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Report No: ICR00001005

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-23406)

ON

A GRANT FROM THE GLOBAL ENVIRONMENTAL FACILITY IN THE AMOUNT OF SDR 8.0 MILLION

(US$ 11.0 MILLION EQUIVALENT)

TO THE

MEKONG RIVER COMMISSION

FOR A

WATER UTILIZATION PROJECT

June 30, 2009

Rural Development, Natural Resources and Environment Sector Unit
Sustainable Development Department
East Asia and Pacific Region

CURRENCY EQUIVALENTS

FISCAL YEAR
January 1 - December 31

Currency Unit = US$

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
BDP	Basin Development Program (MRC)
CEO	Chief Executive Officer
CNMC	Cambodia National Mekong Committee
DCG	Donor Consultation Group
DSF	Decision Support Framework
EP	Environment Program (MRC)
GEF	Global Environment Facility
GEO	Global Environmental Objectives
IBFM	Integrated Basin Flow Management
ICCS	Internal Communication and Coordination Section (MRC)
ICR	Implementation Completion Report
IKMP	Information and Knowledge Management Program (MRC)
JC	Joint Committee
M&E	Monitoring and Evaluation
M-IWRMP	Mekong - Integrated Water Resources Management Support Project
MRC	Mekong River Commission
MRCS	MRC Secretariat
NMC(s)	National Mekong Committee(s)
PAD	Project Appraisal Document
PDIES	Procedures for data and information exchange and sharing
PDO	Project Development Objectives
PMFM	Procedures for Maintenance of Flow on the Mainstream
PNPCA	Procedures for Notification, Prior Consultation and Agreement
PWQ	Procedures for Water Quality
PWUM	Procedures for Water Use Monitoring
QAG	World Bank Quality Assurance Group
SAP	Strategic Action Program
TACT	Technical Assistance and Coordination Team (successor to ISDIT)
TCG	DSF Technical Coordination Group
TDA	Transboundary Diagnostic Analysis
TRG	Technical Review Group (2 sub-groups dealing with flow and water quality have been formed to support the technical guidelines under the PMFM and PWQ)
TSD	Technical Service Department of the MRC
WUP	Water Utilization Project

Vice President:	James Adams, EAPVP
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Regional Program
(Lower Mekong River Basin-Cambodia, Lao PDR, Thailand and Viet Nam)

Mekong Water Utilization Project

Implementation Completion and Results Report

CONTENTS

A. Basic Information			
Country:	Mekong	Project Name:	4M-MEKONG WATER UTILIZ.
Project ID:	P045864	L/C/TF Number(s):	TF-23406
ICR Date:	02/12/2009	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	MEKONG RIVER COMMISSION
Original Total Commitment:	USD 11.0M	Disbursed Amount:	USD 11.0M
Environmental Category: C		**Global Focal Area: I**	
Implementing Agencies: Mekong River Commission			
Cofinanciers and Other External Partners:			

B. KEY DATES

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	01/12/1999	Effectiveness:		03/30/2000
Appraisal:	04/05/1999	Restructuring(s):		
Approval:	02/03/2000	Mid-term Review:		02/25/2004
		Closing:	06/30/2007	06/30/2008

C. RATINGS SUMMARY

C.1 Performance Rating by ICR

Outcomes:	Moderately Satisfactory
Risk to Global Environment Outcome	Substantial
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	**Overall Borrower Performance:**	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project	No	None (QEA):	Not applicable

at any time (Yes/No):			
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	Not Applicable
GEO rating before Closing/Inactive status	Satisfactory		

D. SECTOR AND THEME CODES		
	Original	Actual
Sector Code (as % of total Bank financing)		
Central government administration	90	90
Law and justice	10	10
Theme Code (Primary/Secondary)		
Biodiversity	Primary	Primary
Other rule of law	Primary	Primary
Water resource management	Primary	Primary

E. BANK STAFF		
Positions	At ICR	At Approval
Vice President:	James W. Adams	Jean-Michel Severino
Country Director:	Annette Dixon	Ngozi N. Okonjo-Iweala
Sector Manager:	Rahul Raturi	Geoffrey Fox
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ICR Team Leader:	Toru Konishi	
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F. RESULTS FRAMEWORK ANALYSIS

Global Environment Objectives (GEO) and Key Indicators(as approved)

The Project's broad development objectives are to assist MRC to establish mechanisms to promote and improve coordinated and sustainable water resources management in the Mekong Basin, including reasonable and equitable water utilization by the MRC countries and protection of the environment, aquatic life and the ecological balance of the basin. This objective would be achieved through preparation of "Rules" for water utilization and procedures for information exchange, notification and consultation. 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 would promote protection of sensitive ecological systems including wetlands, flooded forests, and estuary system that support globally significant bio-diversity.

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

Not Revised

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Development of a functional, integrated basin modeling package			
Value (quantitative or Qualitative)	None Existed	Basin modeling package in place		Basin modeling package accepted by the four MRC member countries and formally adopted by the MRC; updating in progress under IKMP
Date achieved	03/30/2000	06/30/2007		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be fully achieved.			

Indicator 2 :	Development, installation, and testing of a functional and integrated knowledge base and information systems on water and related resources, with a communication system linking NMCs with the MRCS.			
Value (quantitative or Qualitative)	None Exist	Establishment of the technical working groups on water resources		Technical working groups established by the MRCS and the NMCs; the working groups will continue function after project completion
Date achieved	03/30/2000	06/30/2008		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be fully achieved.			

Indicator 3 :	Adoption of protocols for information exchange, water use monitoring, and preliminary notification/consultation process			
Value (quantitative or Qualitative)	None Existed	Procedures for information exchange and water user monitoring adopted, and preliminary protocol for notification/consultation process completed		Procedures for information exchange and water user monitoring adopted, and preliminary protocol for notification/consultation process completed
Date achieved	03/30/2000	06/30/2008		12/31/2008

Comments (incl. % achievement)	This indicator is considered to be fully achieved.

Indicator 4 :	Adoption of provincial in-stream flow 'rules' and final notification/consultation/agreement protocols			
Value (quantitative or Qualitative)	None Existed	In-stream flow rules adopted, but the implementation guideline not completed; final notification/consultation agreement protocols completed		The MRC has put a transitional arrangement to finalize the technical guideline for the in-stream flow rules. The MRC has started help countries implementing the prior notification procedures using mainstream dam as a case study
Date achieved	03/30/2000	06/30/2008		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be largely achieved.			

