary dimensions of security-related concerns.

The Mekong Committee

Representatives from Cambodia, Laos, South Vietnam and Thailand established the Mekong Committee in 1957 when they adopted the 'Statute for the Committee for Coordination of Investigations of the Lower Mekong Basin'. The organization was limited to membership of the lower Mekong nations only, as China was not a member of the United Nations in the early 1950s and Burma was simply not interested in participating (Mekong Secretariat 1989). The Mekong Committee was created as part of the United Nations' Economic Commission for Asia and the Far East (ECAFE) and represented the UN's first direct involvement in international river basin planning. The Mekong Committee also marked the first large-scale effort to study a river basin's economic, social and organizational aspects prior to construction of projects. The Committee quickly established a planning and technical arm, the Mekong Secretariat, which was located in Bangkok.

The Mekong Committee's origins were in the activities of the ECAFE's Bureau of Flood Control. In the early 1950s, the Bureau's mission was shifting from a focus on flood-related problems to addressing floods as part of a broader, multiple purpose approach to river basin planning (United Nations 1950). The Bureau sought to implement these concepts in one of the 18 international rivers that flowed through ECAFE's jurisdiction, which included the Ganges-Brahmaputra, Indus and Yangtze rivers. Because of political and other

considerations, the Mekong emerged as the most promising candidate, and the Bureau and ECAFE focused their attention on the lower Mekong basin (Jacobs 1992).

The Bureau completed its preliminary study of the Mekong in 1952 (United Nations 1952), which generated abundant enthusiasm regarding the prospects for multi-purpose development of irrigation, hydropower, flood control and navigation. The US Bureau of Reclamation (1956) also conducted a study of the basin's physical features and development potential. The lower Mekong nations adopted the ECAFE report as the initial framework for basin development, but the US quickly pledged financial and technical support to the Mekong Committee.

An atmosphere of optimism surrounded the committee's formation. Cambodia, Laos and Vietnam had gained independence from France under the 1954 Geneva Accords. The United States, France, and Japan were initial sponsors of the Committee, and the Tennessee Valley Authority was viewed as a model for lower Mekong River basin planning and development (Jacobs 2000). A suite of activities that included mainstem and tributary dams, power plants, navigation facilities and irrigated agriculture was envisioned (United Nations 1957). A study team headed by General Raymond Wheeler, then retired from the US Army Corps of Engineers, recommended an ambitious programme of investment activities totalling US\$9.2 million (Mekong Secretariat 1989). National Mekong Committees were established in 1957 in the riparian nations and an advisory board was founded in 1958.

In the early 1960s, the Committee commissioned a study of the basin's social and economic features by a small team headed by geographer Gilbert White. The White team's report provided 14 specific recommendations that emphasized human resources development, inventories of basin resources, economic and organizational issues, flood forecasting and warning, and agricultural improvements (White *et al.* 1962). Many of the recommendations (e.g. flood forecasting and warning) were implemented and formed the basis for useful and lasting Mekong Committee programmes. The report also recommended that engineering projects be constructed on the Mekong's tributaries before mainstem projects were initiated:

Several factors combine to favor the smaller tributary projects over larger projects along the main river for early action. The smaller projects are initiated more readily, and they lend themselves to experimentation with as yet untried methods of fostering economic development in the basin.

(White *et al.* 1962, 103–4)

The Committee began programmes in data gathering and moved to standardize data collection methods between the riparian nations. Studies and investigations were begun along three tracks: investment potential and engineering feasibility, social and economic aspects, and financial matters and prospects (Mekong Secretariat 1989). Mekong Committee-sponsored projects during the 1960s included several tributary dams (Pa Mong and the other mainstem dams were not built) and areas of irrigated agriculture.

The United States was the Mekong Committee's most important sponsor during the 1960s. US citizen C. Hart Schaaf was the Committee's Executive Agent from 1959 to 1969. President Lyndon Johnson was a strong proponent of cooperative Mekong development. During this period, in which regional security issues were paramount, the President promoted international cooperation on Mekong water development as an alternative to armed conflict. In a speech at Johns Hopkins University on 7 April 1965, President Johnson stated:

The first step is for the countries of Southeast Asia to associate themselves in a greatly expanded cooperative effort for development. We would hope that North Vietnam will take its place in the common effort just as soon as peaceful cooperation is possible . . . The vast Mekong River can provide food and water on a scale to dwarf even our own T.V.A.

