

PROJECT BRIEF

1. IDENTIFIERS:

PROJECT NUMBER:	4E-PE-4-5864
PROJECT NAME:	Mekong River Basin Water Utilization Project
DURATION:	7 Years
IMPLEMENTING AGENCY:	World Bank
EXECUTING AGENCY:	Mekong River Commission
REQUESTING COUNTRY OR COUNTRIES:	Cambodia, Laos, Thailand and Vietnam
ELIGIBILITY:	Eligible under para 9(b) of GEF Instrument
GEF FOCAL AREA:	International Waters
GEF PROGRAMMING FRAMEWORK:	OP 8 Water-body based

2. SUMMARY:

The Project would help the member states of the Mekong River Commission (MRC): Cambodia, Laos, Thailand, and Vietnam, implement key elements of the 1995 Agreement on Cooperation for Sustainable Development of Mekong Basin (Agreement). The Project's broad development objectives would be to assist the MRC to establish mechanisms to promote and improve coordinated and sustainable water management in the Basin, including reasonable and equitable water utilization and water quality management by the countries of the Basin and protection of sensitive ecological systems including wetlands, flooded forests and the estuary system that support globally significant bio-diversity. This would be achieved through preparation of "Rules" for water utilization (in particular, minimum in-stream flows on the Mekong River) and protocols for information exchange, notification/consultation in accordance with the Mekong Agreement. The Project would assist in the formulation and implementation of the Rules by facilitating consultations among the MRC-member states and helping the MRC develop a Basin Simulation Model Package and Knowledge Base.

The Project will help the MRC formulate "Rules" by providing analytical tools, building technical capacity in the MRC and the riparian states, facilitating consultations and providing legal expertise. The terms and conditions of the obligations incurred by the MRC-member states in adopting different types of "Rules" will be explored during the course of consultations and with the support of an internationally-recognized water law expert.

3. COSTS AND FINANCING (MILLION US):

GEF:	-Project	US\$10.75 million
	- PDF:	US\$0.35 million
	Subtotal GEF:	US\$11.10 million
CO-FINANCING:	-IA:	n/a
	-Other International:	n/a
	-Government of:	
	Japan	US\$1.2 million
	Finland	US\$1.0 million
	France	US\$0.6 million
	Subtotal Co-Financing:	US\$2.8 million
COUNTERPART	MRC Riparian Member	

FINANCING	Countries	US\$2.8 million
	MRC	US\$1.6 million
	Subtotal counterpart Financing	US\$4.4 million
TOTAL PROJECT COST:		US\$17.95 million

4. ASSOCIATED FINANCING (MILLION US\$)

5. OPERATIONAL FOCAL POINT ENDORSEMENT:

Name: Mok Mareth

Title: Minister of Environment

Organization: Ministry of Environment
CAMBODIA

Date: March 2, 1999

Name: Monemany Nhoibouakong

Title: Officer in Charge

Organization: Department of Environment Policy
and Protection

Date: February 17, 1999

LAO PEOPLE'S DEMOCRATIC REPUBLIC

Name: Pham Khoi Nguyen

Title: President of GEF-Vietnam

Organization: GEF-Vietnam

Date: February 28, 1999

Name: Wanee Samphantharak

Title: Deputy Secretary-General for
Secretary General

Organization: Office of Environment, Policy and
Planning, Thailand

Date: March, 1999

6. IA CONTACT:

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A: PROJECT DEVELOPMENT OBJECTIVE

1. Project development objective and key performance indicators (see Annex 1):

The Project would help the member states of the Mekong River Commission (MRC): Cambodia, Laos, Thailand, and Vietnam, implement key elements of the 1995 Agreement on Cooperation for Sustainable Development of Mekong Basin (Agreement). The Project's broad development objectives would be to assist the MRC to establish mechanisms to promote and improve coordinated and sustainable water management in the Basin, including reasonable and equitable water utilization and water quality management by the countries of the Basin and protection of sensitive ecological systems including wetlands, flooded forests and the estuary system that support globally significant bio-diversity. This would be achieved through preparation of "Rules" for water utilization (in particular, minimum in-stream flows on the Mekong River) and protocols for information exchange, notification/consultation in accordance with the Mekong Agreement. The Project would assist in the formulation and implementation of the "Rules" by facilitating consultations among the MRC-member states and helping the MRC develop a Basin Simulation Model Package and Knowledge Base.

The Project duration is seven years, from 2000 to 2006, and key performance indicators include (i) a functional, integrated and comprehensive Basin modeling package by 2003; (ii) a functional and integrated knowledge base on water and related resources, with a communication system linking the National Mekong Committees (NMCs) with the MRC Secretariat (MRCS) by 2005; (iii) MRC adoption of protocols for information exchange, water use monitoring, and notification/consultation by 2003; (iv) MRC adoption of minimum in-stream flow "Rules" for the Mekong River by 2005; and (v) MRC adoption of water quality guidelines by 2006.

B: STRATEGIC CONTEXT

1. Sector-related Country Assistance Strategy (CAS) goal supported by the Project (Annex 1):

CAS document number: N.A. Date of latest CAS discussion: N.A.

The Thailand CAS (18002-TH; 16 June 1998) lists, as one of its key development objectives, protection of natural resources and the environment, and proposes improvement of natural resources management as a key action to meet this objective. The related World Bank objectives include: (i) increasing efficiency of water use; (ii) improving watershed protection through establishing a framework for watershed management; and (iii) establishing clear policy and institutional frameworks. In giving priority to rural development and natural resources, the CAS indicates the Bank's desire to take a strategic approach to its assistance in these areas. To this end, the Bank has undertaken work with Government on a Rural Development Strategy (RDS), which recommends that the management of natural resources be improved, in order to ensure the sustainability of rural development, and highlights water as an important natural resource, and recommends two key actions: increased and more participatory management of watershed areas, as well as more integrated management of water supply and demand. Lao PDR is rich in two natural resources of great interest to its dynamic neighbors: timber and water resources, the latter is particularly important for hydropower generation, which is one of the country's main assets, and offers significant potential for national socio-economic development and regional integration. The Lao CAS (15284-LA, Jan. 18, 1996) in both areas is to support

sustainable development: environmental sustainability is a key consideration and an integral element of all Bank interventions. It emphasizes that agriculture is the backbone of the Lao economy, yet poverty is concentrated in rural areas. Reducing slash-and-burn farming and increasing forest protection in major watersheds are important elements to preserve catchment areas of hydropower sites. The Vietnam CAS (18375-VN; Sept. 22, 1998) places great emphasis on Bank's support for improving management of natural resources, of which water resources form an important part. The Cambodia CAS (16255-KH, Jan. 28, 1997) highlights enhancing rural development and natural resources management as one of the key CAS supported areas. It states that effective management and protection of country's forest and other natural resources is a priority on which the Bank places considerable emphasis in its assistance strategy. Biodiversity protection is also an area for support.

In achieving the Bank's overall objective of poverty alleviation through sustainable development of natural resources, the Bank supports *global and regional* initiatives that help countries deal with transboundary issues, such as international waters. This is reflected in the Bank's Water Resources Management Policy (1993) which directs the Bank to promote the cooperative management of international water resources, when requested. The 1995 Mekong Agreement among the four lower riparian countries reflects the goodwill of the MRC-member states to cooperate in the sustainable development of the Basin, and to create a positive foreign policy environment in the region. The Agreement sets a framework of riparian cooperation and outlines general principles and protocols, organizational arrangements of MRC and scope of authority. But the MRC still needs to make progress in implementing the provisions of the Agreement to sustain the international goodwill of regional collaboration engendered by the Agreement. This Project is in the nature of regional technical assistance to support the MRC and its member states. Its outcome will contribute to natural resources protection and improved water resources utilization and management in the basin, and thus is in line with the thrust of individual country CASs in these countries, i.e. supporting sustainable natural resources management.

2. *GEF operational strategy/program objective*

Regional Cooperation in the Mekong. Regional cooperation in mainland Southeast Asia has increased dramatically since the end of the Cold War and the cessation of the Cambodian conflict in the early 1990s. In Vietnam and Laos are now full members of the Association of Southeast Asian Nations (ASEAN), and Cambodia's application to ASEAN is currently under review. There are currently a number of regional initiatives to promote economic integration in the trade, transport and power sectors and through cultural exchanges in the basin. Some of these initiatives are backed by international development agencies, such as UNDP, ASEAN, and ADB (e.g., the Greater Mekong Sub-Region program).

Cooperation among the lower Mekong countries began in 1957, with the establishment of the "Committee for Coordination of Investigations of the Lower Mekong Basin." The Committee conducted hydro-meteorological investigations and pre-investment studies which focused on a cascade of large international reservoirs along the main river. In the aftermath of the Vietnam War, the framework of cooperation was restructured to reflect the new geopolitical realities when Cambodia became a "non-participating/active member" in 1976 (although it did not renounce the earlier Mekong treaties). The other three countries established the "Interim Mekong Committee" to keep the Mekong Committee's activities going until Cambodia would participate

in “reactivating” the MC. Following the Cambodian Peace Agreement in 1992, Cambodia requested readmission to the Mekong Committee. By the early 1990s, however, the mainstream reservoir cascade no longer appeared tenable because of environmental and resettlement concerns. The framework of cooperation was restructured to include Cambodia and address the two most important issues: dry season water sharing, and protection of the environment and ecological balance. In 1995, the four countries (Cambodia, Laos, Thailand and Vietnam) of the lower Basin signed the “Agreement on Cooperation for the Sustainable Development of the Mekong River Basin”. The Agreement, which establishes the MRC, recognizes the vital role that water resources play in socio-economic development and the need to ensure that valuable natural resources are developed and managed in a sustainable manner.

The Agreement includes provisions for MRC to formulate “Rules” for Water Utilization” and other “Rules”. The term “Rules” is used in a general sense to refer to the obligations of the MRC-member states with respect to:

- 1) Protocols for the notification and consultation of proposed water uses under Article 5 of the Agreement.
- 2) Maintenance of flows on the mainstream of the Mekong River according to Article 6 of the Agreement. In particular, the maintenance of dry season minimum flows based upon an analysis of the natural flow regime.
- 3) Water quality criteria, guidelines, and measures for the protection of beneficial uses, including the aquatic eco-system.
- 4) Protocols for monitoring water use and diversions in the Mekong Basin.
- 5) Protocols for information exchange and monitoring.

CONSISTENCY WITH GEF OPERATIONAL INTERNATIONAL WATERS PROGRAM.

The GEF has selected several regions to concentrate its IW portfolio to maximize GEF’s strategic impact. Two areas are the Danube-Black Sea Basins, and the South China Sea region. In the latter region a major regional project involving three of the four Mekong riparian countries (Thailand, Cambodia, and Viet Nam) is at an advance stage of preparation by UNEP. The project would support the participation of the MRCS and NMC WUP management teams in the activities of the South China Sea inter-governmental steering committee and the issue oriented technical committees being established. The project would also support the participation of the WUP management teams in major regional meetings of GEF project teams in the other strategic regions and in the Global IW meetings being planned by UNDP.

The Project is consistent with the policies and priorities of the GEF Waterbody-Based Operational Program (OP#8). The Project would develop tools and the related knowledge base to enable the riparian countries to gain a deeper understanding of the hydrologic linkages between the natural environment, water utilization, and strategic transboundary water and environmental issues, and to formulate and implement appropriate “Rules” to ensure reasonable and equitable water use. These “Rules”, and the corresponding regional mechanisms and procedures for their implementation, provide the essential framework for preparing and agreeing on a regional development plan and for the development of compatible national plans and strategies. These linkages will be strengthened under the Project by directly involving national stakeholders, the respective National Mekong Committees and national institutions concerned with water and

natural resource sector policy and development, in the preparation of the “Rules” and the development of the related tools and knowledge base. The Project thus addresses the key existing barriers to effective cooperative action to adopt national policies and strategies that are consistent with the protection and enhancement of the globally significant natural resource base of the Basin.

3. *Main sector issues and MRC strategy:*

Main Sector Issues. The major sector issues relate to equitable sharing of the water resources and sustainable development of the natural resources in the Basin. The most critical factors are related to changes in the hydrology in the dry season flow in the lower Basin. Laos and Cambodia rely heavily on river transport and the reduction of dry season flows could adversely affect navigation. Cambodia has the long-term potential for increasing its irrigated agriculture. Over the decades, Vietnam and Thailand have developed extensive irrigation systems that currently face dry season water constraints. Seawater intrusion into the Mekong Delta during the dry season adversely affects irrigation and domestic water supplies. Vietnam makes substantial use of dry season flows from the River, primarily to prevent seawater intrusion and for irrigation purposes. Thailand has been studying options for diverting water from the Mekong, and for inter-basin diversion from Thai tributaries to the Mekong.

Hydropower development throughout the Basin is gaining momentum, especially in China and Laos. Currently, there are only 500 MW of installed capacity in the Lower Mekong and 1500 MW along the Chinese portion of the River. China is constructing several hydropower schemes on the Mekong River. Laos has plans to construct a number of medium-sized hydropower Projects on Lao tributaries to the Mekong. Carefully planned hydropower development can bring two positive regional impacts. First, both China and Laos would like to export power to Thailand and options for creating a regional power grid are under study. Second, hydropower schemes could increase the dry season flows by storing wet season flows and releasing the water to generate power during the dry season. Increased dry season flows would benefit the dry season water demand in the Lower Basin. Thus, how to share the potential additional dry season flow would be of key interest to the lower riparians. Hydropower development, however, also carries significant risk of upsetting the Basin’s ecological balance by changing the annual flow regime (i.e., decreasing wet season flows and increasing dry season flows) and blocking important fish migration routes.