Indicator 5 :	Adoption of the Water Quality Rules			
Value (quantitative or Qualitative)	None Exist	The rules have been agreed by the Joint Committee of the MRC, but not formally approved.		MRC has put transitional arrangements in place to finalize the technical guidelines for Water Quality
Date achieved	03/30/2000	06/30/2008		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be achieved partially.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Basin model package installed and being applied at MRCS and member countries			
Value (quantitative or Qualitative)	No effective basin model existed or accepted by the riparians.	A comprehensive basin modeling package is set up and accepted by the riparians to be a tool for their negotiations of water allocation and evaluation of planning activities.		The basin model package is used by the BDP of the MRC, and the MRCS is promoting the use at the national level.
Date achieved	03/30/2000	06/30/2008		12/31/2008

Comments (incl. % achievement)	This indicator is considered to be satisfactorily achieved; and follow- up arrangements are already in place in the light of a follow up project scheduled in FY 10.			
Indicator 2 :	A set of provisional "rules" proposed to the MRC JC and Council			
Value (quantitative or Qualitative)	None Existed	Five rules and procedures presented and approved by the JC; the Council Approved the procedures/rules except the Water Quality.		MRC has put transitional arrangements in place to finalize the technical guidelines for Water Quality and Water Flows
Date achieved	03/30/2000	06/30/2008		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be substantially achieved			
Indicator 3 :	Project management teams in place in MRCS and NMCs. WUP unit and working groups established and functioning with appropriate staffing and training			
Value (quantitative or Qualitative)	No team established yet	Team was established and maintained throughout the project implementation period. Adequate funding has been provided throughout the implementation period, including the extension period		WUP implementation team has been terminated upon completion of the project; however, technical working groups are being maintained under the other program of the MRC
Date achieved	03/30/2000	06/30/2008		12/31/2008
Comments (incl. % achievement)	This indicator is considered to be satisfactorily achieved; and follow- up arrangements are already in place in the light of a follow up project scheduled in FY 10.			

G. RATINGS OF PROJECT PERFORMANCE IN ISRS

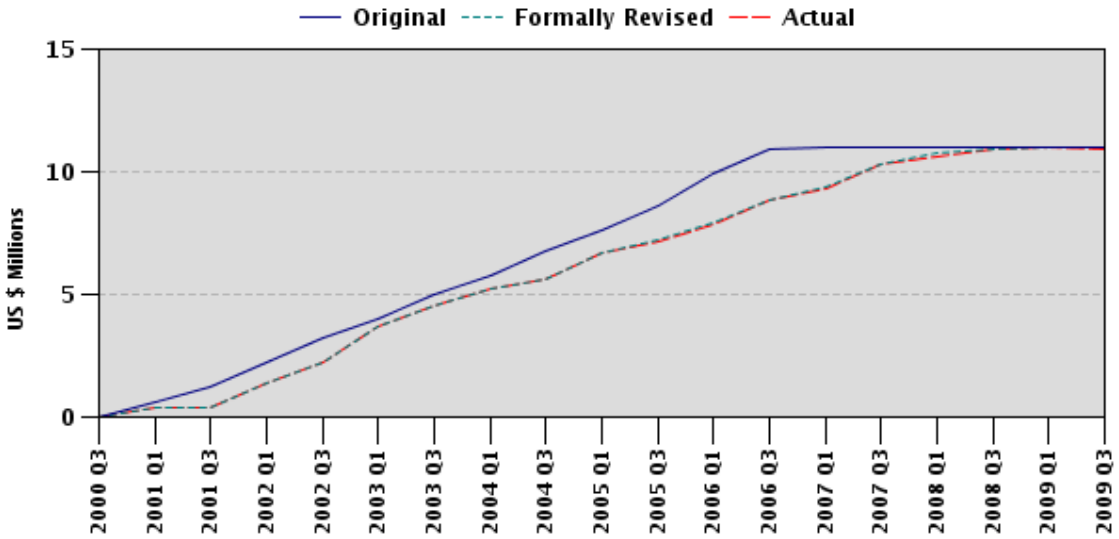
No.	Date ISR Archived	GEO	IP	Actual Disbursements (USD millions)
1	06/19/2000	Satisfactory	Satisfactory	0.20
2	12/27/2000	Satisfactory	Satisfactory	0.42
3	06/18/2001	Satisfactory	Satisfactory	0.98
4	12/10/2001	Satisfactory	Satisfactory	1.77
5	04/08/2002	Satisfactory	Satisfactory	2.45
6	09/20/2002	Satisfactory	Satisfactory	3.67

7	02/27/2003	Satisfactory	Satisfactory	4.55
8	09/23/2003	Satisfactory	Satisfactory	5.22
9	03/29/2004	Satisfactory	Satisfactory	5.64
10	06/15/2004	Satisfactory	Satisfactory	6.42
11	12/20/2004	Satisfactory	Satisfactory	6.68
12	06/09/2005	Satisfactory	Satisfactory	7.53
13	05/16/2006	Satisfactory	Satisfactory	9.13
14	09/05/2006	Satisfactory	Satisfactory	9.13
15	10/23/2007	Satisfactory	Satisfactory	10.60
16	08/19/2008	Moderately Satisfactory	Satisfactory	10.99

H. Restructuring (if any)

Not Applicable

I. Disbursement Profile



1. Project Context, Global Environment Objectives and Design

1.1 Context at Appraisal

The Mekong River system is important for the surrounding region in social, economic, and environmental terms. Freshwater and estuary capture fisheries are major sources of protein for the majority of the Basin's population (of which more than 80 percent are considered poor). In addition, the River's water resources provide vital inputs for the irrigation system developed in the Vietnam portion of the Mekong Delta. The River system has also been utilized for hydropower and island navigation, yet the Mekong River still provides the very diverse and rich fresh water eco-system, third only to the Amazon and Congo Rivers. The main challenges for water resources management in the Mekong River Basin were to (a) achieve equitable sharing of the water resources, (b) coordinate water resources development to avoid harmful trans-boundary impacts, and (c) achieve socially and environmentally sustainable water resources development.

In this context, the four lower riparian countries (Lao PDR, Cambodia, Thailand, and Vietnam) jointly signed a treaty in April 1995 (the Mekong Agreement) designed to extend and enhance the Mekong Spirit of Cooperation that dates back to the mid-50's. The Water Utilization Project (Project) has been developed to support the four lower riparian countries of the Mekong River Basin (Lao PDR., Thailand, Vietnam, and Cambodia) to start implementing the Mekong Agreement. The Agreement reflects the commitment of the four countries to cooperate in the sustainable development of water and related resources of the Mekong River system. The Agreement sets a framework of riparian cooperation as an objective, outlines general principles and procedures, establishes the Mekong River Commission (MRC) as an inter-governmental body, and details the organizational arrangements and scope of the MRC's authority.

As the first step, the MRC has decided to develop a transboundary hydrological model to understand the hydrological nature of the Mekong River and assess the transboundary impacts on the water resources infrastructure (e.g. dams). The MRC has also identified the development of a set of common rules for water utilizations which are agreeable to the four countries, and requested the Bank and the GEF for support and a GEF grant was approved for a Mekong Water Utilization Project (the project.

The project was mainly financed by the GEF (60 percent), with Finland, Japan, and France providing 22, 5, and 3 percent respectively of the total project cost. The detailed financing is described in Annex 1 (b).

1.2 Original Global Environmental Objectives (GEO) and Key Indicators

Global Environmental Objectives:

The Project's broad development objectives are to assist MRC to establish mechanisms to promote and improve coordinated and sustainable water resources management in the Mekong Basin, including reasonable and equitable water utilization by the MRC countries and protection of the environment, aquatic life and the ecological balance of the basin. This objective would be achieved through the preparation of "Rules" for water utilization and procedures for information exchange, notification and consultation. 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 would promote protection of sensitive ecological systems including wetlands, flooded forests, and estuary system that support globally significant bio-diversity.

Key Indicators:

The following are the key indicators identified at appraisal; (a) setting up a functional, integrated and comprehensive Basin modeling package by 2003; (b) developing 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; (c) adoption of protocols for information exchange, water use monitoring, and preliminary notification/consultation procedures by 2004; (d) adoption of provisional in-stream flow rules by 2005; and (e) adoption of provisional water quality rules by 2006.