(Johnson 1965)

But by the late 1960s it became clear that lower Mekong water development was not progressing as rapidly as had been hoped. Progress was constrained by the riparian nations' limited resources and by the complexities of multi-purpose, international river basin development. Moreover, the war in Indochina dulled the interest of donor nations and made parts of the basin off limits to scientific and engineering investigations. Despite these constraints, during the late 1960s and early 1970s the Mekong Committee and Secretariat conducted water quality sampling in the Mekong River delta, hydraulic modelling studies of Mekong River levees, and population resettlement studies (Hori 2000). The Committee described the situation as follows:

much can be done in central offices and laboratories, supported by data collected during field visits where conditions permit . . . The saving grace is the sheer size of the lower Mekong basin where, even while some areas are plagued by insecurity, as has been the case for decades, there is still wide scope for unhindered development planning and investment

(Mekong Committee 1974, 170)

The Mekong Secretariat issued a 1970 Indicative Basin Plan that presented a menu of water resources development projects to the donor nations (Mekong Secretariat 1970). The report included a proposal for 17 mainstem dams, with several alternative combinations, which 'was supposed to be implemented by selecting 9 or 10 projects from among the 17 proposed projects' (Hori 2000, 137–8). But the end of the US–Vietnam war in 1975 saw the end of the Mekong Committee, as internal turmoil resulted in Cambodia's inability to participate.

The Mekong Committee never realized the vision of large, multiple purpose dams on the lower Mekong River. But in laying the groundwork for its original vision, the Committee established a foundation for sound water development. Extensive data on basin hydrology, geology, engineering studies, as well as social and economic aspects of water resources, were gathered and disseminated. A flood forecasting and warning system helped save the lives of many Mekong delta residents. Several tributary dams, located exclusively in Thailand, except for Laos' Nam Ngum Dam, were constructed. Inaugurated in 1971, the Nam Ngum Dam symbolized the international cooperation promoted by the Mekong Committee: hydropower generated at the Laotian dam was sold across the Mekong River to Thailand, even during the war in Indochina. Finally, and perhaps most importantly, the Mekong Committee provided a forum for cooperative dialogue during the war. The enthusiasm for cooperation on Mekong development, long referred to as 'The Mekong Spirit', carried the Committee through the war and was to help them through an extended period without Cambodia's participation.

The Interim Mekong Committee

In January 1978, the impasse in Committee activities because of Cambodia's absence was partially relieved when representatives from Laos, Thailand and Vietnam established the Interim Mekong Committee (IMC). Although several lower Mekong River management issues could not be addressed comprehensively without full membership of all the lower basin nations, the other three member nations felt that much could be accomplished while awaiting Cambodia's return. The IMC carried on with Mekong Committee programmes that did not require participation of all the riparians, such as hydrologic data gathering, water quality sampling, and flood forecasting and warning. The IMC also initiated new programmes and studies, such as an environmental studies unit with the Secretariat, low flow forecasting and salinity control projects in the

Mekong delta, assessment of climate change impacts on hydrology and water resources, watershed management, and a review of legal and organizational structures for water management.

A milestone for the Interim Committee was the publication of the 1987 Indicative Basin Plan (Mekong Secretariat 1988). Substantial changes had occurred in the basin since the Mekong Committee's 1970 Indicative Basin Plan. There had also been marked shifts in water resources management paradigms and approaches, such as new emphases on environmental and resettlement issues. The 1987 Indicative Basin Plan retained the 1970 vision of a cascade of Mekong River mainstem dams, but the 1987 configuration called for smaller dams in order to reduce environmental impacts and reduce the numbers of oustees. The proposed Pa Mong project, for example, assumed more modest dimensions that would have entailed 43 000 oustees, as compared to 250 000 in the original Pa Mong scheme (Mekong Secretariat 1988).