Protecting the Mekong Basin’s ecological balance would bring important global benefits because of its significant biodiversity, wetlands, flooded forests, and estuary system. The Basin supports one of the most productive and diverse freshwater ecosystems in the world. Annual floods support a rich riparian habitat and an extensive network of wetlands. Water flooding into nutrient rich areas, combined with high levels of solar energy, help fuel a high-powered ecosystem. There are an estimated 1200 fish species in the Basin. Many fish species are migratory, but relatively little is known about the Basin’s aquatic ecology. Freshwater and estuary capture fisheries constitute a major source of protein and an important element of food security for the Basin’s mainly poor and rural population.

The long-term sustainability of the Basin’s fisheries is threatened by increasing harvests, habitat degradation and water development projects that cut off migration corridors between spawning, nursery, and adult habitats. Already a number of aquatic-dependent species have been classified as rare or endangered, including 18 species of waterbirds and 16 species of mammals.

Important endangered species include the Irrawaddy dolphin, the Chinese white dolphin, the black finless porpoise, the freshwater giant catfish, and five waterbirds: the Eastern sarus crane, the giant ibis, the white-shouldered ibis, the greater adjutant stork, and the lesser adjutant stork. There is little information about freshwater turtles, tortoises and terrapins, but there are almost certainly several rare and endangered species in this group.

The heart of the Mekong Basin's ecosystem lies in the globally significant wetlands and flooded forests in the Tonle Sap, the Plain of Reeds, and the coastline ecosystem. The Tonle Sap (also known as the Great Lake of Cambodia) lies in the middle of Cambodia and is fed by runoff from its own sub-basin and by reverse flows from the Mekong River during the wet season; during the dry season the Tonle Sap drains into the Mekong Delta, helping to combat seawater intrusion and maintain the Delta's ecological balance, including extensive mangrove forests. During the wet season, the Tonle Sap expands from 2,500 km² to over 10,000 km², and supports an extensive flooded forest which provides ideal habitat for fish spawning and nursing. Fish migrations from the Tonle Sap into the Mekong River help restock fisheries as far upstream as China and many tributary rivers along the way.

The Plain of Reeds is a transboundary ecosystem covering 7,000 km² in Vietnam and 3000 km² in Cambodia. (Cambodia, with both the Tonle Sap and Plain of Reeds has an estimated 5% of Asian wetlands of international importance, as estimated by IUCN). The Plain of Reeds is subject to seasonal flooding from the Mekong River system. During the peak flood period the Plain becomes a vast lake with some areas flooded up to 4 meters. The flora in the Plain of Reeds is quite complex due to the high variety of flood regimes. During the flood season, the Plain supports a large number of fish species which move from upstream areas for breeding and nursing. A number of water birds, many winter migrants considered to be threatened birds of the world, are supported in the Plain of Reeds.

Water quality management has been a matter for considerable discussion among the riparian countries of the Mekong Basin since the signing of the Mekong Agreement. Much of the controversy stems from the lack of knowledge about water quality conditions and the dynamics of water quality related to water and land use (industrial development including mining remains low throughout most of the basin except northeast Thailand), but it also stems from a lack of agreement on individual and collective responsibilities. A prime example is the problem of salinity management in the delta which is dependent not only on upstream water use and the outflow from Tonle Sap in the dry season but irrigation and drainage management by Vietnam in the delta. The MRC and several donors, including Swedish SIDA have undertaken and are continuing to support programs to strengthen water quality monitoring and assessment and hence to build the knowledge base. Under the proposed project, water quality modeling will be fully integrated into the basin modeling package under a program supported by the French. This activity will be initiated with a thorough assessment of water quality and the mid-term and long-term threats to water quality, an analysis of alternative phased programs under the MRC to address these threats, and the development of suitable basin model components to facilitate integrated water quantity and quality analysis as a part of rules development. The MRC WUP Management Team will closely coordinate GEF project activities with those to be supported by the French, and currently supported by SIDA and other donors, to insure that the knowledge base and the basin modeling package can adequately deal with water quantity and quality issues.

The estuaries in the Mekong Delta maintain important ecological processes such as

transport of nutrients, plankton, shrimp, fish larvae, and detritus—all essential components in the aquatic food webs. The estuaries of the Tien River (part of the Mekong River system) has been listed by IUCN as an internationally important wetland. Many shrimp and fish species depend on the estuaries for their breeding and nursing. Their migration and reproductive patterns are strongly influenced by river water flow and tidal regimes. The estuaries of the Delta also support rich mangrove forests.

MRC Strategy. *In June 1998, the MRC, with assistance from UNDP, prepared its first “Strategic Plan (1999-2003)”, which sets out visions, goals and strategies both for the Lower Mekong Basin and for the MRC. The Strategic Plan recognizes the changing socio-economic and financial environment in the region, and reviews the forces driving the changes in the countries, donor community and global environment. It then, within the broad MRC mandate of the Mekong Agreement, identifies five medium-term goals:*

- 1) Establish the “Rules”: this includes, *inter alia*, establishing minimum flows on the Mekong River and the review of proposed water uses.
- 2) Formulate the Basin Development Plan: To be used as a general planning tool. for sustainable management and development of the Mekong Basin.
- 3) Establish MRC environmental management policies and guidelines.
- 4) Complete on-going programs and Projects, and initiate new activities.
- 5) Improve the capacity of the MRC.

To achieve the goals, the Strategic Plan identifies four Key Result Areas (KRA) or “Core Business Areas”---(i) Natural Resources Planning and Development; (ii) Environmental Management and Social Considerations; (iii) Database and Information Systems; and (iv) Organization Management and Cooperation. Specific strategies and performance indicators are defined for each KRA, which drives the formulation of the MRC five-year indicative work plan and the 1999 work program. The Strategic Plan and the priority programs were extensively discussed with key stakeholders, including national line agencies. The MRC Council approved, in October, 1998, the Strategic Plan and the work plan, which were then presented at and widely supported by the Consultative Meeting after the Council meeting.

4. *Sector issues to be addressed by the Project and strategic choices:*

The Project would support the MRC in achieving one of its five major medium-term goals: establishing “Rules”. It would directly address the key sector issues of water utilization and ecological protection. It would provide the MRC with both the analytical tools for their Water Utilization Program (WUP), and negotiation assistance in formulating the “Rules” (Section E.3).

Both the indicative 5-year work plan and the 1999 annual work program highlight the WUP, together with Basin Development Plan (BDP) and the reshaping of the internal management of the Secretariat, as the key programs to implement the MRC Strategy.

WUP has been adopted by the MRC Council as a permanent program to formulate, implement and modify the “Rules”. It will be an important mandate of the MRC in providing the riparian countries with the basic tools to implementation of the Agreement and in achieving

sustainable resources management in the basin. It is intended to be an umbrella program, under which priority activities of the two MRC Subcommittees (Water Quantity; Water Quality) would be implemented. WUP provides a foundation for BDP and MRC's resources programs. However, international water management is a long-term, dynamic and often contentious process. The objective of the WUP and the process of river basin management will be evolutionary and may take a long time to mature.

BDP, which preparation has just started, will provide a basin-wide framework for sustainable socio-economic development. One BDP's critical input is WUP, and the timing of the two Projects is seen to be mutually beneficial. Several donors conditioned their future financial support to the MRC on demonstrated progress in these two key areas.

Establishing the WUP and formulating the BDP are supporting exercises in three ways: i) the BDP will use the databases and modeling tools developed by WUP; (ii) the "Rules", developed under WUP, particularly the dry season minimum flow "Rules", will establish constraints on future water resource developments; and (iii) by analyzing water-related Projects under different development scenarios, the BDP will provide valuable information to the MRC when it reviews proposed water uses under the notification "Rules" formulated under WUP.

This Project will mark the starting point of the long term MRC's WUP. While it has a 7-year span, it should be seen as a first step along a long road, aiming to provide an opportunity to bring the riparians together for meaningful dialogue on improved basin management. (see Section E.3 for detailed technical issues).

C: PROJECT DESCRIPTION SUMMARY

1. Project components (see Annex 1 and Annex 2):

Project Component	Category	Cost (US\$M)	% of Total	GEF-Financing	% of GEF-financing
A. Basin Modeling and Knowledge Base	Institutional	10.6	59%	6.5	60%
B. Rules for Water Utilization and Water Quality Management	Institutional	1.2	7%	0.8	63%
C. Institutional Strengthening	Institutional	6.1	34%	3.5	58%
Total Project Cost		17.9	100%	10.8	60%

The Project would consist of three components:

- 1) Developing necessary analytical tools and a comprehensive basin simulation package to support MRC's basin management decisions, determining and monitoring the "Rules"; and putting functional information sharing mechanisms in place.
- 2) Drafting "Rules" to establish minimum flows in the Mekong River, define water sharing and utilization and water quality management; preparing detailed review and notification protocols and procedures; and assisting in negotiations and consultation during formulation of the "Rules".
- 3) Strengthening institutional (regional and national) capacity to implement the "Rules", undertaking basin management functions, coordination with upper riparians and

donor agencies, supervision and monitoring of the implementation of the Project, and financial and procurement management.

Project Sub-Components and GEF Inputs

Project Sub-Components	GEF Inputs
<p><i>A. Basin Model Package and Knowledge Base</i></p> <p>A.1 Information and Knowledge Base Development</p> <p>A.2 Development of Basin Modeling Package</p> <p>A.3 Environment, Economic, Social and Trans-boundary Analysis</p>	<p>GEF financing \$6.5 million, including:</p> <p>International and local consultants in hydrology, water resources management, environmental sciences, information and knowledge systems, modeling, etc.</p> <p>Equipment for the MRCS and each riparian country for information system management and modeling</p> <p>Workshops and technical meetings</p>
<p><i>B. Development of the Rules for Water Utilization</i></p> <p>B.1 Procedural Rules</p> <p>B.2 Physical Rules</p>	<p>GEF financing \$0.8 million, including:</p> <p>International expertise including facilitation of interstate negotiations and consensus building, and legal advisor;</p> <p>Frequent and periodic consultations for the formulation and agreement on water utilization rules</p>
<p><i>C. Institutional Strengthening of MRC and NMCs</i></p> <p>C.1 Program and Project Management Support and Capacity Building</p> <p>C.2 Technical Training and Capacity Building</p> <p>C.3 Communications, Participation, and Public Awareness</p> <p>C.4 Participation in GEF Global and Regional Projects and Programs</p>	<p>GEF financing \$3.5 million, including:</p> <p>Advisory team to support development of permanent WUP management unit in MRC and management of project</p> <p>Expert review panel</p> <p>Stakeholder workshops, short courses, training and technical collaboration among riparian countries</p> <p>Participation of WUP management team in GEF South China Sea, IW:Learn, and Mekong Wetlands projects</p>

The Project will help the MRC formulate “Rules” by providing analytical tools, building technical capacity in the MRC and the riparian states, facilitating consultations, and providing legal expertise. The terms and conditions of the obligations incurred by the MRC-member states in adopting different types of “Rules” will be explored during the course of consultations and with the support of an internationally-recognized water law expert.

Protection of the globally significant ecosystems in the Mekong River Basin will be a key element in the development of the analytical tools and a principal requirement in the rule making.

A Project implementation schedule is presented in Annex 5. The long seven-year implementation period is necessary because the modeling, knowledge base development and rule making are long-term activities which will require many iterations and a long process of consensus building.

2. Key policy and institutional reforms to be sought:

The MRC’s Strategic Plan calls for a shift of MRC focus away from managing Projects, as in the past, to managing water and related natural resources in the Basin, and away from basin

development to basin management. In the past, the MRC and its predecessor, the Mekong Committee, have collected a huge amount of information on the Mekong Basin but have been ill-equipped to use this data for management purposes. The shift will drive the organizational development and reform of the MRC and Secretariat. The second challenge will be the shift away from donor-driven Project dynamics to MRC-driven dynamics that are now discernibly in progress, underlined by the Strategic Plan. The Project, both its content and implementation process, will be at the heart of supporting these shifts. To do so, it would provide the basin agency with analytical tools to assist information processing, sharing and informed decision-making, and will put in place necessary institutional measures for managing the basin's water and related resources. The Project will be prepared, implemented and managed by the MRC and NMCs, with assistance incorporating international experience.

The Project will encourage the participation of upper riparians, China and Myanmar, in consultations and discussions of basin management issues. Currently, China and Myanmar are not signatories to the 1995 Mekong Agreement, but official MRC dialogue partners. Planned hydropower reservoirs in China will fundamentally alter the dry flow season flow regime in the Mekong River and may also have a significant impact on wet season flows (Section E.3). Incorporation of Chinese activities into MRC management activities is important for the long-term success of the MRC.

The "Rules" will provide a critically needed regional framework for the preparation of national plans and strategies that are consistent with the principles agreed by the riparian countries in the Mekong Agreement. By directly involving the NMCs, and the respective line agencies responsible for sector plans and policies, in the development of basin analytical tools, building the basin knowledge base, and in the formulation of the "Rules", the Project will create the enabling environment for policy reform and action at the national level essential to achieving the regional goal of sustainable development of the natural resources of the Mekong Basin.

3. *Benefits and target population:*

The target population will be those living within the Mekong River Basin or utilizing their waters. The Project would benefit the populations in the Basin, as well as in the riparian countries that depend heavily on the Mekong basin's natural resources to sustain their socio-economic development. It would benefit the basin's ecosystems. These benefits would result eventually from the implementation of the "Rules" and procedures for water utilization and the improved understanding of the river system through the models and analytical tools. The Project will also benefit the whole region in terms of stipulating political cooperation and dialogue. Donor community and other interest groups would gain indirect benefits from a more effective and coordinated use of their funds and assistance.