1.3 Revised GEO

Not applicable

1.4 Main Beneficiaries

According to the Project Appraisal Documents, the following is the description of the main beneficiaries.

> From the prospective of the PDO, the ultimate target population would be those living within the Mekong River Basin or utilizing its waters. The Project would eventually 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 further 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 would also benefit the whole region in terms of facilitating greater 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.

For this project, it is difficult to distinguish global and national benefits. The main benefit of the project is support the four lower Mekong Basin countries (Lao PDR, Thailand, Cambodia, and Vietnam) to develop the knowledge (transboundary hydrological models) and rules (water utilization procedures) towards sustainable water resources development, taking the social and environmental aspects into account.

1.5 Original Components

The Water Utilization Project (the Project) comprises the following three components:

Component A. Basin Modeling and Knowledge Base. This component was designed to support the development of the necessary analytical tools to improve the understanding of the interaction between the physical and biological features of the Mekong River. In particular, Component A had the following three subcomponents: (a) Information and Knowledge Base Development, aimed at collecting preliminary data and assessing needs for developing a numeric model for

basin hydrology, (b) a Basin Modeling Package aimed at developing a transboundary hydrological model, and (c) Environmental, Economic, and Social Transboundary Analysis to identify acute environmental issues, and identify priorities, and explore best practice on the river basin management.

Component B. Rules for Water Utilization. This component is the core of the Project, which mainly focused on the development of the Rules essential for the water utilization. The component supported the following: (a) data and information exchange protocols (i.e., data and information exchange; water use monitoring; and prior notification, consultation and agreement), and (b) physical rules (i.e., maintenance flows on the mainstream and water quality). The component aimed to provide the MRC with technical assistance and to facilitate discussions, negotiations and drafting of the water utilization rules by the four member countries.

Component C. Institutional Strengthening of MRC and NMC to implement the Project. This component aimed at supporting project management as well as institutional strengthening for the MRC and the four member countries. In particular, this component included: (a) Project and Program Management, (b) Technical Training and Capacity Building for MRC and the concerned officials of the four member countries, (c) Communication, Participation and Public Awareness to disseminate the knowledge obtained by the MRC and promote the exchange of ideas, and (d) Participation in GEF Regional and Global Program to exchange experiences with other GEF supported international water programs within and outside the region.

1.6 Revised Components

The project design was maintained during implementation. However, Component A was split into Component A-1 (Basin Modeling and Knowledge Base) and Component A-2 (Environmental and Transboundary Analysis) because they required different technical expertise and coordination arrangements. Component A-1 required hydrological experts while Component A-2 required a broader expertise encompassing economic, social, and environmental aspects. However, this division of Component A did not require an amendment of the legal agreement from the view point of project administration.

Component A-1. Basin Modeling and Knowledge Base: The Project continued to support the development of necessary analytical tools and a comprehensive basin modeling package to support the MRC's basin management functions, support the formulation and negotiation of the Rules, and establish a functional shared information and knowledge management system called the Decision Support Framework (DSF).

Component A-2. Environmental and Transboundary Analysis: Environmental, economic and social trans-boundary analysis tools and assessments to support development of the technical input to development of the technical guidelines for implementing the Procedures under Component C to include identifying key trans-boundary issues and application of GEF's Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) approach.

There were no changes in Components B and C.

1.7 Other significant changes

Two significant changes were made during project implementation. First, the implementation arrangements were changed. At appraisal, the Project was expected to be implemented directly by the Office of the Chief Executive Officer (CEO) of the MRC, given the importance of developing the 'Rules'. However, as a result of an internal reorganization within the MRC, the responsibility for implementing the project was transferred to the Planning Division of the MRC. The purpose was to integrate the project under the line department, and achieve better coordination and increase synergy with the Basin Development Program (BDP), which aimed at developing a series of scenarios regarding infrastructure development and water utilization. This issue was discussed and agreed with the Bank mission in May 2006. This not only helped in the coordination with the BDP, but also facilitated the transitional arrangements after the completion of the project.

Second, the project implementation period was extended by one year. While the Project activities were nearly completed, the extension was considered to be necessary to: (a) develop technical guidelines to implement the Rules regarding water quality and minimum flow, (b) increase capacity of the riparian countries to utilize hydrological models for infrastructure development, and (c) disseminate the outcome of the Project to direct stakeholders in the basin, particularly local governments and communities. After consultation with the GEF, the Bank formally agreed to a one year extension of the Closing Date from June 30, 2007 to June 30, 2008.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design, and Quality at Entry

Quality at the entry was considered to be satisfactory in general but there was no formal quality review at entry by QAG. The basic design of the Project, aimed at increasing general knowledge of the Mekong Basin with the two major focal points (e.g., Tonle Sap, the Mekong Delta) and developing the Rules for water utilization in parallel, is considered to be relevant and practical to address the key issues for water and related resources management in the Mekong River Basin. During the late 1990s after the Mekong Agreement was signed in 1995, the four countries found it difficult to develop subsidiary agreements to implement the Mekong Agreement including the water utilization Rules mainly due to a lack of adequate technical knowledge of the hydrological and environmental aspects of the Mekong River. The Project has addressed the needs to develop the hydrological model and develop the water utilization Rules.

Further, the project has also included the transboundary environmental, economic, and environmental analysis. This is also considered to be relevant and practical. During Project preparation, it was realized that technical and environmental analysis of the Mekong River would not only deepen the understanding of the four countries on possible trans-boundary effects resulting from the respective countries' water resources development, but would also facilitate mutual understanding and nurture regional partnership towards sustainable water resources development of the Mekong River mainstream and tributaries.

The project, which was rated Substantial Risk, incorporated adequate risk mitigation measures to address the weak national capacity of the MRC and the member countries, and possible political complications regarding the development of the Rules. Consequently the implementation

arrangement for the Project is considered to be appropriate and prudent. At the MRCS, the project team was placed directly under the auspices of the CEO in light of concerns over effectiveness and transparency of the MRC at appraisal. At the country level within each National Mekong Committee (NMC), a management team was established to be an interlocutor between the MRC and the line agencies and facilitate negotiations for developing the Rules (subsequently called "procedures"). The original implementation period was seemingly long, but in retrospect, it was realistic even though it did not leave sufficient time to adequately "implement" the adopted procedures.

It should also be noted that the project design paid due attention to the engagement of China and Myanmar in a low key approach, which was considered to be politically difficult.[1] The Project also aimed to improve communication with and participation of the civil society and general public and to incorporate poverty reduction and gender equality in its activities, which are key to the achievement of sustainable water resources development in the Mekong River.

Despite an overall sound design, the project design could have been improved if the following two aspects had been considered:

- Implementation of the Rules and models at the country level. The Project mainly aimed at finalizing the Rules for water utilization through the MRC, but did not consider the implementation of these Rules by the line ministries at the national levels. Similarly, the Project aimed at developing hydrological models in the MRC, but did not pay sufficient attention to disseminating the models to the countries so that they could apply these to infrastructure planning. The Project impacts would have been consolidated if these points were considered. In particular, Component A could have included the demonstration and dissemination of the models at the national level, and Component B could have also invited direct stakeholders at the national level. This point was discussed further in Section 6 *Lessons Learned.*

- Coordination with other programs at the MRC. During the late 1990s when the Project was appraised, a number of programs to support the MRC had been initiated by various donors. While the Project achieved some degree of donor coordination (resulting in co-financing arrangement), it would have been beneficial to have had a more explicit agreement with other programs, notably the Basin Development Program (BDP), to make effective use of the outputs of the Project (particularly modeling) and avoid duplication.[2]

[1] Under provisions of the 1995 Mekong Agreement, China and Myanmar were invited and later became active dialogue partners to cooperate and coordinate development and management of the Mekong River Basin water resources.