Centrifugal forces in the basin also inhibited international cooperation through the IMC. After the Mekong Committee's establishment, Thailand and the Indochinese nations diverged economically. Thailand experienced steady economic growth after 1957, and during the late 1980s its economy experienced rapid economic growth rates. By contrast, the Indochinese economies grew only slowly, if at all. These differences in economic fortunes help explain shifts in the riparians' respective visions of lower Mekong development. Above all, Thailand's enthusiasm for the Mekong Project began to dim:

The MC fell victim to a situation where its mandate and its efforts to achieve cooperation and coordination were seen by the major riparian, Thailand, to be imposing constraints that entailed 'costs' not balanced by enough apparent benefits as they affected the various riparians.

(Miller 1996, 241)

Economic asymmetry between Thailand and Indochina, and Cambodia's absence from the IMC, inhibited plans for basin-wide initiatives and led to the promotion of national-level projects – of the 29 main water projects listed in the 1987 Indicative Basin Plan, 26 were national in scope (Mekong Secretariat 1988).

Lessons from the Mekong and Interim Mekong Committees

The Mekong Committee and IMC operated in a context of instability – war, changes in membership and erratic funding levels all disrupted the Mekong

Secretariat's work programme. Political and economic conditions inhibited construction of large dams. This resulted in a low degree of water control in the lower Mekong hydrological system, thereby subjecting the Mekong Secretariat and lower Mekong River basin inhabitants to a full range of Mekong River hydrologic variability, including large floods. Within this context of social and environmental instability, the Secretariat changed its membership, its organizational structure, its work programme and engineering designs of key projects. Organizations that have learned to operate effectively in a context of change and surprise are often prepared to cope well with future change:

Those institutions that have developed policies that induced a rhythm of change, with periods of innovation followed by consolidation and back again, maintain a flexible and adaptive response.

(Holling 1978, 36)

In contrast, organizations that operate in more stable contexts tend to become complacent and are often challenged to respond quickly and effectively to change and surprise (Morrisette 1988; Rhodes *et al.* 1984). Environmental and social instability in the lower Mekong contributed to a high degree of organizational resilience within the Secretariat and committees (Jacobs 1992).

The lack of dams across the lower Mekong resulted in some unanticipated benefits, as conflicts that may attend the redistribution of benefits of dam and reservoir operations were avoided. Dam and water resources management organizations may be challenged to appropriately adjust dam operations in response to changing social preferences (Jacobs and Wescoat 2002; National Research Council 2002). Beneficiaries of a given dam operations schedule often rely heavily on regular delivery of benefits from the dam and reservoir. They are thus likely to challenge disruptions to the pattern of benefit allocations that operations changes may entail. This type of conflict occurred at Thailand's Pak Mun Dam, where differences of opinion over changes to Pak Mun Dam operations led to protests (World Commission on Dams 2000; International Rivers Network 2001). Had mainstem dams been constructed on the Mekong and had such differences arisen there, tensions may have extended beyond national borders.

The Mekong River ecosystem's well-being depends upon the basin's natural hydrologic and geomorphic variability. The annual flood pulse in September and October delivers sediments and nutrients to floodplains, allows fish to move into floodplains and feast upon vegetation there, and provides reproductive cues (Bailey 1995; Rothert

1995). As there are no dams across the lower Mekong River and only a low degree of water control on its tributaries, the Mekong River floods annually and spills into its large floodplain areas, including the vast Tonle Sap watershed in Cambodia. During high flows, the Tonle Sap River delivers a massive pulse of fishes, nutrients and sediments into the Great Lake, helping sustain fisheries and agriculture. But the annual floods also pose risks to human lives and livelihoods. Flooding in the year 2000, for example, claimed roughly 800 lives in the lower basin, many of them children (Mekong River Commission 2001a). Strategies for reducing Mekong River-related flood damages should balance the importance of reducing lives lost with floods' ecological importance.

The relatively good condition of the Mekong River basin ecosystem may also have helped dampen potential conflicts over water and related natural resources. Thomas Homer-Dixon (1999), a contributor to a growing body of literature that probes the links between environmental degradation and social unrest, has hypothesized that scarcity of renewable resources can contribute to civil violence. Such issues are important in the Mekong, as the majority of basin residents make their living directly from the natural resources base through fishing, irrigated rice production and swidden agriculture. Thailand and Vietnam are the world's two largest rice exporters and the Mekong River is one of the world's more biologically productive rivers. The Mekong's fisheries provide roughly 60% of the animal protein intake of basin inhabitants and the economic benefits of the Mekong's fisheries have been estimated at US\$800 million (Mekong River Commission 2001b). Although parts of the basin suffer from poverty, the Mekong and its tributaries contribute to a high degree of regional food security. Preserving ecological benefits conveyed by the Mekong, including fisheries, salt-flushing flows in the Mekong delta, and water for rice production and for recession agriculture is important to lessening the prospects of resources-based conflict and in promoting regional security and stability.