4. *Institutional and implementation arrangements:*

The Mekong River Commission. The MRC is an inter-governmental organization of the four lower Mekong Basin states: Cambodia, Laos, Thailand, and Vietnam. The MRC is composed of three permanent bodies:

- The Council, which is composed of one member from each state at the Ministerial and Cabinet level who is empowered to make policy decisions on behalf of his/her government.

- The Joint Committee (JC), which is composed of one member from each state at no less than the Head of Department level and acts as the management body for the MRC and implements the policies and decisions and of the Council.
- The Secretariat (MRCS), which renders technical and administrative services to the Council and Joint Committee, and is under the supervision of the Joint Committee. The Secretariat is located in Phnom Penh and has a staff of approximately 100 including both international and riparian staff.

The JC has also established sub-committees to help it address two high-priority MRC issues: Basin Development Plan (BDP) and Water Utilization. There are two water utilization sub-committees: Water Quantity Sub-Committee and Water Quality Sub-Committee. The MRCS also renders technical and administrative services to the sub-committees.

The MRC has an annual budget of approximately \$10-\$15 million per year, which can be divided into two parts: administrative costs (\$2-3 million), and program/Project costs (\$10-12 million). Multilateral and bilateral donor agencies provide grant financing for almost all of the MRC's program/Project costs. Administrative costs are funded from contributions by MRC-member countries (\$175,000 per country in 1997), donor grants, an 8% surcharge on donor-funded Projects, and treasury management.

National Mekong Committees: Each MRC-member country also has a National Mekong Committee (NMC) that formulates national policies vis-a-vis the MRC, and provides coordination between national line agencies and MRC Projects. A typical MRC Project involves the MRCS technical staff, national line agencies, and international consultants. Although the structure of the NMCs varies by country, the general arrangement is to have three bodies: (i) an inter-ministerial policy-making body; (ii) a management group consisting of key governmental departments; and (iii) a secretariat to support the NMC.

Implementing Agency. The Mekong River Commission (MRC), through its Secretariat (MRCS), will be the implementing agency for the Project. The MRCS will undertake procurement duties, including: (i) contracting consultant services, (ii) purchasing office and communication equipment, and (iii) purchasing computers, software, and related equipment.

WUP Unit and Management Team. The MRCS will create a permanent "WUP management team" to lead and coordinate the Water Utilization Program. The management team will report to the MRCS CEO and consist of four highly-qualified specialists, one from each country selected by the MRCS from a short-list provided by the respective NMC. The management team will be supported by a small team of consultants funded by the GEF grant. The head of the WUP management team (one of the riparian staff), the other three riparian staff and supporting consultants, will function as a fully integrated team.

WUP Working Groups. The WUP management team will organize and supervise "Working Groups" which will be responsible for carrying out activities of the WUP. The WUP management team will draft Terms of Reference (TOR) for each working group. Two technical working groups are envisaged: (i) Basin Modeling and Knowledge Base; and (ii) Environmental and Transboundary Analysis. The two technical working groups will support a "Rules" Working Group. The two technical working groups will also support the ongoing program to prepare a BDP by sharing and exchanging data, information, modeling tools and results. The working groups will consist of MRCS staff from the existing divisions; national staff from the NMCs and

line agencies, and local and international consultants. The national staff will be selected by the National WUP Units (discussed below). The national staff and the MRCS staff will form an integrated team with a joint TORs and workplan. The actual work will take place both within the countries and at the MRCS offices in Phnom Penh.

WUP National Units. Each NMC will also establish a permanent “WUP national unit” composed of high calibre technical staff from the NMC Secretariat and seconded by key line agencies. The national units will have day-to-day responsibility for coordination of national participation, including the preparation of short-lists of technical specialists to be selected by the MRCS for the WUP management team and working groups. WUP national units will facilitate and support the participation of line agency technical specialists in the WUP working groups, and carry out agreed upon technical and administrative tasks.

Partnership with UNDP. UNDP has been involved in MRC development since its inception. UNDP provided key support in the negotiations and adoption of the 1995 Mekong Agreement, and recently in the development of the MRC’s first “Strategic Plan (1999-2003)”, which sets out visions, goals and strategies both for the MRC. UNDP has proposed and MRC has given preliminary approval to a three-year program to support the implementation of the Strategic Plan through capacity building of MRCS and the NMCs and national line agencies. This capacity building program will be critically important for the long-term success of MRC in general and of WUP in particular. The UNDP program will focus on improving overall MRC management and the Project will focus on strengthening the technical capabilities of NRCS, NMCs and the national line agencies to manage the water resources of the basin through the development of analytical tools and the adoption of “Rules”. These programs are complimentary and mutually necessary. More recently UNDP together with IUCN have begun preparation of a GEF project to support the Mekong riparian countries and the MRC to conserve and sustainably manage wetland biodiversity. This project would, among other things, support the MRC to develop a multilateral framework including a strategic wetlands action plan. Because each of these UNDP activities provides important support for the WUP program, the Bank and UNDP have agreed to closely coordinate supervision and to maintain frequent substantive contact through direct contact as well as sharing of documents.

Accounting, financial reporting and auditing: The MRCS would establish an accounting and auditing system which would have the capability of recording and retrieving all financial transactions associated with the Project in a timely manner and comply with internationally-accepted accounting standards. This would be used for tracking funds to be provided by the World Bank. The accounting system should be in place by effectiveness and an independent assessment should be made soon thereafter. Project Accounts and the Special Account would be audited in accordance with the International Standards on Auditing by independent auditors acceptable to the Bank. For this purpose, the Grant recipient will begin the recruitment process for independent auditors acceptable to the Bank, by effectiveness at the latest. The Grant Recipient would provide the Bank (within six months of the end of each fiscal year), an audit report of such scope and detail as the Bank may reasonably request, including a separate opinion by an independent auditor acceptable to the Bank, on disbursements against certified statements of expenses (SOEs). The separate opinion should mention whether the SOEs submitted during the fiscal year, together with the procedures and internal controls involved in their preparation, can be relied upon to support the related withdrawal applications.

Monitoring and evaluation. The Project will monitor and evaluate: (a) the progress of Project implementation; (b) the achievement of Project objectives; and (c) the compliance with legal covenants. It will identify and evaluate problems in implementation and propose solutions. Project implementation will be compared to the PIP, and specifically to PIP Annex A, Project Description and PIP Annex F, Implementation Schedule. Project implementation progress would be reviewed and compared to: the Project inputs, outputs, outcomes and development objectives and MRC goals; as well as the key performance indicators, the monitoring and supervision mechanisms and the critical assumptions/risks presented in the Logical Framework table in Annex 1. MRCS will monitor and evaluate the physical and financial progress of the Project, based on quarterly progress reports prepared by the WUP management team that will track Project implementation, costs, budgets, procurement and disbursement. MRCS will set up a monitoring system using Microsoft Project Management. Semi-annual reports will be submitted for Bank review.

D: PROJECT RATIONALE

1. Project alternatives considered and reasons for rejection:

In general terms, activities required to achieve the long-term goal of MRC include: *inter alia*, (1) inventory and assessment of water and environmental resources; (2) inventory and assessment of existing and potential water uses and discharges; (3) identification, evaluation and determination of requirements for preservation of wetlands, fisheries, watersheds and other ecological resources; (4) development of integrated geographically referenced databases and computer systems/networks; (5) putting in place appropriate institutional and legal frameworks, and policies and procedures for water resources management; (6) development and calibration of hydrologic, environmental and decision support models and using them to evaluate different structural and non-structural development and management alternatives, water utilization “Rules” relating to both quality and quantity, and scenarios for the operation of hydraulic infrastructure; (7) definition, adoption and implementation of “Rules” for water utilization and discharge in terms of both quantity and quality; (8) development of basin management and development plans; and (9) improving the capacity of MRC, NMCs and the line national agencies to carry-out, maintain and update the above activities through training and technical assistance.

Initially, the Project concept considered inclusion of improving the hydrological network monitoring, data collection and database/ GIS building. But it later became apparent that the above activity areas (1) – (4) have been relatively well-supported by various donors, and most of MRC’s programs completed or on-going are in the nature of collecting data or inventoring basin resources (Section D.2). Consequently, the Project concept was reshaped to support only key activities that are not being adequately addressed so far, such as the activity areas (5) – (7). The Project would focus on the area, formulation and implementation of “Rules”, to allow GEF resources to be concentrated on a single priority activity and to minimize conflict with activities supported by other donors. However, a detailed review into the adequacy (data quality, interval, format, integration) of the databases would be carried out during Project implementation and the Project would make provision to fill any data gaps to support the basin modeling (Annex 2).

Early in 1996, the Bank also explored the use of GEF funds to support the BDP efforts (activity (8)). But several other donor agencies also expressed their interest in supporting the BDP, and GEF funds did not appear to be essential. Rather, it became clear to both the MRC

and the Bank that supporting the WUP as a parallel or even preceding activity to BDP is critical. It was also recognized that the MRC does not have appropriate analytical and modeling tools to support either the BDP or WUP. Thus, BDP concept was dropped and the basin modeling was added to the Project design.

The Project initially was conceived to include only water quantity issues. However, given the close integration with the water quality aspect (Section E.3), it now includes both quantity and quality aspects in basin modeling and formulation of “Rules”.

2. *Major related Projects financed by the Bank and/or other development agencies:*

The Bank or GEF does not have any regional Project dealing with MRC. But many other donors have been funding MRC’s activities, mostly bilateral aid programs that in some cases involve more than one MRC country. Key players in MRC are UNDP (strategy; institutional capacity); Denmark (fishery; wetlands); Switzerland (watersheds; GIS); Sweden and UNEP (water quality monitoring; groundwater investigations); ADB (transport; power; wetlands; GIS); UNEP (GIS; water quality monitoring; environmental assessment); Japan (institutional capacity; hydrological monitoring); Australia (institutional capacity; hydrometeorology); Finland (hydrographic surveys) and Germany (forest).

A large portion of MRC’s past and on-going programs relate to resources inventory, surveys and database /GIS building in hydrometeorology, hydrographic atlas, water quality, fisheries, forest cover, and wetlands. There are some modeling programs on salinity, groundwater and flood planning, and programs relating environment management, environmental impact assessment processing, watershed management, and soil erosion and sedimentation.

Donor	Sector	Project	Timeframe
	1.	Natural Resources Planning and Development	
UNDP	Plan	Mekong Delta Master Plan	90-93
Denmark	Fishery	Assessment of Mekong Fisheries & Impact of WRM	97-01
Denmark	Fishery	Support for Fishery Management	97-99
Denmark	Fishery	Management of Reservoir Fishery	95-99
Denmark	Fishery	Extension for Acquaculture in the Mekong Delta	98-00
Switzerland	Watshds	Strategy study for dev. of watershed management/ forestry sector	98-99
Netherlands	Agri.	Sustainable Irrigated Agriculture Project Consolidation	97-99
Germany	Resour.	Sustainable management of resources in the lower Mekong Basin	97-99
Korea	Flood	Flood Control Planning for the Development of the Mekong Delta	97-99
France, UNEP	Resour.	Natural Resources based development strategy for Tonle Sap area	\\
	2.	Environment Management/Social Considerations	
Switzerland	Watshds	Watershed classification in the lower Mekong Basin	92-99
Germany	Forest	Assessment and monitoring of Mekong forest cover	93-99
UK	Env.	Pilot Study of Water Resources & Environmental Management	98-99
Denmark	Env.	Environmental Policy and Guidelines	98-00
UNEP	EIA	Environment Assessment in the Greater Mekong Region (I-II)	\\
Sweden	Wtld	Envl. Mgmt of Plain of Reeds (VN) & Flood Plains (Cambodia)	93-98
	3.	Database and Information Systems	
Denmark	Wetld	Inventory and management of the Cambodian wetlands, Phase I	97-99
Finland	Map	Updating Hydrographic Atlas; Surveys; Mapping	96-99
Sweden	Ground-water	Groundwater Investigation – Phase I	\\
Sweden	..	Groundwater Investigation – Phase II	97-99
Netherlands	..	Groundwater modeling in the Mekong Delta	98-00
Japan	Monit.	Improvement of Hydro-meteorological Network - Component I	\\
Australia	Monit.	Improvement of Hydro-meteorological Network - Component II	97-00
Sweden,unep	Qlty	Water quality/acidity monitoring in Mekong Delta (I)	87-95
Sweden	Qlty	Water Quality/acidity monitoring in Mekong Delta (II)	95-98
ADB	GIS	Geographical Information Systems	\\
Swiss	..	Geographic Information System	\\
UNEP/Gric	..	Geographic Information System	\\
	4.	Organization Management and Cooperation	
UNDP	Institution.	Strategic Planning and Capacity Building	98-01
Sweden	Institution.	CTF for studies, training	96-99
Denmark	Institution.	CTF for Capacity Building	97-00
AusAid	Institution.	MRC Cooperation	97-99

3. *Lessons learned and reflected in Project design:*

Negotiations for the 1995 Mekong Agreement were difficult and time-consuming, and UNDP negotiation assistance was necessary for the parties to reach consensus on a new framework of cooperation. Early attempts in 1996 by the MRC alone to formulate subsidiary agreements related to water utilization were unsuccessful due to the disagreements on flow sharing between Vietnam and Thailand. The design of the Project therefore calls for a structured and consultative approach to formulating the “Rules”.