[2] At project appraisal it was anticipated the BDP would have proceeded much faster than actually occurred and that WUP would have benefited so that its outputs could be utilized more effectively; however due to a slow start, the BDP fell out of sync and WUP had to develop data systems and scenarios to accomplish its mission.

2.2 Implementation

Throughout the implementation period, the MRC has remain committed to providing with adequate financial, human resources, and technical support to the project implementation team. The MRC has recruited a dedicated international consultant as a main technical coordinator for the project, and the four countries have assigned experienced staff to manage the project, particularly for the Component B, which required diplomatic skills in negotiating and adopting the water utilization Rules among the four countries. Adequate counterpart has been provided on time by the MRC as well as the four countries. The engagement of the Finance and Accounting Section of the MRC for handling fiduciary matters was also found effective.

It should also be noted that the project implementation was not always smooth, mainly because of the political nature of the Rules under the Component B. There was a certain degree of disagreement among the four countries on the content of the water quality resulting from difference among the four countries in location (upstream and downstream) and stage of economic development. Discussions and negotiations among the four member countries to develop 'Rules', were kept on track mainly because of the personal attention of the Chief Economic Officer of the MRC.

The Project was extended by one year in order to address the inadequate attention to the implementation and dissemination at the country level (as discussed in Section 2.1), consolidate the project's impacts and contribute to the achievement of the project development objectives. In particular, the extension period focused on: (a) preparation of implementation guidelines for water utilization Rules (particularly for water quality); (b) training on the use of hydrological models for line ministries through in-country case studies; and (c) dissemination of the Rules among key stakeholders, including local governments and riparian communities. In order to nurture ownership by the member countries, the management of these activities has been transferred to the country level.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

The M&E system under the project, with clearly defined indicators (refer Section 2.1) was utilized and implemented by the project. There were no major monitoring issues during the implementation period.

However, in retrospect, the M&E system would have been more meaningful if there had been some outcome indicators such as implementation of the Rules and adoption of the models at the national level so as to enable qualitative measurement to assess the stated project objectives. The key development objective indicators adopted under the Project are mainly outputs, such as adoption of water utilization rules by the MRC and development of a functional integrated basin model. The output indicators defined at appraisal were interim products to the rules and models.

In this way, the M&E system of the project could have been more closely linked with the global environmental benefit to improve water resources management for the economic and social development of the basin in an environmentally sustainable manner. Learning from the lessons from the project, MRC is currently developing a comprehensive M&E system regarding the

social, environmental and economic status of the Mekong River, which would be shared by the MRC's various programs. It is expected that the M&E system would be completed by late 2009.

2.4 Safeguard and Fiduciary Compliance

This Project was mainly for technical assistance without any physical investment works. Therefore, the safeguard policy was not applicable.

During implementation, there was no major procurement and financial management issues. This is mainly because that the fiduciary part of the project was managed by the Financial and Accounting Section (FAS) of the MRC, which is independent from the project technical team and has qualified staff. This arrangement has helped the technical team focus on the technical issues while adequate check and balance were exercised from fiduciary prospective.

2.5 Post-completion Operation/Next Phase:

The Project produced the expected outputs: (a) a series/suite of trans-boundary hydrological models and supporting knowledge base, collectively called the decision support framework (DSF) developed under Component A-1; (b) strengthened environmental flow analyses and identification of key trans-boundary issues developed under Component A-2; and (c) a set of water utilization rules developed under Component B. In general, the MRC has taken a series of immediate steps to consolidate the project outputs and integrate them into either a new or existing program to achieve eventual sustainability of the project.

Regarding the hydrological models and DSF developed under Component A; the MRC has developed a new Integrated Knowledge Management Program (IKMP) to further refine the hydrological models developed under the Project. The purpose was to deepen the understanding of the hydrological and environmental aspects of the Mekong River, taking advantage of continued progress in the numeric capacity of computers. Accurate, timely and accessible data and information on a range of parameters in accordance with the procedures noted below and contained in the DSF are essential to improved and integrated trans-boundary river basin management. In particular, the IKMP aims at: (a) adding several data parameters (such as salinity and sedimentation); (b) engaging China to develop a more comprehensive model including the upper part of the Mekong River; and (c) improving model interface and output formats to facilitate the use of the models by policy makers. In addition, the IKMP has put proper emphasis on capacity building and dissemination of the models and incorporating lessons learned from the Project. The IKMP has taken over implementation arrangement and is providing human resources to continue the development of the DSF.

Under Component A-2 (transboundary environment, economic, and social analysis), the project developed a new approach called Integrated Basin Flow Management (IBFM), in close collaboration with the MRC's Environmental Program (EP). This approach was applied in preparing the technical guidelines supporting the procedures for mainstream flow maintenance set out below. The IBFM will continue under the EP.

Under Component B, the Project developed principles and frameworks for water utilization rules. As pressures on the water resources in the Mekong River substantially increase due to

economic development in the region and the global food and energy shortage, after the completion of the project, the MRC has taken the following actions to finalize the guidelines and has begun implementing them on the ground at the national level:

- Notification, Prior Consultation and Agreement. This procedure (PNPCA) is becoming critical because of the accelerated hydropower development and potential effects of climate change on Mekong River flows. The MRC assigned its Internal Communication and Coordination Section (ICCS) and the Basin Development Program (BDP) of the MRCS to take over these responsibilities, and defined MRCS' internal procedures. Full implementation is expected soon;
- Data and Information Exchange and Sharing and Water Use Monitoring. These procedures (PDIES and PWUM) were transferred to the IKMP and are fully operational;
- Maintenance of Flows on the Mainstream and Water Quality. The first set of procedures (PMFM) has been adopted by the MRC Council and the second set (PWQ) is awaiting adoption. The next step is to further refine and finalize the technical guideline to implement these rules. Since completion of the Project, the MRC has been implementing its Environmental Program (EP) until a possible follow-up project is in place.

Currently, the Bank and AusAID are jointly planning a follow-up project for FY10 entitled the Mekong Integrated Water Resources Management Project (M-IWMRP) designed to provide continued support to the MRC as well as the four member countries, to adopt integrated water resources management. The M-IWRMP is a regional project, and it would not only support the finalization of the procedures for Water Quality and Maintenance of Flows on the Mainstream, but also provide the four member countries with technical assistance, capacity building and institutional development to implement the Rules at the national level. M-IWRMP would also include outreach to riparian communities through its capacity building and critical infrastructure investments for poverty alleviation.

The Asian Development Bank (ADB) is also planning to provide the Government of Lao PDR with support focusing on the capacity building for the integrated water resources management; part of the support is to help the Government implement the procedures on water quality supported by the project.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

The objective of the Project was considered relevant to the four countries in terms of sustainable development. The project, focused on the sustainable water resources management, was consistent with the Country Assistance Strategies for Thailand, Lao PDR, Vietnam, and Cambodia, all of which identified natural resources management as key for poverty alleviation and sustainable economic growth.