Finally, security issues were at the heart of the Mekong Committee's activities from its inception. The war in Indochina and political instability in the region affected donor contributions, Committee membership and areas of the basin in which data could be gathered and projects initiated. The Mekong Committee persisted despite these and other tensions and provided a sustained forum for discussion on issues of common interest, especially during a long period during which these nations found little to agree upon. The Mekong Committee history during this period demonstrates how

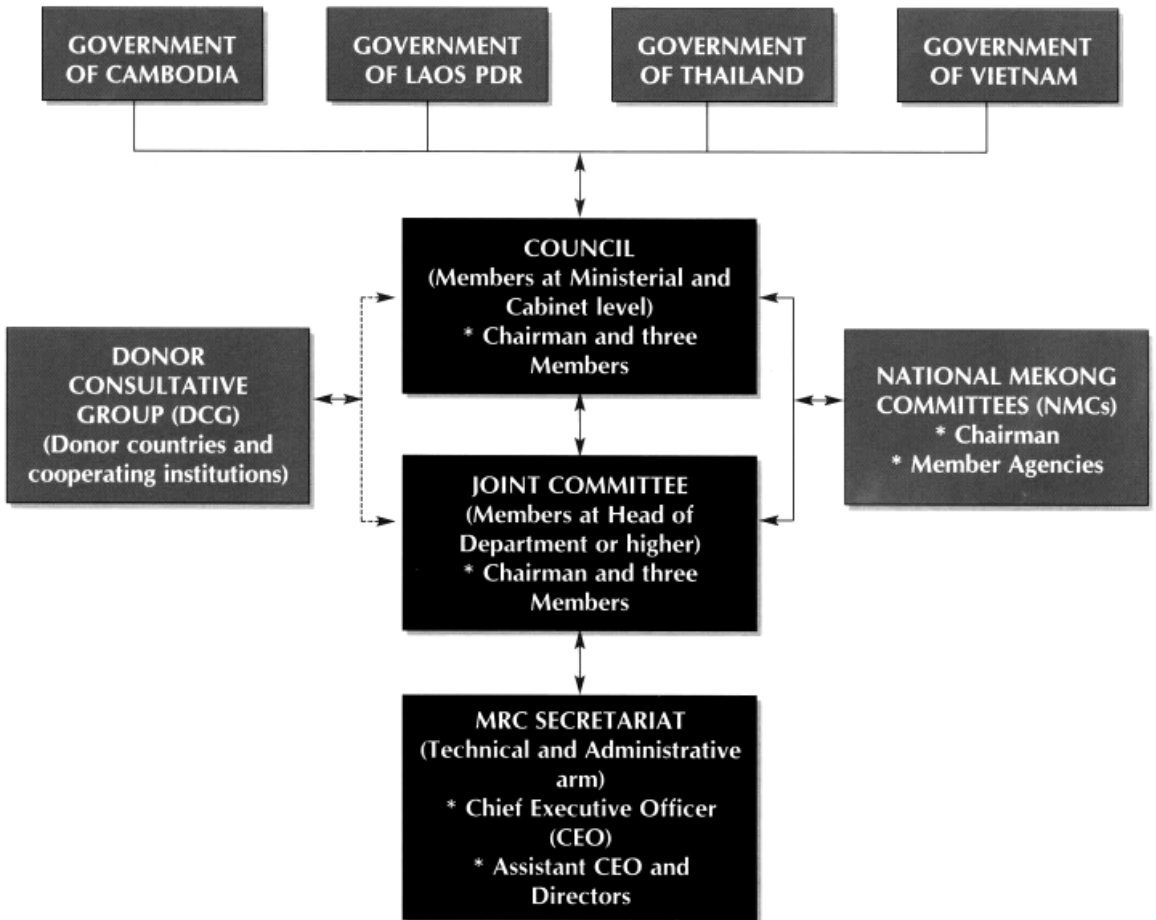


Figure 2 Mekong River Commission organizational structure

regional security and international relations were enhanced through the Mekong Secretariat's collaborative, science-based programmes. By providing a forum for cooperative dialogue on water-related issues, the Mekong Committee allowed the riparian nations to steadily build a foundation for resolving differences and disputes.