The BDP preparation process, supported by UNDP, Switzerland and Danida, provided some lessons. Its progress has been slow and produced less than expected results. Project preparation has taken a two-phase approach. Phase-1: formulation of Project concept and consultations on MRC and country consensus (Section E.7). Phase-2: formulation of detailed Project components. Recently, other donors also modified some of their approaches by introducing a similar two-phase approach to the preparation of the BDP.

Another lesson was to avoid duplication and to enhance coordination among MRC programs (Section D.1, D.2). MRC has already set up five major databases: (1) Wetlands (wetland surveys in each country), (2) Fisheries (one of the biggest databases in MRC, containing information on sustainable catch and basic statistical data), (3) Socio-economic, (4) Land use (forest covers and agricultural use), and (5) GIS mapping. It also has three on-going monitoring programs on hydrology, water quality and groundwater. These databases and information systems were reviewed and found sufficient enough to start developing a basin-wide modeling package. During implementation, the modeling effort should link the different MRC programs together and identify areas where further data collection is necessary to support management decisions.

4. *Indications of borrower commitment and ownership:*

The Project proposal was first presented to the Bank by MRC JC Chairman in 1996. After obtaining the GEF Project preparation grant, MRC assigned a task force (Section C.4) and internal resources in MRCS which managed the grant, designed TORs, procured and supervised the consultants’ team. The consultants’ work was completed in December 1998. In collaboration with the NMCs, national line agencies and GEF focal points of the riparian states (Section E.7), the MRCS task force prepared a Project concept proposal seeking for GEF financing. The proposal was approved by the JC in September 1998 and by the MRC Council in October 1998, both of which highlighted this Project among the MRC priority programs in the 5-year work plan and in the 1999 work program (Section B.2).

5. *Value added of GEF and Bank support in this Project:*

Promote regional cooperation and consultation. The process of formulation of “Rules” would be not only technically challenging but politically sensitive, and will involve many parties. GEF support would promote and facilitate extensive consultations among the member countries during the sensitive negotiations process, and contribute to awareness and reaching consensus on basin management issues among interested parties in and outside the region, and to providing incremental benefit to the regional cooperation on international rivers.

Play catalyst role. There is no shortage of donor interest in supporting the MRC. But an increasing concern from the donor community has been the lack of coordination among various

3. *Technical*

Basin Modeling and Knowledge Base (Project Component A). MRC needs to be equipped with a unified system of basin models, planning and decision-making tools to enable it to undertake the formulation of “Rules” on sound scientific basis and to fulfill its functions for basin management in the long run. MRCS has had a number of modeling studies. However, those models have not resulted in a comprehensive basin simulation model package, as they were developed separately with certain sub-sectoral interest (such as hydropower planning, hydrology, flood control, or salinity intrusion simulation). They have been carried out as individual attempts which do not have a strong focus on the basin planning and management functions of MRC. Thus, there has been little incentive to keep them operational. Nor have these studies created permanent modeling capacity in MRCS or the riparian states to apply and update the models.

To help operationalize the Agreement, it requires the development and operation of an integrated and comprehensive hydrological/hydraulic and water quality modeling package for the mainstream and tributaries of the entire basin. To do so, one needs to understand the interaction between the physical, ecological and biological features of the basin, their changes due to human activities, and transboundary concerns. Important transboundary concerns (Annex 9) related to water use in the Basin include navigation, Basin water diversion, sediment transport and sedimentation, pollution, migratory birds and fish, flood plains and wetlands, and changes in the yearly flow regime.

The basin modeling and analytical tools to be developed by the Project should have the following objectives: (i) develop the basin modeling package for operationalizing of the Mekong Agreement, testing and monitoring of the “Rules”, and supporting basin planning and management decision-making; (ii) provide an analytical tool to integrate the basin planning and management processes, and to assess environmental and socio-economic impacts of development options; (iii) create sustainable modeling capability within NMCs and MRCS; and (iv) identify data gaps of water resources monitoring and MRC information systems and give feedback for possible adjustments to these programs (Section D.2). Thus, the Project needs to carefully evaluate available models (both in MRCS and internationally) to determine their suitability and adaptability for the whole basin. The process and criteria to evaluate and select appropriate basin models need to be defined and agreed during the early stage of Project implementation.

China’s critical role. The two upper riparian states, especially China, could have significant impact on the flow regime of the river and thus the shaping of the “Rules”. China contributes 16% of the flows to the Basin. China’s critical role in water utilization issues of the Mekong lies in its ambitious hydropower development plans. China has started building and is planning to build more hydropower schemes in the upper reaches of the Mekong (referred as Langcang Jiang), and this will have a profound, mostly beneficial, impact on the lower riparians in terms of increasing the low flows. Because of the low demand for irrigation in the Chinese portion of the Basin, these hydro-schemes will increase dry season flow of the lower Basin. Some sources estimate that the Xiaowan dam, under construction since 1995, will increase, when completed, the dry season flow (in April-May) by about 500 cms; and when all of the planned hydropower schemes by China are completed, they would contribute to an increase of dry season flows of 1,000 cms. This will bring out a central point: water utilization in the lower Mekong will not only include that of the existing and fully utilized low flows, but also the incremental flows created by China. Thailand and Vietnam have been eyeing this portion of increments for

their respective development potential. The data bases and modeling studies used in the BDP and in WUP will need to cover the entire basin including China and evaluate the impact of different upstream development scenarios on the basin development planning and on the formulation and adoption of “Rules”. MRC officials, particularly from Thailand and Laos, are keen on having China and Myanmar participate in the drafting and implementation of the “Rules”. China is already coordinating releases for power, with its primary interest in developing navigation on the upper Mekong River and trade relation in the sub-region for power and other goods. The Chinese and Myanmar governments are not adverse to working with the MRC. The Project design would encourage their participation.

Development of the Rules for Water Utilization. The Project will support the MRC in the formulation of “Rules for Water Utilization” by providing analytical tools, building technical capacity in the MRCS and the riparian states, facilitating consultations, and providing legal expertise. The term “Rules” is used in a general sense to refer to the obligations of the MRC-member states with respect to Articles 5 and 6 of the Mekong Agreement, and other actions necessary for the sustainable development of the Mekong River Basin. The terms and conditions of the obligations incurred by the MRC-member states in adopting different types of “Rules” will be explored during the course of consultations and with the support of an internationally recognized water law expert. The WUP modeling and knowledge base working groups will also support the rule-making process.

A structured and facilitated consultation process with the Sub-Committee(s) for Water Utilization (Quantity and Quality) is envisioned, with clear mile-stones and time-frames. The drafting of “Rules for Water Utilization” will be a multi-faceted, long-term process that requires extensive consultations, negotiation assistance, and solid scientific analysis. At least five consultations per year, starting in mid-2000 and lasting until 2005, are envisioned. The WUP management team, in conjunction with a facilitator/legal expert, and appropriate WUP working groups, will assist the Sub-Committees in drafting water utilization “Rules”. The Sub-Committees will formulate draft “Rules” for the consideration of the MRC Joint Committee, which then makes recommendations to the Council. The MRC Council members are entitled to make policy decisions on behalf of their respective governments (Article 15) and thus the terms and conditions of the water utilization “Rules” adopted by the Council are considered binding by the MRC-member states.

Article 26 of the Mekong Agreement mandates the Joint Committee to prepare “Rules for Water Utilization and Inter-Basin Diversions” pursuant to Articles 5 and 6 of the Mekong Agreement. Article 5 contains the general principle of “reasonable and equitable utilization” of the waters of the Mekong system, and outlines the conditions for notification, consultation, and agreement on proposed water uses. Article 6 calls for the maintenance of flows on the mainstream with respect to i) natural dry season flows, ii) wet season flows sufficient to enable the acceptable natural reverse flow of the Tonle Sap, and iii) peak flood flows. In order to implement Articles 5 and 6 of the Mekong Agreement, and adhere to the principles of Article 3: “Protection of the Environment and Ecological Balance,” and Article 7: “Prevention and Cessation of Harmful Effects,” additional “Rules” on water use monitoring, information and data exchange protocols, and water quality are needed.

In summary, there are five sets of “Rules” for water utilization anticipated to be formulated under the Project:

Procedural “Rules”

1. Protocols for information exchange and monitoring.
2. Protocols for monitoring water use and diversions in the Mekong Basin.
3. Protocols for the notification, consultation, and agreement of proposed water use.

Physical “Rules”

4. Maintenance of flows on the mainstream.
5. Water quality-related “Rules”.

The MRC places a high priority on drafting a coherent and integrated set of water utilization “Rules” in an expeditious, yet scientifically sound manner. The strategy pursued in the Project is to facilitate and support a flexible, yet structured process in formulating the “Rules” for water utilization. Moreover, in a manner consistent with the principle of adaptive management, and in light of the prevailing uncertainties in some key data, the “Rules” will be adopted on an interim basis, subject to review and revision according to the conditions promulgated by the MRC.

4. Institutional

Project management. Although MRC and MRCS have had experience in managing many programs financed by donors, there have been increasing concerns, both from the countries and from the donor community, about the lack of clear vision in the MRC’s work programs and weak organizations and management of the MRCS. UNDP recently helped the MRC develop a stage-1 program on the Strategic Plan and is starting the stage-2 program to boost MRC capacity. At the 1998 Donor Meeting, many donor officials expressed the view that the next few years will be critical for the MRC and test whether it can successfully implement the principles in the Mekong Agreement. The MRC Council recognizes these problems and has vowed to improve its effectiveness, improve accountability, transparency and efficiency, and to define clear technical, financial and administrative roles. The Project will support the MRC reform (Section C.2). A monitoring and evaluation system would be set up under the Project. Project management programs, such as Microsoft Project Management, would be introduced to enhance the capacity of the NMCs and MRCS in Project implementation and coordination.

Need for strengthening NMC/MRCS. The MRC’s Strategic Plan calls for a greater integration with NMCs and their national agencies. The capacity and role of NMC vary greatly between the countries. Vietnam seems strongest. Thailand would need to strengthen its own capacity, now that the MRCS has moved to Cambodia. Laos and Cambodia are still technically weak. Strengthening of NMCs under the Project should be tailored to the different situations.

Financial management capacity. Since MRC/MRCS manages numerous donor funds, it is regularly audited by Price Waterhouse. The 1997 Audit Report showed that MRCS’s accounting records and procedures are in accordance with generally accepted auditing standards. The Project funds primarily technical assistance and training which are subject to simple procurement procedures. The Bank carried out an assessment of the financial management capacity of the MRCS during preparation (due by March 15). The assessment was based on the review of ...? latest available audited accounts, the auditors opinion and the management letters, and accounting manual or other relevant information provided by MRCS. The assessment found

that the efficiency and effectiveness of MRCS budgeting and accounting procedures were (pending)

Donor coordination and parallel financing. MRC will finance the costs of the riparian staff on the WUP management unit and on the WUP units in the NMCs. There are several donors who have expressed interest in funding part of the WUP. However, each donor has its own political agenda, schedule and internal arrangements for implementation. The governments of Japan, Finland, and France have made tentative commitments to support the WUP. Japan is primarily interested in supporting the hydrological analysis component of the WUP; Finland would like to support the modeling efforts in Cambodia; and France has an interest in supporting WUP water quality related activities. In the early stages of the Project, the MRCS WUP management team will draft TORs for support from these three donors. The TORs will be drafted to ensure that they fit into the larger, overall WUP framework.

5. Social

Summarize issues below To be defined None

6. Environmental

a. Environmental issues:

Summarize issues below To be defined None

b. Environmental category: A B C

c. Justification/Rationale for category rating: The Project will be of a technical assistance nature, with strengthening of institutional capacity. It does not involve physical investment works. The Project would add value to sustainable environmental protection and improvement water management in the basin.

d. Status of any other environmental studies: There does not seem to be shortage of donor support and funding for MRC on environmental studies, relating mostly to data collection and database building, survey, investigations, mapping and inventories, policy studies and assessment. Subjects of these programs completed or on-going range from inventories of ecosystems, wetland biodiversity, watersheds, freshwater fishery and forest covers, to environmental assessment, salinity and acid sulfate soils, water quality and quantity monitoring. Active donors are Sweden, Denmark, UNEP, Switzerland and Germany (Section D.2).

e. Local groups and NGOs consulted: n.a. Consultations see Section E.7 below.

f. Resettlement.

Summarize issues below To be defined None

g. Borrower permission to release EA: Yes; No; or n.a.

7. Participatory Approach:

a. Primary beneficiaries and other affected groups:

Implementation of the Mekong Agreement requires strong political commitment from all member states, and the participation and support of key stakeholders in the basin and external parties. The Project preparation and implementation must be owned by

MRC who will work through NMCs with national line agencies and other stakeholders. To enhance this ownership, MRC organized national workshops and two regional consultation workshops with NMCs, national agencies, MRC JC members, national GEF focal points, and donors during the two-stage of Project concept formulation. In *Stage-I*, the MRC team and the consultants developed a conceptual framework for the WUP and the Project, which was used as the basis for the first regional consultation workshop on January 8-9, 1998 in Bangkok. In *Stage-II*, the design of the Project components was developed based on national discussions to understand each riparian's needs and concerns for promoting and managing development and for their national interests. It was discussed at JC meeting in March 1998 and the second regional consultation workshop on May 13-14 in Vientiane. These consultations provided feedback on the interpretation of the Agreement and key national and regional concerns to be addressed in the Project, and helped reshape the Project concept.