As stated in the background section of this paper, the Mekong River is of social, economic, and environmental importance in the region, particularly for the riparian communities which are largely rural poor. The River's biodiversity, which includes several endangered aquatic species such as the fresh water dolphin, fresh water ray and the giant catfish, is of high global value. In the meantime, utilization of the water resources in the Mekong River, especially for navigation,

hydropower and irrigation purposes, is critical to sustaining high economic growth in the region. Therefore, socially and environmentally sustainable water resources development and management are critical for the six riparian countries of the Mekong River Basin. This goal can be achieved only by regional cooperation and collaboration given the trans-boundary nature and issues of shared water resources.

The timing for the Project was most appropriate. By 1999, the region had already started recovery from the so-called Asian Financial Crisis that started in mid 1997. Accordingly, plans for many hydropower projects, which had been suspended during the financial crisis, were restarted. In addition, the atmosphere for regional cooperation was emerging due mainly to the political stability. The four Mekong riparian countries that signed the Mekong Agreement and established the MRC in 1995, with the objective of achieving sustainable water and related resources development in the Mekong River Basin, were committed to working jointly to develop a common knowledge base and regional rules/procedures for water utilization. The Project, aimed at supporting the MRC, began at this very critical time.

However, it should be noted that the second part of the project objective was defined somewhat too broadly. As stated in Section 1.2, the broad objective as stated in the PAD, is to assist the MRC to establish mechanism to promote and improve coordinated and sustainable water management in the Basin. This objective is directly related to the project component. However, the PAD also stated "the Project would promote protection of sensitive ecological systems including wetlands, flooded forests, and the estuary system that support globally significant bio-diversity". While the Rules developed under the Component B, and a transboundary environmental, social, and economic analysis takes the ecological factor into consideration to develop a concept of the minimum environmental flow, this statement was not directly linked to the project component and was difficult to achieve.

3.2 Achievement of Global Environmental Objectives

As stated in Section 1.2, the broad objective of the project is 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. While outputs of the Project were produced as planned at appraisal, the project achieved this objective only partially. This is why the (MS) marginally satisfactory rate was made.

Through the development of the DSF and the development and adoption of a series of water utilization procedures, the Project has contributed to the achievement of the broad objective stated in the PAD. The objective has been only partially met, mainly because it was too broadly stated in proportion to the planned activities under the project. During implementation period, the MRC was not able to complete the guidelines for procedures on Water Quality and maintenance flows; the MRC was also not able to nurture the adequate human resources at the national level to apply the DSF and implement the procedures and rules to be agreed by the MRC.

However, it should be noted that the stated overall objective was too broadly stated in proportion to the project scope, and that the project has produced a satisfactory output. The project has helped the MRC to develop the DSF, a functional, integrated and comprehensive Basin modeling package (Key indicator #1 in Section 1,2), contributed to development of a functional and integrated knowledge base linking the MRC and NMCs (Key indicator #2) through establishment of a inter-governmental technical working groups, and adoption of protocols for information exchange, water use monitoring and preliminary notification has been adopted (Key indicator #3). Adoption of provincial in-stream flow rules and provisional water quality rules (Key indicators #4 and #5) have been largely completed but not adopted due to the time constraints.

Nevertheless, it should also be noted that the MRC has already put a transitional arrangement to finalize the guidelines for the Rules on Water Quality and Water Flows, and started to apply the procedures for notification and procedures, and consultation (PNPCA) for mainstream dams, which might have significant environmental and social impacts. It is expected that this broad objective would be achieved eventually.

On one hand, the formulation of the development objectives should have been closely linked to the project scope and realistic. In particular, the project would not be able to achieve equitable water utilization or protection of the environmental, aquatic life and the ecological balance of the basin, as the project was to help develop a hydrological model, transboundary environmental and social analysis, and a series of water utilization Rules, all of which would be the basis for equitable water utilization and protection of aquatic life.

3.3 Efficiency

The Project was mainly designed to provide technical assistance, so, instead of financial and economic analyses, an incremental cost analysis was carried out at appraisal. The analysis set out the baseline cost (i.e. without the Project) and the alternative (i.e. with the Project), identified the benefits and incremental costs, and estimated the project cost to be financed by the GEF.

In preparing for this implementation completion report (ICR), the analysis was reviewed. In principle, the implementation of the Project was considered to be adequately efficient. The Project did experience some cost-over runs for Component A: *Basin Modeling and Knowledge Base Building* mainly because a separate model had to be developed for the Mekong Delta. However, the MRC, the member countries, and Finland provided required financial to cover the cost.

During the one-year extension period, the MRC and the member countries also provided additional resources to support the project staff and logistic cost.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Satisfactory

On the positive side, The Project satisfactorily achieved expected outputs. The MRC and the four member countries have put in place a credible transitional arrangement within the MRC to

consolidate the Project outcomes to make them sustainable. The Bank is also planning a follow up project in this context.

However, as stated in Section 3.1, overall outcome rating is considered to be moderately satisfactory due to the fact that the project's broad objective was met partially, for the following reasons: (a) technical guidelines on Rules on water flows and quality were not finalized; and (b) human resources at the national level to implement the Rules and procedures were not adequate. Notwithstanding the overall outcome rating, it should be noted that the MRC has already taken the actions to place a transitional arrangement and help its member countries start implementing the agreed rules/procedures for high priority cases such as the mainstream dams.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

The Project was mainly designed to provide technical assistance. Although the outcome of the Project is to help establish an effective mechanism for the equitable and coordinated water resources management, it also generally contributed to poverty alleviation through safeguarding the riparian communities in the Mekong Basin. Even though the Project itself was not designed to have direct impacts on poverty, gender or social development, the outcome is consistent with and promotes the MRC strategic plans in this regard.

(b) Institutional Change/Strengthening:

The Project made a significant contribution in strengthening the capacity of the MRC as well as the member countries by establishing a set of multi-national working groups through the NMCs. These groups played a critical role in discussing and negotiating various technical matters, drafting of the various procedures, and making recommendations to senior management of the respective governments and to the MRC Joint Committee and Council. Many of these groups have become permanent and have been taken over by various programs of the MRC; they continue to serve the MRC and the member countries. The following is a summary of the functions of these groups.

- Technical Assistance and Coordination Team (TACT) comprised of technical experts from the member countries and the MRCS provides a forum to support the implementation of two procedures developed under the Project: (a) data and information exchange and sharing, and (b) water use monitoring. The TACT has now been transferred to the IKMP with continued financial support from various donors including the Government of Finland.

- Technical Review Group (TRG) was established to develop the technical guidelines for implementing the following procedures: (a) maintenance flows on the mainstream, and (b) water quality. The TRG was transferred to the EP to maintain momentum in finalizing the guidelines.

- Technical Coordination Group (TCG) was established to discuss and agree on updating the hydrological models developed under the Project. The TCG is comprised of representatives of the member countries and is chaired by the Director

of the Technical Service Department (TSD) of the MRC; TSD was responsible for maintaining the models. Upon completion of the Project, the TCG was transferred to IKMP with full financial resources along with TSD responsibilities for maintaining the models.

In addition to these three groups, the Project contributed to strengthening the human resources capacity for hydrological modeling at the national level in several ways. First, the Project supported an internship program which engaged junior water resources engineers nominated by the member countries in developing the hydrological models. Many of these junior engineers have returned to the National Mekong Committee (NMCs) of their respective government; the NMCs are responsible for water resources development in the Mekong River Basin within their respective countries. Second, during the extension period, the Project focused on increasing the technical capacity of developing hydrological models at the national level. In particular, the Project adopted a case study approach where technical experts of the MRC and the government staff jointly developed detailed and focused hydrological models for high priority areas of development (e.g., hydropower, flood mitigation, irrigation).