Notions of security have subsequently broadened and today include issues such as environmental degradation and food supply. As many of these concerns relate to the basin's water resources, the MRC may have a role to play in addressing both traditional and contemporary security-related issues.

The Mekong River Commission

The establishment of the Mekong River Commission (MRC) opened a third chapter in Mekong

Project history. The 1995 'Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin' (Mekong River Commission 2001c) created the Mekong River Commission, articulated principles of cooperation and outlined a set of rules for reasonable and equitable use of the basin's water resources. The agreement 'represents a milestone in international water resources management treaties due to its emphasis on joint development, ecological protection, and a dynamic process of water allocation' (Radosevich and Olson 1999, 1). It also mandated a new organizational structure consisting of three permanent bodies: the council, the joint committee, and the MRC Secretariat (the Secretariat implemented a new organizational structure in July 2000 (Figure 2) in hopes of better integrating its work units). The council and joint committee each consist of one high-ranking governmental official from each member nation. As

in the past, there are National Mekong Committees in each riparian nation. The MRC Secretariat executes technical and administrative roles and is headed by a chief executive officer. As opposed to the Mekong and Interim Mekong Committees, the MRC does not operate under United Nations' auspices (Radosevich and Olson 1999). Further, the MRC's mandate was broadened to allow it to address both technical and policy issues. A key change is that, in comparison to the Mekong and Interim Mekong Committees, the MRC is a policy-making body whose decisions have binding authority upon the riparian governments.

The 1995 Legal Agreement reflects political and environmental changes across the basin since the 1970s. An important development is the present and proposed future construction of dams on the upper Mekong River in China. Although China has not expressed an interest in formally joining the MRC, they have engaged in discussions with the MRC. The 1995 Legal Agreement allows for China and Myanmar to join the MRC provided they abide by its provisions. The hydrologic and political implications of dams on the upper Mekong are large and have implications for international relations and security. China's cooperation in comprehensive Mekong River system management will be a key challenge for the MRC in the ensuing decades.

The impetus to create the MRC came from the stabilization of Cambodia's internal politics and a desire by the riparian nations to continue cooperative dialogue and planning efforts on water resources issues. With the signing of the Cambodian Paris Peace Agreement in 1991, Cambodia requested readmission and reactivation of the Mekong Committee (Mekong Secretariat 1989). Cambodia's readmission was not a straightforward matter, however, as much had changed in the basin since the late 1970s. Economic differences and the shifting interests of the riparians have been mentioned. China had begun constructing dams on the upper Mekong. On the lower Mekong, ironically, the viability of mainstem dams had decreased because of environmental and social concerns. Finally, the requirement of the 1975 Joint Declaration requiring unanimous consent of all riparian nations through the Mekong Committee for mainstem development and inter-basin diversions (Article 10) seemed restrictive to some of the riparians. The four riparian nations, with support from the United Nations Development Programme, entered into a series of meetings and discussions from 1992 to 1995 regarding a new legal framework. The negotiations ended successfully with the signing of the legal agreement on

5 April 1995 in Chiang Rai, Thailand (for a detailed description and chronology of these discussions see Radosevich and Olson 1999, 7).

Mekong River Commission 2001 Work Programme: description

The new legal agreement and the MRC's activities are described in the MRC Secretariat's 2001 Work Programme (Mekong River Commission 2001b). The Work Programme contains important changes from the 1970 and 1987 Indicative Basin plans and reflects new perspectives regarding Mekong River basin management. The MRC has adopted a vision statement for the river basin and has adopted a mission statement for the MRC. The MRC council approved a strategic plan in 1998 that defined visions, goals, and strategies for the MRC and that provides direction to the 2001 Work Programme.