The process of the Project implementation is seen as important as its outcome. It is expected that the consultation process will intensify during implementation and include a wider participatory audience. The PIP has indicated the requirements on the consultation process, which would include consultation among the member states during drafting the "Rules" in a manner that is appropriate to the sensitive nature of the discussions, and consultations and workshops with interested groups and stakeholders on modeling, technical, social and environmental issues. A participation plan is being prepared by MRCS and will be reviewed during the appraisal mission in April 1999 and included as an annex to the Project Implementation Plan.

b. Other key stakeholders:

Preliminary discussions were held with JICA, Finland and France on potential co-financing of the Project, and with UNDP, ADB, UK Embassy in Bangkok, AusAid on coordination. Further exchange of information took place during the MRC Consultative Group Meeting in October 1998.

8. ***Procurement:***

Procurement under the Project is expected to be simple, as most of the procurement activities will involve hiring of consultants by MRC, arrangements for training, seminars and study tours, and purchase of computer and office equipment for MRCS and riparian agencies. MRCS staff have good experience in procurement of international consultants and goods through their past involvement with various donor supported programs. It has also gained experience with Bank procurement policy through executing the GEF PDF Block-B grant during Project preparation. A Bank procurement team member reviewed this matter and found (pending March 12 and 13). The MRCS team will also develop a Gantt Chart to help plan and monitor the detailed procurement plan, which is part of the PIP.

F: Sustainability and Risks

1. Sustainability:

Institutional: The long-term viability of the MRC depends on two main elements: the interest of the riparians or the demand for such a regional institution to help facilitate and promote regional cooperation in the Basin; and the technical capacity of MRC in making sound

decision on basin management issues. At this stage, the first element does not appear to be in doubt. But closer linkages between the MRC, the NMCs and the national resource management agencies need to be forged. For the second element, putting in place basin management tools, the establishment of “Rules” to implement the Agreement, and preparation of the BDP will all contribute to boosting of MRC’s technical capacity.

Financial: Since the establishment of the earlier Mekong Committee in the 1950s to MRC in 1990s, the activities of the regional agency have been almost entirely funded by donor agencies. MRC has now an annual budget between \$10-20million, almost all of which comes from donor grants. MRC-member countries pay for some nominal share of the MRC’s administrative costs and counterpart staff support. If donor funding were to decrease, it is unclear if the MRC would be able to continue to carry out its current programs. However, given the continued importance of the Basin in the region, the strong donor interest demonstrated over the past 40 years, and MRC being the only regional organization dealing exclusively with water and related resources management in the Basin, it is not foreseeable that donors would reduce dramatically their support to the MRC. However, a long-term goal of the MRC should be to increase the amounts of member contributions to cover greater share of the MRC activities.

Technical: There are no significant technical issues. While the basin modeling would be a complicated exercise, numerous basin models have been available in the market and applied in many river basins of the world. One concern is the sustainability of the modeling efforts. Previous modeling results have not been used effectively. The main reason is that the models were developed separately with certain sub-sectoral interest, and do not have a strong focus on MRC’s decision-making for basin planning and management. Thus, there has been little incentive to keep them operational. Nor have these studies created much permanent modeling capacity inside MRCS or among the riparian states to apply the models and update them (Section E.3). The modeling component under this Project would have the primary focus of developing and testing the formulation of the “Rules”, of being operational to assist MRC in monitoring and review of the implementation of the “Rules”, and of aiding decision making on basin management issues. Regardless of what models are adopted, they would be data driven. There is a large amount of information in MRC on the environmental aspects, an area where in the past the IMC/MRC has been relatively strong in data gathering and analysis. However, a detailed review into the adequacy (data quality, interval, format, integration) of the databases would be carried out during the start of the Project implementation by qualified experts as a pre-modeling exercise. The focus of the review would be on supporting basin modeling or not on general data collection. The Project would make provision to fill any data gaps to support the basin modeling.

2. *Critical Risks (reflecting assumptions in the fourth column of Annex 1):*

<u>Risk</u>	<u>Risk Rating</u>	<u>Risk Minimization Measure</u>
Annex 1: from Output to Objective		
Weak implementation and management capacity of MRC/MRCS/NMC; coordination and consensus reaching difficulties; and funds and programs are donor-driven	H	The Project funds will be managed by MRC directly with Bank/GEF supervision; A capacity building component is included. UNDP Phase II support program to increase institutional capacity will be implemented in parallel with Project.
Riparians unable to reach agreement on model selection and parameters	M	Consultations with key parties in the riparian states took place from an early stage of Project preparation, and will be carried out during implementation; and Consultancy assistance with international experience will be provided under the Project.
Member states unable to reach agreement on interpretation of the principles in the Mekong Agreement or on draft “Rules”, thus causing delay in Project implementation	S	To ensure high level commitment from MRC, Project concept review and preappraisal only take place after MRC Council’s official endorsement of the Project proposal; Setting moderate Project outputs and realistic performance indicators; Project would aim to promote regional cooperation, rather than create conditions to riparian development.
Weak national capacity to implement the Project or continually use the models and analytical tools for basin planning and management	M	The basin model package to be developed under the Project will be made operational to support monitoring, review and evaluation of the “Rules” (Section F.1); Training will be provided to national agencies to operate and apply the models.
Enough donor interest to support the whole WUP; GEF funds to cover incremental cost become unnecessary.	N	No need to mitigate, as GEF sees it as a positive sign.
Complicated issues related to water quality measuring and unclear mandate of MRC in setting environmental standards.	M	Set modest Project scope, limited to assistance in developing water quality guidelines, review of country environmental policies, and drafting water quality monitoring protocols
Overall Risk Rating	S	

Risk Rating - H (High), S (Substantial), M (Modest), N (Negligible or Low)

3. *Possible Controversial Aspects (Project Alert System): None*

G: MAIN CREDIT CONDITIONS

1. Negotiations:

TORs for: (a) WUP Management Team; (b) WUP Management Team Leader and three specialists from riparian countries; (c) international advisor, facilitator/trainer and legal expert to support WUP Management Team; (d) NMC WUP Units; (e) consultants to support the NMC WUP Units; (f) two international consultants (one in modeling and one in data management) and two national consultants (one in hydrology and one in data management) to carry out activity: “Modeling Needs, Data Requirements, Selection Criteria”.

Establish WUP Management Team in MRCS and recruit leader using MRC (non-GEF) financing.

Establish NMC WUP Units.

Using non-GEF financing, recruit two international consultants (one in modeling and one in data management) and two national consultants (one in hydrology and one in data management) to carry out activity: “Modeling Needs, Data Requirements, Selection Criteria”.

2. Effectiveness:

Recruit specialists for WUP Management Team in MRCS using MRC (non-GEF) financing.

Fully staff NMC WUP Units using NMC (non-GEF) financing.

Organize Working Groups in: (a) basin modeling and knowledge base; (b) environmental and socio-economic analysis; and (c) “Rules”.

3. Dated Covenants:

Using non-GEF financing, complete activity: “Modeling Needs, Data Requirements, Selection Criteria” by December 31, 1999.

Select and get on board international advisor, facilitator/trainer and legal expert to support WUP Management Team by March 31, 2000

Procure first package of computer and office equipment by April 30, 2000.

Tender and select consulting firm for modeling and knowledge base development by September 30, 2000.

Procure second package of computer and office equipment by September 30, 2001.

Complete development of integrated WUP modeling package by August 31, 2003

Complete development, testing and implementation of data bases and information systems by December 31, 2005

JC approval of Data and Information Exchange Protocols by October 30, 2002

JC approval of Water Use Monitoring Protocols by December 31, 2003

JC approval of Preliminary Notification, Consultation and Agreement Protocols by April 30, 2002

JC approval of Final Notification, Consultation and Agreement Protocols by July 31, 2005

JC approval of “Rules” for Maintenance of Minimum Flows by July 31, 2005

JC approval of Water Quality Guidelines by December 31, 2006

Carry out mid-term review by June 30, 2003

Prepare semi-annual reports by June 30 and December 31 of each year, including progress report, monitoring and evaluation report and action plan for next 6 months.

Comply with required financial covenants.

H. READINESS FOR IMPLEMENTATION

[x] The draft TOR for the first year’s Project implementation are under preparation and expected to be complete prior to negotiations.

[x] Bid documents for the first year’s Project implementation are in preparation. The Bank’s Standard Request for Proposal will be used.

[x] MRCS has submitted a draft PIP for Bank review. The PIP is found to be generally realistic.

I. COMPLIANCE WITH BANK POLICIES

[x] This Project complies with all applicable Bank policies, i.e. OP/BP 10.02 on Financial Management (section E.4); Procurement assessment (regional requirement, Aug. 11, 1998); and OP/BP 7.50 “International Waters” (below).

Two upper riparians, China and Myanmar, are not a member of MRC, although technical collaboration and exchange of information on the Mekong already exist between MRC countries and technical institutes in China. According to para.7(b) of the Bank OP 7.50, one of the exceptions to notification to riparians is that the Project is of the nature of water resource surveys and feasibility studies on international waterways. The Project will be of a nature of a technical assistance program, involving information collection, modeling studies, training and institutional strengthening. It is in the Bank’s judgement that the Project falls into this exception to official notification. Nonetheless, China and Myanmar were informed about the Project when they participated at the MRC Council Meeting on October 28, 1998 when the Project was officially approved by the Council. They will be invited as observers in technical discussions and riparian consultations during Project preparation and implementation (Section E.3).

Task Team Leader: Ms. Mei Xie

Sector Manager: Mr. Geoffrey Fox

Regional Program Coordinator: Mr. Bradley Babson

Country Director: Ms. Ngozi N. Okonjo-Iweala

LIST OF ANNEXES

- | | |
|-----------------|--|
| Annex 1. | Project Design Summary |
| Annex 2. | Incremental Cost Assessment |
| Annex 3. | Technical Review |
| | Response to the STAP Review |
| Annex 4. | Project Implementation Schedule |

**MRC: WATER UTILIZATION PROJECT
PROJECT DESIGN SUMMARY**

NARRATIVE SUMMARY	Key Performance Indicators	Monitoring and Supervision	Critical Assumptions/Risks
<p>MRC GOAL:</p> <p>An economically prosperous, socially just and environmentally sound Mekong River Basin</p>	<p>Operationalized Mekong Agreement, with subsidiary agreements/rules on water sharing in place.</p> <p>Formulation and adoption of a basin development plan (BDP).</p>	<ul style="list-style-type: none"> • MRC Annual reports and News Letters • Reports from MRC-JC and Council meetings 	<p>Political and economic stability of riparian states.</p> <p>Continued willingness of riparian states to collaborate on the basin development.</p>
<p>DEVELOPMENT OBJECTIVES:</p>			
<p>Establish effective mechanisms to improve water resources management for the economic and social development of the Mekong Basin in an environmentally sustainable manner (including reasonable and equitable water utilization by the countries of the Basin; protection of environment, aquatic life and the ecological balance of the Basin; and water quality management).</p>	<p>Complete development and implementation of a functional, integrated and comprehensive Basin modeling package by 2003;</p> <p>Complete development and implementation of a functional and integrated knowledge base on water and related resources, with a communication system linking the National Mekong Committees (NMCs) with the MRC Secretariat (MRCS) by 2005;</p> <p>Adoption of protocols for information exchange, water use monitoring, and preliminary notification/consultation by 2003;</p> <p>Adoption of minimum in-stream flow “Rules” and final notification/consultation/agreement protocols by 2005;</p> <p>Adoption of water quality guidelines by 2006</p>	<ul style="list-style-type: none"> • MRC project implementation progress reports • GEF/Bank and donor supervision reports • MRC Annual reports and News Letters • Reports from MRC-JC and Council meetings 	<ul style="list-style-type: none"> • The Mekong Agreement is respected by member states, there is continued high political support from the member states for the MRC and its decisions, with coordinated actions at the national level. • Continued donor support for MRC • Future increments of dry season water from development of upper basin (which creates continued interest of lower riparians to collaborate)

<p>Outputs:</p>			
<ol style="list-style-type: none"> 1. A functional and acceptable package of basin simulation modeling and analytical tools supported by improved databases. 2. A set of recommended rules for water utilization (i.e. minimum dry and wet season flow levels on the River; notification and review procedures for proposed water uses) 3. Enhanced project and basin management capacity in MRC, NMC, MS and relevant national agencies 	<p>Basin model package installed and being applied in the member countries.</p> <p>A set of rules proposed to the MRC-JC.</p> <p>Project management teams in place in MS and NMCs; working groups established and functioning with appropriate staffing and training</p>	<ul style="list-style-type: none"> • MRC project implementation progress reports • GEF/Bank and donor supervision reports • MRC Annual reports and News Letters 	<ul style="list-style-type: none"> • Adequate implementation and management capacity, and coordination and consensus reaching of MRC/MS/NMC. • MRC/MS agenda and programs not driven by individual donor interest. • Riparians able to reach agreement on model selection and parameters. • Member riparian states able to reach preliminary agreement on interpretation of the principles in the Mekong Agreement and draft rules of water utilization. • National capacity to implement the project and continually use the models and analytical tools for basin planning and management.
<p><i>Project Components:</i></p> <p>A. Develop basin modeling and analytical tools (\$5.9m)</p>	<p><i>Input:</i></p> <ol style="list-style-type: none"> a) Technical assistance through consultancy in hydrological and hydraulic modeling, testing, calibration, installation and analysis b) Purchasing of commercial modeling software, computer hardware for regional and national uses, communication equipment, monitoring equipment c) Supplemental data collection, surveys, monitoring and mapping d) Integrate existing databases with the basin- 	<ul style="list-style-type: none"> • Bank/GEF supervision mission reports • Implementation progress reports 	<ul style="list-style-type: none"> • GEF funds are necessary to cover incremental cost. • Complicated issues related to water quality measuring and unclear mandate of MRC in setting environmental standards.