(c) Other Unintended Outcomes and Impacts:

Coincidentally the Project contributed to climate change awareness and adaptation. Since 2006, there has been a greater awareness of the impacts of climate change in the Mekong sub-region. Under the Project, the MRC initiated the development of a specific model to assess the potential impacts of climate change on the flow regimes of the Mekong River, using the DSF and hydrological model developed under the Project as the main tool. Upon completion of the Project, this initiative was taken over by the EP with financial support from the Government of Australia. In addition, the Bank provided a grant to Thailand to develop a hydro-agricultural model for the Isan Region, a part of the Mekong River Basin tributaries in Thailand, to help adopt climate change impacts on agriculture. The hydro-agriculture model would be developed based on the hydrological model developed under the Project and be available for application by other MRC member countries.

It should also be noted that the Project has encouraged mutual technical support among the member countries. In particular, the Project supported technical training carried out by Vietnam NMC and Thailand NMC to Cambodia NMC and Lao NMC. This collaboration further increased the trust among the member countries and strengthened the 'Mekong Spirit of Cooperation' among the countries. This is essential for coordination and partnership of water resources development, and particularly for efforts at implementing integrated water resources and river basin management (IWRM and IRBM) in the Mekong River Basin.

3.6 Stakeholder Workshops

While this is a core ICR, regional workshops were organized by the MRCS in Vientiane on May 7, 2008 and on June 16, 2008, inviting the representatives of the member countries to exchange views on project design and lessons learned from implementation, and to further discuss and agree on the transitional arrangements.

At the workshops, the representatives generally endorsed the project design and confirmed that the objectives were relevant to support the implementation of the Mekong Agreement. The implementation arrangements, particularly the three key technical groups (Section 5.3), have been effective and robust and remain valid after eight years. Implementation of the Project was also found to be satisfactory in general, as the project outcomes have met the appraisal targets despite some delays. The coordination with other co-financers (Finland, Japan, and France) was also commended.

However, in retrospect, there are a few lessons learned from project design and implementation. On the project design side, capacity building with adequate resources at the national level should not have been overlooked. Urgent action at the community level (i.e. investment and capacity building) is also critical to effectively coordinate water resources utilization and prevent or mitigate conflicts among stakeholders. Technical assistance itself cannot attain improved water utilization and poverty reduction.

On implementation, coordination within the Project could have been better. In particular, the hydrological models developed under Component A-1 and the water utilization procedures/rules developed under Component C were not as well coordinated as planned at appraisal. Improved coordination with the BDP would have resulted in synergies between the water utilization rules and a basin development scenario.

The outcome of the second workshop on June 16, 2008, during which time each country presented winding down reports, is summarized in the lessons learned in Section 6 below.

4. Assessment of Risk to Development Outcome

Rating: Moderate

At appraisal, the Bank project team had carried out a comprehensive and realistic risk analysis, as summarized in the Section F.2 of the Project Appraisal Document (PAD). The analysis comprises the following risks: (a) political (disagreement among the countries towards adopting the rules, participation of China and Myanmar), (b) managerial (MRC's implementation capacity), (c) technical (selection of the model), and (d) financial (co-financing). The risk rating of S was appropriate and a series of mitigation measures set out and incorporated in the project design were adequate. For example, implementation of the Project was directly under the supervision of the CEO of the MRC to ensure proper internal supervision and monitoring; engagement of China was limited to essential technical matters; and the implementation period was set at seven years anticipating potential political complications. This 'cautious' approach resulted in the satisfactory implementation of the Project without major issues.

At completion, an independent evaluation of project implementation carried out by the MRC confirmed that the risks identified were adequately addressed by design or refinement of implementation measures. The evaluation also concluded that due to the high level of accomplishments of the Project, particularly in comparison to other MRC programs, the overall risk rating of S (substantial), was overcome with the commitment and efforts of the MRC and the implementation teams.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry (i.e., performance through lending phase)

Rating: Satisfactory

The Bank performance during the lending period was satisfactory in general.

As stated in Section 3.1, the project's development objective was rather broadly stated and should have been closely linked to the project scope. The project was to develop a hydrological model, transboundary environmental and social analysis, and a series of water utilization Rules, all of which would be the basis for equitable water utilization and protection of aquatic life.

Nevertheless, the preparatory works for the project should also be fairly evaluated; the Bank preparation team has carried out extensive consultations with the MRC, the four member countries, and the donor community in order to identify the priorities and critical gaps institutional, legal, and human resources to define the basic project design. The principal design of the project, including project components, institutional arrangement, and implementation period is considered adequate. Appropriate assessments on the risk and mitigation measures were also in place.

***(b) Quality of Supervision (including fiduciary and safeguards policies*)**

Rating: Satisfactory

During the entire implementation period of eight years, the Bank team carried out adequate supervision covering technical, institutional, and fiduciary aspects. During the first half of implementation (2000-2003), the supervision's focus was to provide technical guidance on the choice of the hydrological models, and monitoring the progress in developing two sets of water utilization rules/procedures (PDIES and interim PNPCA). Extensive coordination with the relevant donors was carried out to smoothen the co-financing. Considering the implementation capacity risk, fiduciary aspects were also emphasized. During the next three years (2004-2006), the focus shifted to progression of the water utilization rules/procedures, (particularly finalizing the PNPCA), water use monitoring, maintenance of flows on the mainstream, and the water quality. Monitoring missions also provided the MRC with technical guidance on the IBFM, which is considered to be a challenge. During the last two years (2007-2008), Bank task management team had been decentralized to the field and focus shifted to finalizing the transitional arrangements, increasing capacity building at the country level, and developing the concept for a follow up project in order to consolidate and perpetuate the project outcome.

The project rating has been downgraded from S (satisfactory) to MS (moderately satisfactory) during the last supervision mission. This is because the technical guidelines for the water flow and water quality were not finalized at completion and the transitional arrangement had not been put in place yet. The mission had worked extensively with the MRC and other donors to help put the transitional arrangement as set out in Section 2.5.

In addition to project supervision, the Bank team contributed to donor coordination and policy dialogue with the MRC. The Bank participated in donor consultation group (DCG) meetings and key management meetings organized by the MRC, as the Bank had obtained the status of an 'observer' of the MRC. During the meetings, the Bank provided policy advice in the formulation of the MRC Strategic Plan approved in early 2007. Further, the Bank team also contributed to the development of a regional assistance strategy for the Mekong Region that started in early 2005. Along with the transport and power sectors, water resources have been recognized as one of the key sectors for the countries in the region to achieve sustainable economic growth. The section on water resources emphasized the necessity for regional collaboration, and is quoted in The *"Greater Mekong Region - Regional Strategy Note"* that was finalized and presented to the World Bank's Board of Directors in June 2007.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

As stated in Sections (a) and (b) above, from lending to supervision stages, Bank task management team provided continuous and consistent technical guidance to the MRC and the four member countries to implement the project. The team has also been engaged in extensive donor coordination and policy dialogue to establish timely arrangement of the transitional arrangement to sustain the project outcome and contribute to development of the broader strategy for the MRC.

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory.