Perhaps the key change embodied within the Work Programme is a shift from a previous emphasis on constructing individual water projects to a more comprehensive, spatially integrated and science-based orientation toward wise management of existing resources. As current MRC chief executive officer Joern Kristensen explains in the foreword to the Work Programme, it represents a 'shift from a project to programme approach' and a shift from 'project execution to monitoring and management of the Mekong River Basin' (Mekong River Commission 2001b, 1). This reflects the MRC's effort to design its Work Programme to be adaptable to the Mekong basin's dynamic environmental and social conditions. The Work Programme recognizes rapid population growth and watershed degradation as crucial challenges and emphasizes adaptation and flexibility as key planning themes: 'The MRC is developing a better capacity to cope with political, economic and social changes in the basin' (Mekong River Commission 2001b, 1).

The Work Programme is divided into three areas: core, support and sector. The core programme includes a basin development plan, a water utilization programme and an environment programme. The sector programme encompasses fisheries, agriculture/irrigation/forestry, water resources and hydrology, navigation, and tourism. The support programme focuses on capacity-building and emphasizes strategic planning, human resources improvement and improved financial management.

The core programme builds upon and extends traditional Mekong Secretariat efforts in hydrologic data gathering and compilation, and water quality monitoring and modelling. Through its three components – a basin development plan, a water utilization programme and an environment programme – the core programme promotes regional

cooperation, better scientific information and modelling and environmental preservation. This programme is built upon a section of the 1995 legal agreement that focuses on a basinwide development plan that is equitable (promoted by the water utilization programme) and sustainable (promoted by the environment programme). The basin development plan is expected to produce a basinwide planning process, planning guidelines and criteria, and a basinwide list of priority projects. The basin development plan is a key mechanism for the MRC in promoting international cooperation. The water utilization programme includes hydrologic modelling, social science analysis of transboundary management issues, and institutional and human resources capacity building activities. The environment programme includes environmental monitoring and assessment, water quality studies and studies of the links between people and aquatic ecosystems.

The support programme is embodied within a capacity building programme, which focuses on strengthening several aspects of the MRC and its Secretariat. It includes strategic management, programme planning, human resources management, financial management, and information and communication systems.

The sector programme emphasizes environmental values of the Mekong's aquatic ecosystems in terms of animal protein, income and employment, and their contribution to regional food security (see also Kristensen 2001a). Its components are programmes in fisheries, agriculture, irrigation and forestry, navigation, and tourism. Two objectives of the fisheries programme are to improve fisheries management systems and to increase small-scale aquaculture development. Details of aquaculture efforts include proposals for projects in the Mekong Delta floodplains, the central plains and highland areas. The agriculture, irrigation and forestry programme focuses on three factors: water use (and drainage) efficiency, catchment management planning and capacity building within the Secretariat and the National Mekong Committees. This programme aims to contribute to land and water uses that are essential to regional food security, noting that agriculture is the main employment sector in the basin and is key to poverty alleviation, and its catchment management component identifies activities in 'cross border and other fragile areas where adverse impacts . . . are being experienced that have some basin wide implication' (Mekong River Commission 2001b, 42). The programme's water resources and hydrology component includes components on basinwide hydropower development and flood damage reduction. The 2000 floods stimulated the creation of a Flood Mitigation and Management programme that aims

to reduce deaths and damages from floods, while recognizing floods' ecological values (Mekong River Commission 2001a). Preservation of environmental resources and biological diversity and production is a prominent theme in the sector programme, as it describes negative impacts of dams, such as blocking of fish migration routes.

Mekong River Commission 2001 Work Programme: commentary

The MRC's 2001 Work Programme represents a marked shift from the indicative basin plans of the Mekong and Interim Mekong Committees. The key change is a shift in the MRC's overall perspectives and approach to river basin planning. The historical emphasis in lower Mekong basinwide planning was on hydropower and irrigation. The MRC's 2001 Work Programme emphasizes international cooperation, monitoring of environmental changes, values of biodiversity and an ability to improve social and economic conditions while adapting to change.

A key human resources development issue relates to Article 33 of the 1995 Legal Agreement, which limits MRC staff to two consecutive three-year terms. A strength of the Mekong and Interim Mekong Committees was a rich institutional memory provided by a cadre of experienced staff members. Although there is value in periodically rotating in new staff members, this must be balanced against a need for a strong institutional memory within the MRC, given the region's rapid environmental, social and political changes.