Development Objective: Describes the impact the project's outputs will have on the beneficiary, institution, or system in terms of changed behavior or improved performance. The development objective defines the project's success.

Project Outputs: Defines what the project can be held directly accountable for producing--the project's deliverables, the goods, and services it will produce. Typically, outputs are independent, synergistic, and integrated.

Project Components: Clusters of activities that define how the products and services will be delivered (technical assistance, physical infrastructure, and the like).

Incremental Cost Assessment MRC: Water Utilization Project

Overview of the WUP

1. The Project would help the member states of the Mekong River Commission (MRC) -- Cambodia, Laos, Thailand, and Vietnam -- implement key elements of the 1995 Agreement on Cooperation for Sustainable Development of Mekong Basin (Mekong Agreement). The Project's broad development objectives would be to assist the MRC to establish mechanisms to promote and improve coordinated and sustainable water management in the Basin, including reasonable and equitable water utilization by the countries of the Basin and protection of the environment, aquatic life and the ecological balance of the Basin. This would be achieved through preparation of "Rules" for water utilization (in particular, minimum in-stream flows on the Mekong River) and protocols for information exchange, notification, and consultation in accordance with the Mekong Agreement. The Project would assist in the formulation and implementation of the Rules by facilitating consultations among the MRC-member states and helping the MRC develop a Basin Simulation Model Package and Knowledge Base.

Regional Context and Broad Development Goals

2. The 65 million inhabitants of the Mekong Basin depend to a great extent on the natural resources of the Basin for their livelihood. Few of the economic benefits of the extraordinary economic growth that occurred in the surrounding region of Southeast Asia in the last decade were experienced in the Basin. Eighty-five percent of the Basin's population lives in rural area, of which a high proportion depend on the river system and the aquatic ecosystem for an important part of their subsistence livelihood. Capture fisheries is the major source of low-cost and high quality protein for the people of the Basin, and an important source of employment and income in rural areas. Poverty is widespread, and the stress on the natural resources of the Basin is increasing.

3. Wetlands that are vital for the maintenance of the fishery and support globally significant bio-diversity, depend on the annual ebb and flow of the Mekong River system to sustain these sensitive ecological systems. Exploitation of these wetlands is increasing, and in some cases they are being drained for cultivation. The prospect of increased water diversions and construction of dams on the Mekong River and its tributaries also threaten the Basin's aquatic eco-system. Shifting cultivation and wide-spread logging in the sensitive upland areas are degrading the watersheds, increasing erosion, and modifying the hydrological regime.

4. Economic growth is an imperative in the Mekong Basin, and water resources development is a key area in each country's long-term investment program. In preparation for the MRC's Basin Development Plan (BDP), the MRC-member governments prepared position papers in 1997 on their country's development needs in the Mekong Basin; each country's broad development needs are summarized below:

5. Cambodia: Agricultural development through increased and improved irrigation, and improved agricultural support systems (i.e., credit, extension, marketing, etc.) is a key development priority for Cambodia. Maintenance of freshwater capture fisheries and navigation improvements are also prominent features of Cambodia's development program. Cambodia relies heavily on fisheries from the Mekong River system—especially in the Great Lake (Tonle Sap), to support its mainly subsistence level rural population. Navigation is the primary form of transportation in Cambodia due to its poorly developed road and train system. Access to maritime shipping through the Mekong-Bassac River system is also important. The Cambodian government plans to develop small and medium-scale hydropower facilities on tributaries to the Mekong River. Cambodia's forests remain generally intact, but are threatened by illegal and unsustainable logging practices.

6. Laos: The Lao government has ambitious plans to tap Laos' enormous hydropower potential, particularly on tributaries to the Mekong River. With a poorly developed transportation system, Laos relies on inland navigation along the Mekong River as its main transportation artery—maintenance of dry season flows in the River is an important concern for the Lao government. Capture fisheries from the Mekong River system is important for Laos, and the Lao government places a high priority on preserving the aquatic productivity of the Mekong Basin. There is limited potential for small and medium scale irrigation development in Laos.

7. Thailand: Thailand is the most economically advanced of the riparian countries, with a GNP per capita of around \$2,000, as compared with \$200-\$500 for the other riparians. The primary Thai portion of the Mekong Basin, the Northeast of Thailand, however, is relatively undeveloped and its inhabitants are only slightly more prosperous than the other Mekong countries. The Thai government has launched a large-scale development program for the Northeast of Thailand centered around irrigation development, agro-processing, and reforestation. The Thai government is considering the diversion of water from the Mekong River into the Northeast of Thailand, which is by far the driest part of the Mekong Basin and suffers from periodic droughts. The Thai government also has tentative plans for the inter-basin diversion of water from Mekong tributaries in the far north of Thailand, into the Chao Phraya Basin (where Bangkok is located). The power demand in Thailand is expected to significantly expand in the future, and Thai power agencies are considering importing energy from hydropower facilities in China and Laos. Thai travel companies are increasingly using the Mekong River and its riparian areas as tourist destinations, including hotels, golf courses, and boat rides.

8. Vietnam: The Mekong Delta is Vietnam's "rice bowl" and produces over half of the country's rice crop and is a major fruit producer. Aquaculture, mainly in the Delta's numerous canals is also an important source of income and subsistence for many of the Delta's residents. During the wet season, massive flooding in the Delta results in annual loss of lives and property

damage, and thus flood management is a high priority for Vietnam. Improving agricultural water control infrastructure (e.g., irrigation, drainage, and flood control) and maintaining (or increasing) dry season flows while preserving water quality, are key development objectives for the Vietnamese government. Improvement of the inland navigation system is also important for Vietnam. The Mekong Basin also encompasses part of the Vietnam Highlands, and the Vietnamese government plans to construct (or is constructing) a number of medium-sized hydropower projects in the Highlands.

9. China and Myanmar: Neither China or Myanmar are MRC-member states but their activities may have an impact on the lower Mekong Basin states. China has started massive hydropower development on the upper reaches of the Mekong River. Because the irrigation potential in the Chinese portion of the Mekong Basin is limited, these reservoirs should help regulate the flow and increase dry season flows into the lower Mekong Basin. In the long-term, China would like to both export hydropower to mainland Southeast Asia and open up a navigation route into mainland Southeast Asia. Myanmar currently has no plans to develop the water resources of its portion of the Mekong Basin.

Baseline Scenario

10. The “baseline scenario” describes the course of action by the countries in the absence of GEF support; i.e, if the countries do not take global environmental considerations into account. Two levels of analysis are used for the baseline scenario. The higher level of considers the environmental dangers and investments risks associated with each country pursuing its own, uncoordinated water resource development activities. At a lower level, a review of the MRC’s work program, in the absence of GEF support, is presented. For practical reasons, the scope of analysis for calculating incremental costs is the MRC’s work program, which constitutes the *de facto* baseline.

11. ***The Strategic Problem of the Mekong Riparian Countries.*** Each MRC-member country has an economic and social development agenda in which the protection and development of water resources plays an important, if not vital role. But each country is uncertain of the motives and plans of the other Mekong countries, and each country is concerned that plans and future opportunities not be foreclosed or delayed by lack of agreement or uncoordinated development. Moreover, the Mekong countries are concerned that their citizens and vital ecological resources not be harmed by the actions of the other riparians. Changes in the flow pattern (flow, water level, timing, quality, sediment load) and physical modifications (river training, dams, dredging, flood protection works, gravel mining, etc.) brought about by proposed water resources developments can have a major impact on the fragile social, economic and ecological systems of the Mekong Basin. Rural economic development will eventually relieve this pressure, but in the meantime, serious ecological and social damage could occur with the attendant increases in rural-urban migration and poverty if the water resources of the Basin are not cooperatively and wisely planned and managed with these concerns in mind.

12. ***National Policies and Investment Plans.*** National and sector water policy actions in each of the countries, required to accelerate development, and ensure that its economic impact is environmentally and socially sustainable, are constrained by this uncertainty. Moreover, without

clarity on the ground rules for implementing the Mekong Agreement, particularly the provisions for notification and consultation (Article 5), and maintenance of flows on the mainstream (Article 6), it is difficult in some cases to mobilize external financial resources to undertake urgently needed major investments in water resources. Only limited investment in irrigation and hydropower are going forward in the face of this constraint, but major projects are planned and in an advanced stage of preparation such as the Nam Thuen II project (hydropower) in Laos, and the Kok/Ing/Nan and Khon/Chi/Mun projects (irrigation) in Thailand.

13. *The Baseline Program of the Mekong River Commission Secretariat (MRCS).* The MRCS Work Program has been reorganized in accordance with the recently approved MRC Strategic Plan. Projects have been programmed into four Key Result Areas (KRAs): Natural Resources Planning and Management; Environmental Management and Social Considerations; Data Base and Information Systems; and Organization Management and Cooperation. The complete MRCS 1999 portfolio includes 17 ongoing and fully funded projects which total about US\$36 million (including a US\$18 million grant to upgrade ferry facilities in Cambodia), and another 50 projects that are proposed or partly funded and total US\$87 million, of which US\$15 million of funding has been secured from various bilateral and multilateral donor agencies. The total cost of the MRC's proposed portfolio is therefore US\$123 million (\$36 + \$87 million), and donor commitments total US\$51 million (\$36 + \$15). Historically, average annual expenditures by the MRC are around US\$12 million.

14. For the purposes of the GEF incremental cost analysis, the MRC's projects are divided into two groups. The first group of projects deal with specific national investment projects, such as ferry facilities or hydropower feasibility studies, and are not directly related to WUP and thus excluded from the incremental cost analysis. The second group of MRC projects will, directly or indirectly, support the GEF-financed WUP and thus constitute the "baseline scenario costs." Table 1 summarizes projects in the MRC portfolio that are related to the WUP (as well as the Basin Development Plan). None of these projects, however, would integrate the results and outcomes of all the MRC's disparate studies and projects, nor provide the comprehensive Basin analytical tools to use the information and knowledge being developed through these projects. None of the projects in Table 1 focus on the core Basin management functions of MRC or the implementation of the Agreement (except the proposed WUP and BDP projects). Nevertheless valuable knowledge, data and tools are being developed by some of these projects.

Table 1. MRCS BASELINE PROGRAM							
Component	Project Code	Project	Ongoing/	Cost	Funding		SOF
			Planned	US\$mil	Secured	Sought	
A – Basin Modeling Package and Knowledge Base							
A.1 Information and Knowledge Base	3.19/95	Inland Fisheries Information System	Planned	2.60		2.60	
	3.01/98	Improvement of Documentation Center	Planned	0.10		0.09	
	3.13/92	Improvement of Hydrometeorological Network	Ongoing	4.26	2.48	0.82	Aus; Japan
	3.03/97	Intergrated GIS and Statistical Databases for NRM	Planned	1.09		0.99	
	3.07/97	Land Resources Inventory	Ongoing	1.23	0.37	0.65	Japan
	2.50/93	Watershed classification	Ongoing	3.00	2.60		Swiss
	2.49/92	Mekong forest cover monitoring	Ongoing	4.17	4.06		Germany
A,2 Basin Modeling Package	3.43/87	Updating of hydrographic atlas, survey, mapping	Ongoing	7.66	6.96		Finland
	2.11/97	Mekong morphology and sediment transport	Planned	0.51		0.49	
	2.36/95	Model for salinization studies in Lower Mekong Basin	Planned	1.60		1.30	
	2.49/96	Chaktomuk area environment, hydraulic and morphology	Planned	0.58		0.58	
	3.14/96	Upgrading of salinity forecasting in Delta	Planned	0.63		0.45	
	3.09/94	Flood forecasting/damage reduction study	Planned	3.29	0.25	2.83	Denmark
A.3 Environment, Economic, and Social	1.02/96	Assessment of Mekong Fisheries	Ongoing	5.75	5.21		Denmark
Transboundary Analysis	1.17/95	Support to fisheries management and dev cooperation	Ongoing	1.09	1.06		Denmark
	1.13/88	Management of reservoir fisheries	Ongoing	3.84	3.49		Denmark
	1.16/94	Rural extension for aquaculture in Mekong Delta	Ongoing	2.08	1.89		Denmark
	1.21/96	Management of freshwater capture fishery (Cambodia)	Planned	4.86		4.18	
	1.03/98	Management of reservoir fisheries (II)	Planned	5.35		4.71	
	1.20/94	Watershed management strategy study	Ongoing	0.21	0.20		Swiss
	1.51/92	Sustainable NRM in Lower Mekong Basin	Ongoing	4.80	4.30		Germany
	1.42/96	Soil and water conservation in small watersheds	Planned	0.97		0.80	
	1.37/95	Management of salt-affected soils on Lower Mekong	Planned	0.60		0.40	
	3.13/92	Inventory of Cambodian wetlands (I)	Ongoing	2.00	1.80		Denmark
	2.03/98	Wetland conservation in the Lower Mekong Basin	Planned	2.80		2.50	
	2.01/98	Integration of social/econ/poverty consid into MRC	Planned	1.30		1.20	
	2.02/98	Community involvement in water resource development	Planned	3.35		3.10	
	2.19/97	Basinwide water borne disease management project	Planned	1.24		0.98	
	2.01/95	Environment program	Ongoing	13.62	8.14	4.60	Denmark; Var
		Sub-totals		84.58	42.81	33.27	

Table 1. MRCS BASELINE PROGRAM (Continued)							
Component	Project Code	Project	Ongoing/ Planned	Cost US\$mil	Funding		SOF
					Secured	Sought	
B. Development of Rules							
	4.01/98	Preparation of framework Mekong Navigation Agreement	Planned	0.75		0.66	
	2.04/98	Comparative study of environment law in MRB	Planned	0.25		0.25	
		Sub-totals		1.00	0	0.91	
C. Institutional Strengthening of MRCS and NMCs							
	4.01/97	HRD for MRCS	Planned	7.67	0.83	6.27	UNDP; Var
	4.45/94	Training on legal aspects of WRM (MRCS)	Ongoing	0.68	0.25	0.35	Japan
	4.02/98	Project Management	Ongoing	0.2	0.02	0.18	
	4.03/98	Financial Management	Planned	0.3		0.3	
		Sub-totals		8.85	1.10	7.10	
		TOTAL		94.43	43.91	41.28	

Global Environmental Objectives and Benefits

15. The global environmental objective of the Project is to prevent harm and irreversible loss of water and ecological resources in the Mekong River Basin and related coastal and marine resources. The Project is consistent with the policies and priorities of the GEF Waterbody-Based Operational Program (OP#8). GEF Operational Program # 8 aims to help countries manage waterbodies and their multi-country drainage basins to sustainably support human activities. The Project would help the MRC develop and use water utilization rules and analytical tools necessary for sustainable management and development of water resources in the Mekong Basin. Substantial specific global benefits would result in the protection of ecological resources and regional cooperation.