This project involves the four governments as bodies to constitute the MRC: Thailand, Cambodia, Lao PDR, and Vietnam. The overall governments' performance is found to be satisfactory. All the four countries fully cooperated with the MRC in implementing the project; these countries have assigned qualified staff from the line agencies to establish a riparian team at the MRC, and established a national team within their respective NMCs with adequate human and financial resources. The four NMCs played an important role as interlocutors, linking the MRC with the respective line ministries involving not only the agriculture and water ministries, but also the Ministry of Foreign Affairs, to proactively support and encourage regional dialogue to establish a set of new rules and procedures.

(b) Implementing Agency or Agencies Performance

Rating: Satisfactory

Overall, it should be acknowledged that the MRC fulfilled its project management responsibilities, fully engaging the four member countries and sustaining the momentum of

implementing the project to achieve the expected outputs. From project administration point of view, the MRC has maintained the core project staff with adequate counterpart funds on a timely basis, and carried out its fiduciary responsibilities (financial management and procurement) with no major issues through fully engaging the Financial Section of the MRC.

(c) Justification of Rating for Overall Borrower Performance

Rating*:* Satisfactory

Overall, the performance of the Government and the implementation agency (MRC) performance was considered to be satisfactory mainly because of the reasons stated in Section (a) and (b) above.

From the technical point of view, in retrospect, MRC could have paid more attention to the outcome of the project. While the Project did not require the adoption of technical guidelines for implementation of the procedures; these were considered essential at national levels. In addition, the final supervision mission raised concern about the sustainability of the hydrological models from financial and human resources viewpoints.

However, the MRC has taken concrete steps to respond to these points after completion of the project. In September 2008, the MRC began to implement the procedures for notification, prior consultation and agreement for the accelerated hydropower development, particularly mainstream dams, which are one of the most critical issues in maintaining the environment and ecologies of the Mekong River. In particular, the MRC disseminated the procedures and technical guidelines among the private hydropower developers, and defined internal processes for implementing these procedures by the MRCS. The MRC has engaged the EP to take over the process of developing guidelines for the maintenance of flows in the mainstream and water quality to keep up the momentum and be prepared for implementation in light of the accelerated hydropower development in the Mekong River Basin. Further, the sustainability of the hydrological models has been resolved at least for a few years, as the responsibilities have been transferred to the IKMP with adequate financial support from various donors including the Government of Finland.

6. Lessons Learned

As stated in Section 3.1 above, the project design in principle was practical and realistic; however, the following lessons have been drawn from the implementation of the Project regarding project designs and implementation. As the project is one of the most unique Bank funded project in terms of technical assistance project supporting the river basin organization and engaging multiple countries, the lessons may not applicable to such projects only;

(a) Project Approach and Designs

- *Focusing on Consensus Building*. One important lesson learned from the Project is the need to develop consensus through dual/parallel track approaches to forge an agreement on various technical matters in an international river organization. In the case of the MRC, the four countries differ in terms of geographical location (upstream/downstream) as well as the level of the development; therefore, the demand for the water resources development differs

substantially from country to country. The Project adopted a method of formal negotiations among representatives from the respective governments, comprising technical (line ministries) and legal/administrative (the Ministry of Foreign Affairs) aspects. These negotiations often encountered difficulties in the early stage as participants from one country did not understand other countries' positions. The process for developing Rules would have been more efficient if the Project had organized more informal national and regional workshops and by inviting additional stakeholders to deepen their understanding of each country's view to help develop consensus among the member countries. A formal meeting would then be organized only after certain achievements and understandings have been assured.

- *Strengthening the Human Resources at the MRC and the countries*. As the Project considered the hydrological models and the rules/procedures as the project's main outputs, the Project should have included a detailed plan for human resources development both at the MRC and the country level. In an international river organization, the quality of riparian staff (i.e. staff with nationality of the member countries) is the most crucial factor to ensure ownership and sustainability. Application of the hydrological models and the implementation of the Rules and procedures requires adequate human resources at the country level. The Project could have put more effort into this aspect of the project design. In particular, the following issues have been identified;

    - Retaining core technical staff. Some of the trained technical staff had to leave the MRC after a few years of engagement in the Project due mainly to its staff rule (ref. Article 33 of the Mekong Agreement), which limits staff tenure to 6 years. The Article also sets out the possible exceptions, and it would have been better if this exception were applied to key technical staff, particularly for those who developed the hydrological models in order to retain the institutional knowledge and provide trainers for training for junior staff. [3]

    - In order to develop human resources at the national level in a cost effective way, the following options should be considered: (a) secondment of personnel from the NMCs to MRC to provide the concerned NMC staff with on-the-job training to familiarize themselves with the hydrological models and their applications, and (b) promoting mutual support among member countries (e.g., Vietnam NMC successfully supporting Cambodian NMC), which is not only cost effective, but also very useful in strengthening the partnership among the riparian countries. Such mutual support could be institutionalized by the MRC.

    - Technical staff from the line ministries of the member countries should be invited to carry out case studies in order to provide hands-on training on the DSF and strengthen the linkage among the MRC, the NMC, and the line agencies. The case studies supported during the extension period were to be very effective in providing line ministries with hands-on training for applying the hydrological models to assess national investments for the water resources developments. This would also help the

[3] The staff rule has also set out the exception, but the exception has not been used.

MRC in strengthening its linkages with the line ministries and make the MRC relevant to the infrastructure development process.

- *Communication Strategy* A better communication strategy to the stakeholder regarding the application of the hydrological models and water utilization procedures could have been considered. The DSF is now used as the main tool for planning water resources investments. However, sources of the models need to be disclosed to the general public for independent review and examination, at least through a step-by-step approach to confirm the accuracy and robustness to make the model more credible and trustworthy; otherwise, the model would be considered as a black box that cannot be evaluated objectively. Further, the progress and final outcome of the water utilization procedures would have been disclosed and disseminated not only to the line ministries, but also to the riparian communities and local governments which were directly affected by the procedures.

(b) Project Implementation.

- *Use of long-term international consultants.* While the project was managed by a riparian project team leader, the Project provided financing of a full time international consultant as a coordinator to support the project team leader during most of implementation. It appeared that long-term reliance on international consultants does not lead to the effective capacity building for riparian staff which is essential for the sustainability of the project outcome. This issue was one of the major concerns of the member countries. For the future projects in the MRC, it is recommended that the use of a long-term international consultant should be reviewed carefully and supplementary capacity building plan for the riparian staff should be prepared.

- *Engagement of the Financial and Accounting Section.* As stated in Section 2.4, the key to the satisfactory performance of the fiduciary aspects (financial management and procurement) was the engagement of the Financial and Accounting Section of the MRC in carrying out these responsibilities. This arrangement was effective for: (a) managing a multiple donors' accounts, (b) monitoring the activities at the national level (the technical team focus on the technical matters, whereas the Financial and Accounting Section supervises the financial transactions carried out by the NMC. Following the Project, the MRC has adopted a similar approach for all programs.

- *Developing a strategy for upgrading a hydrological model*. It would have been useful if the strategy for upgrading the hydrological model was developed before the completion of the project so that follow up actions could have taken in a timely manner. The Project has successfully developed the first generation trans-boundary hydrological computerized model; however, the capacity of the computer has increased continuously, and the model needs continuous upgrading such as: increasing the accuracy and resolution; adding some parameters (sediment, salinity, etc.); improving user-friendly interfaces, and conversion to GIS-GPS based programs. It should also be noted that some part of the hydrological model depended on the program which requires expensive license fee, and the dissemination and promotion of the use require financial resources.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

The MRC has in general agreed with the rating and review of this report, and provided with no comments. Lessons learned presented in this report would be incorporated in a follow up operation in the future.