In addition to core traditional Mekong Secretariat initiatives such as hydrologic data gathering and modelling, flood forecasting and warning, and navigation improvements, the Work Programme addresses present and future concerns by including contemporary planning concepts such as organizational strengthening, environmental preservation, transboundary issues, adaptive management, ecological modelling, indigenous people and food security. In a departure from the Mekong and Interim Mekong Committee 1970 and 1987 Indicative Basin Plans, the Work Programme contains no plans for mainstem dams. Plans for tributary dams are framed in terms of their human and social implications. Hydropower development plans appropriately call for reappraisal (ex post) studies and for stakeholder involvement. The MRC Work Programme addresses relations between economic and social development, environmental resources and preservation, and food security and conflict resolution. These interdisciplinary links are especially important given regional population growth and increasing pressure on environmental resources, and upstream development in China.

The MRC's Work Programme represents a merger between historical Mekong Secretariat programmes and modern planning techniques and general water resources planning approaches. The 1995 Legal Agreement provides a framework designed to allow for some uses of Mekong main-stem waters, but recognizing the importance of guarding against potential reductions in low dry season flows. The 1995 Legal Agreement also provides an example of how differing visions of Mekong River development between the riparian nations were synchronized by working cooperatively through the MRC. Despite the new planning and legal frameworks, the MRC and Secretariat are likely to be challenged by current and possible future activities on the mainstem. For example, with a recent agreement on 'Commercial Navigation on the Lancang-Mekong River' between China, Laos, Myanmar and Thailand, the treaty currently 'is facing possibly its first serious test' (Kristensen 2001b). The signatory nations propose to remove shoals and rapids in the Mekong River to allow for the passage of ships weighing up to 500 t. Such measures are likely to have negative impacts on Mekong River fishes and their habitat and migratory routes. Achieving an appropriate balance between economic development and environmental protection in similar trade-off decisions will pose scientific and diplomatic challenges to the MRC.

China has completed one dam on the upper Mekong River, is completing a second and has plans for several more dams and storage reservoirs for hydropower production. These dams could eventually be operated to augment low Mekong River flows between January and May. This could be beneficial to the lower basin, especially the Mekong delta, where salinity intrusion from the South China Sea during the dry season limits rice production. The future operations schedules of these reservoirs are not yet established, however, and negative downstream impacts could result in international tensions. Chinese development on the Upper Mekong points to the value for some degree of MRC involvement, as cooperative operations of these dams may make a significant difference in the dams' downstream ecological impacts. This issue has large implications for international relations and for sustainable water management, both of which the MRC is in a position to promote.

The MRC is building upon the foundation of scientific knowledge and international diplomacy provided by its predecessor organizations. The MRC is in a position to promote sustainable development of the Mekong Basin's water and related resources, as well as international cooperation and regional security. The MRC is, however, a small organization with limited resources operating in a

region of widespread poverty that still experiences civil tensions. A thematic review on river basin commissions submitted to the World Commission on Dams described well the MRC and its abilities and programmes:

Whilst not perfect, it is a good example of what good basin management can do in the context of international co-operation, even in an initial environment of conflict and distrust.

(Millington 2000, 26)

Summary

Operating in a context of instability and surprises, the Mekong Committee was forced to make many adjustments to its work programme and membership. The Committee had to depart from its original vision of river basin planning, which included large multi-purpose dams on the Mekong River, to a programme focusing on smaller-scale and non-structural water resources development. As a result, the Committee developed a knowledge base of lower basin hydrology, kept its options for main-stem water uses open, and developed a high degree of organizational resiliency. The organization persisted through difficult times, during which it provided a forum for cooperative, international discussions on an issue of common interest when tensions were running high between the lower Mekong riparian nations.

Security issues during the Mekong Committee's existence centred upon the effects of armed conflict within the basin and on the Secretariat's work programme. The MRC is addressing a broader set of security concerns, and in doing so is drawing upon the organizational resiliency and science-based programmes established by its predecessor organizations. The MRC is shifting from a project-to a programme-related approach, which includes a concern regarding food and civil security issues. The 1995 Legal Agreement is an example of the riparian nations resolving differing views on water development through the MRC. In emphasizing better management and preservation of existing resources, the MRC stands to play a role in contributing to international cooperation and to broader notions of regional security. In doing so, the MRC will benefit from the previous decades of science-based programmes and entente established by the Mekong Committee and IMC.

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