16. (a) *Ecological Resources.* The Mekong Basin contains globally significant biodiversity, wetlands, flooded forests, and estuary system. The Basin supports one of the most productive and biodiverse freshwater ecosystems in the world. Annual floods support a rich riparian habitat and an extensive network of wetlands. Water flooding into nutrient rich areas, combined with high levels of solar energy, help fuel a high-powered eco-system. There are an estimated 1200 fish species in the Basin. Many fish species in the Basin are highly migratory, but relatively little is known about the Basin's aquatic ecology. The long-term sustainability of the Basin's fisheries is threatened by increasing harvests, habitat degradation and water development projects that cut off migration corridors between spawning, nursery, and adult habitats. Already a number of aquatic dependent species have been classified as rare or endangered, including 18 species of waterbirds and 16 species of mammals. Important endangered species include the Irrawaddy dolphin, the Chinese white dolphin, the black finless porpoise, the freshwater giant catfish, and five waterbirds: the Eastern sarus crane, the giant ibis, the white-shouldered ibis, the greater adjutant stork, and the lesser adjutant stork. There is little information about freshwater turtles, tortoises and terrapins, but there are almost certainly several rare and endangered species in this group.

17. The heart of the Mekong Basin's ecosystem lies in the globally significant wetlands and flooded forests in the Tonle Sap, the Plain of Reeds, and the Coastline Ecosystem. The Tonle Sap (also know as the Great Lake of Cambodia) lies in the middle of Cambodia and is fed by runoff from its own sub-basin and by reverse flows from the Mekong River during the wet season; during the dry season the Tonle Sap drains into the Mekong Delta, helping to combat seawater intrusion and maintain the Delta's ecological balance, including extensive mangrove forests. During the wet season, the Tonle Sap expands from 2,500 km² to over 10,000 km², and supports an extensive flooded forest which provides ideal habitat for fish spawning and nursing. Fish migrations from the Tonle Sap into the Mekong River help restock fisheries as far upstream as China and many tributary rivers along the way.

18. The Plain of Reeds is a transboundary eco-system covering 7,000 km² in Vietnam and 3000 km² in Cambodia. (Cambodia, with both the Tonle Sap and Plan of Reeds has an estimated 5% of Asian wetlands of international importance, as estimated by IUCN). The Plain of Reeds is subject to seasonal flooding from the Mekong River system. During the peak flood period the Plain becomes a vast lake with some areas flooded up to 4 meters. The flora in the Plain of Reeds is quite complex due to the high variety of flood regimes. During the flood season, the

Plain supports a large number of fish species which move from upstream areas for breeding and nursing. A number of water birds, many winter migrants considered to be threatened birds of the world, are supported in the Plain of Reeds.

19. The estuaries in the Mekong Delta maintain important ecological processes such as transport of nutrients, plankton, shrimp, fish larvae, and detritus—all essential components in the aquatic food webs. The estuaries of the Tien River (part of the Mekong River system) has been listed by IUCN as an internationally important wetland. Many shrimp and fish species depend on the estuaries for their breeding and nursing. Their migration and reproductive patterns are strongly influenced by river water flow and tidal regimes. The estuaries of the Delta also support rich mangrove forests.

20. (b) *Regional Cooperation.* Cooperative and integrated management of transboundary water resources of international river basins is one of the most pressing current problems in sustainable natural resources management. The earth's largest reserves of accessible and usable freshwater resources are contained in its more than 200 transboundary lake and river systems. In nearly two-thirds of these systems, a wide variety of agreements are being implemented and monitored by international river Basin organizations. Their success is critical not only to the protection and wise use of these water resources, but to securing the broader social and economic benefits of cooperation and water use. The Mekong is one of the largest international river basins in the developing world to have reached the stage of creating a comprehensive Agreement for sustainable management of shared resources. Moving from the agreement on principles, to actual cooperation and sustainable management of water resources has proven to be an elusive and difficult goal, not only in the Mekong Basin but elsewhere in the world. A timely and catalytic intervention by GEF, carefully coordinated with other key donors such as UNDP, offers the opportunity to demonstrate globally how this difficult but critical transition can be made.

GEF Alternative

21. The baseline scenario described above would do little to mitigate the increasing risks to, and relieve the development pressures on, the water and ecological resources of the Mekong Basin. In spite of the extensive information on the Mekong garnered through the MRC's past, on-going, and planned projects, the MRC has been unable to utilize this information to make sound water resource management decisions. The Project would address this critical gap by developing Basin-wide and integrated tools and the related knowledge base to enable the riparian countries to gain a deeper understanding of the hydrologic linkages between the natural environment, water utilization, and strategic transboundary water and environmental issues. The Project would also support a consultative process to formulate and implement appropriate procedures, guidelines and rules to ensure reasonable and equitable water use. These rules, and the corresponding procedures and analytical tools for their implementation, provide the essential framework for sustainable and equitable water resource management in the Mekong Basin.

22. The linkages between cooperative Basin management and sustainable national water policy and strategies will be strengthened under the project by directly involving national stakeholders including the respective National Mekong Committees and national institutions concerned with water and natural resource sector policy and development, in the preparation of the rules and the development of the related Basin-wide tools and knowledge base. The MRCS

and each of the four riparian countries would have a complete package of analytical tools and information systems and have the capacity to use them. The protocols on data and information exchange to be developed and implemented under the project would provide procedures and rules under which these systems would be jointly maintained and updated. The proposed project would thus address the key existing barriers to effective regional cooperation needed to promote and support the adoption of national policies and strategies that are consistent with the protection and enhancement of the globally significant natural resource base of the Basin. The proposed GEF Alternative includes three components:

23. A. Basin Model Package and Knowledge Base. The project would support the development and calibration of a Basin-wide package of integrated analytical tools to support WUP, and the BDP, that is based on improved understanding of the interaction between water use and the physical and biological features of the Basin and their functions, and the changes in these that may occur due to human activities. The development of the required understanding and the related analytical tools that would support adequate analysis and decision making by the MRC depend equally on suitable models and extensive data and information about essential physical, biological, and economic characteristics of the natural and man-made features of the Basin. Hence, Component A consists of three inter-dependent sub-components:

- improvement of the knowledge base to assist the riparian countries and the MRC to achieve sustainable water resource management;
- development and calibration of an integrated, comprehensive Basin modeling package;
- development of additional model components and procedures that would enable the MRCS and NMC WUP teams to analyze and predict transboundary impacts of proposed actions on the aquatic ecosystem and other water uses and functions of social, economic, and regional and global importance.

The incremental cost of this component is \$10.5 million, of which the GEF is asked to fund \$6.5 million.

24. B. Development of the Rules for Water Utilization. This component would support and facilitate consultations, and provide legal expertise to formulate and negotiate “Rules for Water Utilization”. The term “rules” is used in a general sense to refer to the obligations of the MRC-member states with respect to Articles 5 and 6 of the Mekong Agreement, and other actions necessary for the sustainable development of the Mekong River Basin. The terms and conditions of the obligations incurred by the MRC-member states in adopting different types of rules will be explored during the course of consultations and with the support of an internationally recognized water law expert. The WUP modeling and knowledge base working groups will directly support the rule-making process. The incremental cost of this component is \$1.3 million, of which the GEF is asked to fund \$0.8 million.

25. C. Institutional Strengthening of the MRC and NMCs to Implement WUP. The project would support the development of project and program management skills in the WUP Units to be established in the MRCS and each of the NMCs technical training and capacity building in the WUP Units, working groups, and national line agencies participating in the implementation

of the project, and support the development and implementation of a communication strategy to improve public awareness of and participation in of MRC functions and WUP. The project will support participation of national policy and technical stakeholders. There are extensive ongoing efforts in the MRCS environmental program (identified under component A.3 in Table 2) to enhance participation of local stakeholders and civil society in the development of the knowledge base and in the implementation of MRC planning and management functions. The incremental cost of this component is \$6.0 million, of which the GEF is asked to fund \$3.5 million.

26. ***Related GEF Investments and Programs.*** The Project is an important initiative in the GEF's broader global strategic program in international waters. It would support the participation of the MRC, specifically the WUP management teams in the MRCS and the NMCs, in two aspects of this global program:

(a) The ongoing International Waters (IW) Learn project, being implemented by UNDP, links together GEF international waters project teams for experience sharing and provide a modern electronic mechanism for experience sharing and distance learning through modern communication systems. The project would support the participation of the MRCS and NMC WUP management teams in this global project; and

(b) The GEF has selected several regions to concentrate its IW portfolio to maximize GEF's strategic impact. Two areas are the Danube-Black Sea Basins, and the South China Sea region. In the latter region a major regional project involving three of the four Mekong riparian countries (Thailand, Cambodia, and Viet Nam) is at an advance stage of preparation by UNEP. The project would support the participation of the MRCS and NMC WUP management teams in the activities of the South China Sea inter-governmental steering committee and the issue oriented technical committees being established. The project would also support the participation of the WUP management teams in major regional meetings of GEF project teams in the other strategic regions and in the Global IW meetings being planned by UNDP.

Incidental Domestic Benefits

27. In addition to the global benefits described above, the Project would also generate significant incidental domestic benefits for the MRC-member countries, that because of uncertainties and inherent project risks are difficult to estimate but nonetheless deserve mention. Following the review procedures established under the Project, and with the new analytical tools and knowledge base, countries could implement projects with more confidence that they will not harm other countries nor endanger sensitive ecological resources. Existing beneficial uses, such as navigation, irrigation water use, salinity repulsion, tourism, and economically important fisheries, would be protected. New, and carefully planned and evaluated developments, such as hydropower and irrigation projects, could proceed.

28. The Project would also help build technical capacity and databases, as well as ownership, in the national line agencies and National Mekong Committees which participate in the Project. This will help the national agencies play a more supportive role in the MRC, as well as formulate more efficient and sustainable water and natural resource policies at the national level.

Incremental Costs

29. Table 2 summarizes the incremental cost assessment presented in this Annex. The incremental costs required to achieve the stated global environmental benefits is US\$17.8 million, of which US\$10.8 million is sought from GEF. The incremental costs and GEF contribution would be allocated as follows:

<u>Project Component</u>	<u>Incremental Cost</u>	<u>(GEF Portion)</u>	<u>Member Country</u>
	US\$ Million	US\$ Million	<u>Contributions</u> US\$ Million
A. Basin Model Package and Knowledge Base	10.5	6.5	4.0
B. Development of Rules for Water Utilization	1.3	0.8	0.5
C. Institutional Strengthening of MRCS and NMC	6.0	3.5	2.5
<i>Total</i>	<i>17.8</i>	<i>10.8</i>	<i>7.0</i>

Table 2. Summary Incremental Cost Assessment Matrix

	<i>Baseline Scenario</i>	<i>Alternative</i>
<i>Global Environmental Benefit</i>	None	Protection of globally significant ecological resources: biodiversity conservation (fish, waterbirds, aquatic mammals, etc.) Globally significant eco-systems: Tonle Sap, Plain of Reeds, Delta estuary Example of cooperative and coordinated international water resource management.
<i>Domestic Benefit</i>	Data on hydrology, fisheries, navigation, watersheds, mapping, wetlands, etc. Single sector, national management strategies for fisheries, navigation, irrigation, and hydropower.	Multi-purpose and coordinated water resource management in the Mekong Basin. Strengthened water and natural resource management capacity at the national level and in the MRC. Reduction of international conflicts over water in the Mekong Basin.
<i>Costs</i>	Baseline	94.4
	Alternative	112.2
	Increment	17.8
	(GEF)	10.8

**TECHNICAL REVIEW
MEKONG RIVER COMMISSION
WATER UTILIZATION PROJECT (WUP)**

I am pleased to report as follows:-

1. The Mekong Basin is globally ranked 8th (by average discharge) and 12th (by length of mainstream), respectively. The Basin contains globally significant water and ecological resources and related coastal and marine resources and the Project comprehensively addresses the requisite means appropriate for the prevention of harm and irreversible losses to these assets. The Project is consistent with the policies and priorities of the GEF Waterbody-Based Operational Program (OP#8).
2. The procurement plan for the GEF portions of the WUP Project is in accordance with current best practices for the particular goods and services to be procured. Adherence to the plan will thus provide for the cost-effective achievement of the focal area objective.
3. The PCD and PIP Annex A (drafts dated 17th and 15th February, respectively) detail the comprehensive attention given to the design of the Project. PIP Annex A pragmatically discusses the "Knowledge Base" as-found situation and correctly concludes that Project Design is an evolutionary process. In particular the completion of the on-going activities outlined in PIP Annex A paragraphs 9 and 10 will provide valuable inputs to the Terms of Reference for the appointment of the consultants.
4. The "technical viability" of planning, designing, creating and operating the Basin Model to support the activities of the MRC and the NMCs to meet the provisions of the 1995 Mekong Agreement should not be in doubt. A number of such models have been created, calibrated and put into gainful use in other river basins of the World. Of course significant challenges will arise for the Mekong Model notably:-deficiencies in the "Knowledge Base" such as gaps; uneven patterns and durations of the various series of observations/measurements; the varying and uncertain quality of the data; and the ready and timely availability of the riparian held information concerning current and future basin-wide water use patterns and demand statistics, including information on such prescriptive water rights (now and for the future) as may exist. These and other important issues will certainly render the all-important calibration and verification (validation) of the WUP Modeling Package more problematic but the adverse effects should be confined to scheduling adjustments, and the like, rather than the endangerment of the fundamental technical viability of WUP. Accordingly the long term feasibility of executing WUP and of its continued operation/maintenance will depend primarily on the strength of interest-now and for the future-of the riparians in the real-time achievement of sustainable water resource management in the Lower Mekong Basin. Presently strong indicators of interest are reported, but as, for-example, transboundary factors emerge, special actions may be needed by the riparians, the MRC, the consultant teams, and the donors, in order to maintain progress. Correctly the PCD refers to the Project as "the starting point of the long term MRC's WUP.

5. Some comments and constructive suggestions for consideration as enhancements to the Project Delivery Process (PDP) include:-

5.1. The PCD correctly emphasizes that implementation of the Mekong Agreement requires strong political commitment from all member states and the participation and support of key stakeholders in the Basin and external parties. I recommend that particular priority be given to the "people dimension" of WUP and that the Basin's inhabitants be consulted and represented in the decision-making process through involvement of, for example, community-interest groups, environmental protection/sustainability organizations, and local, regional, and international NGO,s. This activity is recommended for explicit inclusion in the Project management plan.

5.2. Significant interdependencies exist between the WUP, the MRC/UNDP programs and many other MRC/Donor activities. For effective program delivery, the MRC should be encouraged to explicitly design and promulgate the actual process whereby the various Mekong Basin activity programs will be coordinated.

5.3. Previous attempts to build a variety of Basin Models are described in the PCD as having been unsustainable. Special consideration is therefore needed to safeguard the substantial investment to be made, through WUP, into the Basin Model. For example, the Model is presently closely linked to the agreement of the "RULES" and to the Basin Development Plan (BDP) whereas it is a powerful asset in its own right for many other uses in the Basin. The Project Schedule should reflect this broad-based stand-alone value situation so that as the Agreement priorities develop and maybe change, the operation and maintenance of the Model will be sustained for the continuing benefit of the stakeholders.

5.4. Project Key Performance Indicators (KPIs) stretch from 2003 to 2006, which is pragmatic and understandable. However the Project Implementation Schedule for the MRC/Consultants should include explicit intermediate KPIs at no greater than 3-monthly intervals, in order that best program delivery performance may be monitored, evaluated and assured. In short, I recommend that the Project be planned and executed in accordance with the prescriptions of ISO 9001-Quality Systems: Model for "quality assurance in design, development, production, installation and servicing".

5.5. Many of the leading international water and environmental resources consulting firms are accredited under ISO 9001 and I recommend that only such organizations be prequalified to bid for WUP.

5.6. Mechanisms for the transfer of technology and operational capability -with particular reference to the Basin Model- should be explicitly emphasized and included in the bid documents and the contract for the international consultancy package[s]. This process together with an ISO 9001 Quality Management Systems approach will provide real added value to the MRC and the Project.

Mekong River Commission - Water Utilization Project
Response to the STAP Review
March 3, 1999

Following are responses to the five points made by the STAP reviewer.

(a) Participation. The present project design puts considerable emphasis on stakeholder participation, particularly the direct and substantive participation of the National Mekong Committees in each riparian country and of the key line agency with a major stake in water resources development and the formulation and negotiation of the rules. However the current design does not include activities that would directly involve civil society or other local stakeholders such as local officials, fisherman and others. Implicit in the design is a reliance on the significant efforts in this regard being made under the Mekong River Commission Secretariat's (MRCS) work program related to the WUP project, especially the fisheries and wetland conservation projects. As discussed in Project Implementation Plan (PAD) Annex 9 (MRC Strategic Plan and Transboundary Analysis), the MRC Council for the first time in October, 1998 directed the MRCS put emphasis on participation in water and natural resource planning and to give greater attention to social and economic factors in its planning. In reply to STAP review comment we have asked MRCS to prepare a specific plan to expand the scope of participation under the WUP project. MRCS's reply will be incorporated into the project documents during appraisal.

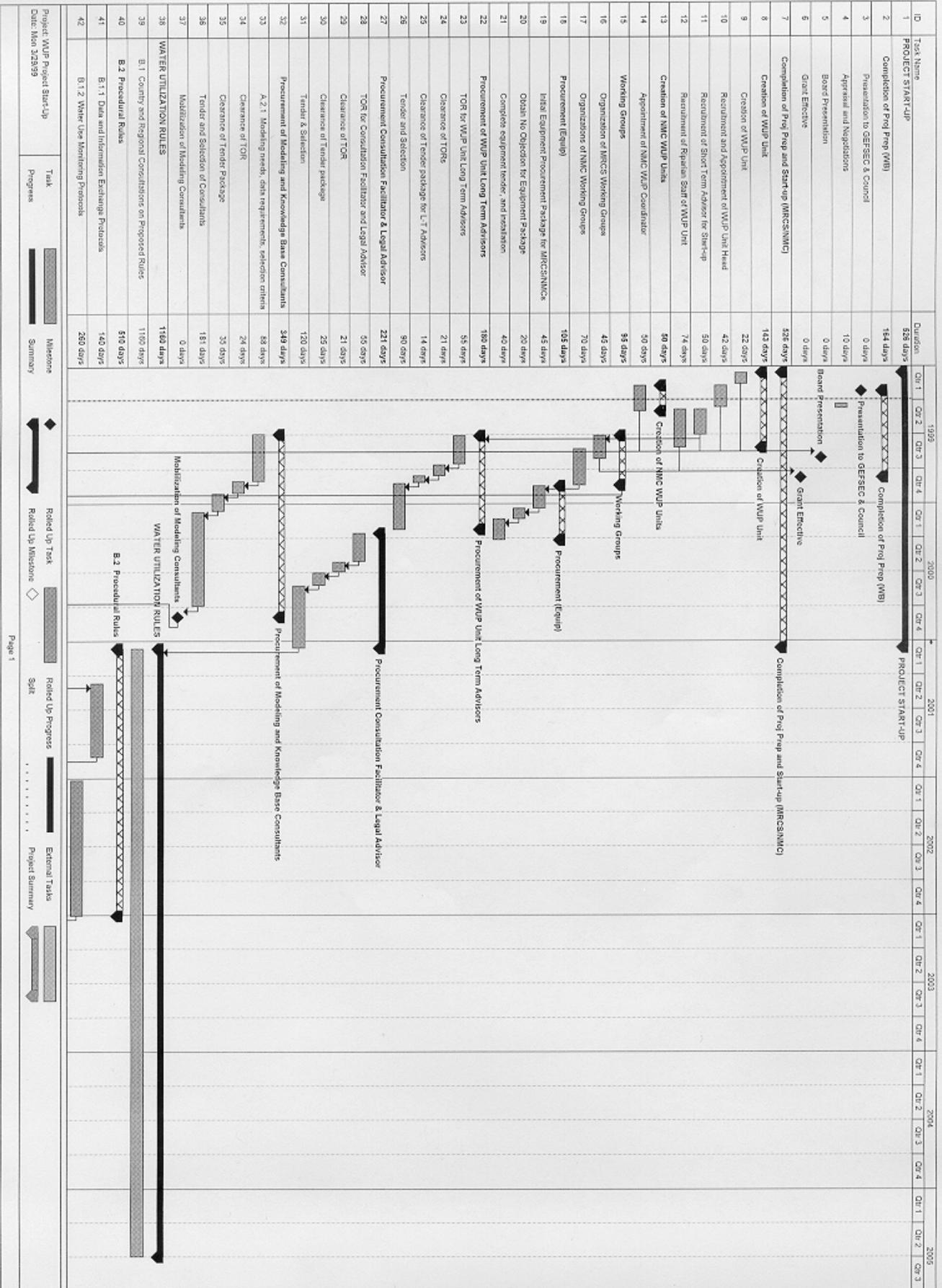
(b) Donor/Work Plan Coordination. As discussed in the Incremental Cost Analysis (PAD Annex 4) the baseline scenario involves a substantial portion of the current project portfolio and work plan of MRCS. The relation between WUP and this work plan is quite strong and important, particularly in several key areas of the environment, and in development of the Mekong knowledge base. We have asked the MRCS to prepare a specific plan to improve and ensure coordination between WUP and the several donors and project that are expected to provide vital information and knowledge to WUP. This plan will be incorporated into the project documents at appraisal.

(c) Stand Alone Value of Basin Modeling Package. The STAP reviewer is correct in stating that the basin modeling package to be developed under the GEF project is not only a critical analytical tool for the formulation and negotiation of the rules, but that this modeling package has great value in supporting improved and more sustainable sector planning and policy making in each of the riparian countries. In the present design, development of the knowledge base and the basin modeling package are planned as stand alone activities with intensive and substantive participation of experts from each of the countries. While these are being developed, calibrated and verified to the satisfaction of the riparian countries, the first part of the rules, those which involve procedures whose formulation does not depend on the models, will be negotiated. The second part of the rules, which do depend on the models to support the formulation and negotiation process will be developed after the modeling package has been accepted by the countries. This plan should ensure as the STAP reviewer has requested that the modeling package be viable and be used by the countries regardless of the course and success of the negotiations on the rules. The text of the project documents will be strengthened during appraisal to ensure that this is clear.

(d) Key Performance Indicators. The present project plan includes performance indicators at each of the major milestones in the implementation of each of the three components. The STAP reviewer suggests that these major sub-components be further broken down to identify intermediate milestones and indicators to support supervision. It is intended that each of the major consultant teams will begin work by preparing an inception report that would include a detailed work plan acceptable to the Bank and MRCS management. As the STAP reviewer states, this project is a large and complex one that will require intensive supervision and monitoring and more frequent milestones would help not only the Bank but MRCS management to supervise the project. During appraisal, each of the major sub-components will be analyzed to identify additional milestones and indicators for this purpose, and strengthen and clarify the requirement to prepare detailed work plans with indicators and frequent milestones, and incorporate these into the project plan. The STAP reviewer's suggestion to include the requirement of ISO 9001 certification in the required qualifications of consultant contract bidders is interesting and novel, and will be consulted with the Region's Procurement Advisor on its appropriateness and acceptability under the Bank's Guidelines.

(e) Technology Transfer. The STAP reviewer is correct in stating that technology transfer is an important element of the project, not only to key stakeholders in each of the riparian countries, but to the MRCS itself especially the WUP management team and the working groups. During the appraisal mission the Terms of Reference (TOR) of consultants and advisors hired under the project will be reviewed to ensure that they include adequate language on technology transfer.

Annex 4: Project Implementation Schedule



ID	Task Name	Duration	1999	2000	2001	2002	2003	2004	2005
			Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
43	Task Name B.1.5 Notification and Consultation Process	271 days							
44	B.3 Physical Rules	645 days							
45	B.2.1 Maintenance of Minimum Flows	405 days							
46	B.2.2 Criteria for surplus flows	350 days							
47	B.4 Water Quality Rules	200 days							
48	MODELING PACKAGE AND KNOWLEDGE BASE DEVELOPMENT	1520 days							
49	Preparation of Knowledge Base	206 days							
50	A.2.2 Review of all existing data	120 days							
51	A.2.3 Identification of critical gaps	71 days							
52	A.2.4 Data base and information system design	80 days							
53	A.2.5 Assessment of national legal and institutional frameworks	119 days							
54	A.3.2 TB problem assessment, priorities, data needs	124 days							
55	Development of the Knowledge Base	524 days							
56	A.2.5 Information system development, testing and implementation	624 days							
57	Basin Model Package Development	541 days							
58	A.1.1 Upper Basin	394 days							
59	A.1.2 Lower Basin	394 days							
60	A.1.3 The Delta	394 days							
61	A.1.4 Calibration and verification of model package	135 days							
62	A.1.5 Verification of monitoring mechanisms	137 days							
63	Support for Rules Formulation and Consultation	544 days							
64	A.1.6 Support for Rules Formulation and Consultation	545 days							
65	INSTITUTIONAL STRENGTHENING OF MRCS & NMCs	1419 days							
66	C.1 Technical Training and Capacity Building	1342 days							
67	C.2 WAP Project and Program Management Capacity	917 days							
68	C.3 Communication, Public Awareness, and Participation	1266 days							
69	D. FILLING DATA GAPS AND STRENGTHENING MONITORING	388 days							
70	D.1	388 days							
71	E. WATER QUALITY ASSESSMENT AND MODELING	570 days							
72	E.1 Water quality problem assessment and modeling	378 days							

Project WAP Project Start-up
Date: Mar 2000

Task Progress

Milestone Summary

Roll-up Task

Roll-up Milestones

Roll-up Progress

Roll-up Split

External Tasks

Project Summary

Page 2

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