(b) Cofinanciers

The following comments were provided by Finland.

Considering the results of WUP, we have to remember that the program started in 2000 and was planned and designed before that based on the knowledge and possibilities available on that time. For the time being we would know better and plan many things to be done in the different way. The capability, capacity and especially commitment of the member countries and NMRCs were also on reasonable weak level when the program started and that is one reason why the role of international consultant has been so strong. The riparianization of the MRC is supported including also increasing financial responsibility of the member countries. All of this needs still capacity building, which was maybe not considered enough in the planning and design of the program.

We agree that the work has been very useful and most of the objectives have been reached. The most important aspect is that the work is continuing especially in IKMP but also it is utilized in other programs of MRC. Utilization of the results guarantees sustainability of the program also in the future and the methods and information provided by the program should be used as basis for the decision making in the MRC member countries.

(c) Other partners and stakeholders

N/A

Annex 1: Project Costs and Financing

(a) Project Cost by Component (in USD Million

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
BASIN MODELING & KNOWLEDGE BASE BUILDING	**9.10**	**11.41**	**125%**
RULES FOR WATER UTILIZATION	**1.20**	**1.53**	**128%**
INSTITUTIONAL STRENGTHENING	**4.70**	**5.48**	**117%**
Total Baseline Cost			
Physical Contingencies	0.00	N/A	
Price Contingencies	1.20	N/A	
Total Project Costs	16.20	18.42	
Project Preparation Facility (PPF)	0.00	0.00	
Front-end fee IBRD	N/A	N/A	
Total Financing Required	**16.20**	18.42	

The project cost was increased due mainly to more elaboration on the hydrological model. The cost was mainly financed by Finland.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower (MRC)	Counterpart	2.50	1.83	73
Government of Japan (parallel)	Parallel	1.0	1.00	100
Government of Finland (parallel)	Parallel	1.2	4.01	333
Government of France (parallel)	Parallel	0.60	0.59	98
Global Environment Facility (GEF)		11.0	11.00	100

Annex 2: Outputs by Component

The following provides a progress summary of each of the three project components.

Component A-1. Development of Basin Modeling Package and Knowledge Base. This component was implemented in a satisfactory manner in general. The implementation of this component was entrusted to MRCS's Modeling Team (named as Working Group 1). The output of this component is the formulation of a set of hydrological models named Decision Support Framework (DSF), which comprises a suite of analytical modeling tools and a knowledge management system to support MRC in the identification and planning of different development scenarios. The model has become a core asset of the MRC, widely shared among the various programs. The member countries have also jointly endorsed the DSF to be the standard tool to assess the impacts of infrastructure development on water resources in the main basin. The three legal covenants related to the DSF have been fully met within the stipulated period.

During the last 12 months, the MRCS focused on developing capacity at country level to promote application of the DSF modeling tools to the various line agencies. In particular, the MRCS had NMCs carry out a series of case studies to apply the DSF to assessments on the tributaries with the concerned line ministries. Thailand NMC and Vietnam NMC have proven their capacities to run the DSF on their own, whereas the Lao NMC and the Cambodia NMC may require further hands-on support.

The MRCS also put in place transitional arrangements to maintain and sustain the DSF; namely, the MRC's Integrated Knowledge Management Program (IKMP) will take over the responsibility for the DSF; IKMP has also been nearly fully funded by Finland to continue improving the current system.

Component A-2: Environmental and Transboundary Analysis: This component was implemented in a moderately satisfactory manner in general, with the scope and constraints discussed above. The objectives of this component were to provide environmental, economic and social transboundary analysis tools and assessments to support preparation of the technical guidelines for several procedures adopted under Component C and to include identifying key transboundary issues and application of GEF's Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) approach. The main outputs of this component based on key performance indicators were:

1. *Trans-boundary Analysis*: Various trans-boundary analyses were carried out in 2001 and 2002 culminating in the introduction in early 2003 of *Trans-boundary Diagnostic Analysis (TDA)* to improve environmental management. TDA was introduced to the MRC in support of the Basin Development Plan (BDP) and Environment Program (EP) activities.
2. Technical inputs to support developing the *Technical Guidelines for Implementation of the Procedures for the Maintenance of Flows on the Mainstream* required enabling adoption of provisional in-stream flow "rules" (including defining and proposing environmental and minimum flows) which are continuing to be refined through a program of activities at the MRCS entitled Integrated Basin Flow Management (IBFM). Two specific outputs from this effort were: a comprehensive review and assessment of available hydro-meteorological data for the Basin summarized in a report entitled *Overview of the Hydrology of the Mekong*

Basin (MRCS 2005), and a numerical description of the existing baseline flow regime of the Lower Mekong Basin (LMB) in the form of draft *Technical Guidelines for Implementation of the Procedures for Maintenance of Flows* (MRCS 2004).

3. Technical inputs to support initial development of the *Technical Guidelines for Implementation of the Rules for Water Quality* through a program of activities at the MRCS entitled Integrated Water Quality Management (IWQM) required to enable adoption of provisional water quality procedures (PWQ) by the MRC Joint Committee and approved in principle by the Council.

In summary, on the positive side, under this component, the MRC developed and established a new concept of an integrated basin flow management (IBFM) approach under Component A-2, which developed a sound scientific basis for assessing the flows to be maintained on the mainstream to protect economic, social and environmental interests of the concerned communities. IBFM transboundary flow assessments were carried out under Component A-2 using the DSF developed under Component A-1, and contributed substantially to a better and objective understanding of the hydrological aspects of the Mekong.

Component B: Development for the Rules for Water Utilization. The implementation of this component is found moderately satisfactory mainly due to the difficulties to finalize agreed technical guidelines to implement the procedures for water flow and quality. While the Project was designed to and did achieve the adoption of three 'procedural rules' namely, the procedures for notification, prior consultation and agreement (PNPCA), procedures for data and information exchange and sharing (PDIES), and procedures for water use monitoring (PWUM), the Project was not able to fully fulfill its expectations for the two 'physical' rules, namely Procedures for Maintenance of Flow on the Mainstream (PMFM), and Procedures for Water Quality (PWQ). The PMFM was adopted by the MRC Council; however, implementation of the PMFM is not possible in a foreseeable future due to the delay in finalizing the technical guidelines which remain in draft awaiting Joint Committee approval. The PWQ were approved by the MRC Joint Committee, but the Project was not able to formally adopt the procedures for water quality (PWQ) due mainly to the political crisis in Thailand starting mid 2006; although agreed to by the other three Council members, it was not adopted by the MRC Council because Thailand was unable to discuss this matter as the interim government has not authorized cabinet endorsement during 2007, and the newly establish governments in early 2008 and mid 2008 were not able to focus on this agenda in the midst of political turmoil. At this moment, the adoption of the PWQ is not certain; the PWQ are not yet accepted by the Government of Thailand, and thus it cannot be put into effect as the MRC Council has not adopted it. Even if it is adopted by MRC Council, implementation of the PWQ in the lower Mekong basin would require institutional strengthening of Lao PDR and Cambodia. Preparation of the technical guidelines for PWQ has begun but cannot proceed further until the PWQ is adopted by the Council.

However, it should be noted that the despite these implementation issues, the MRC has continued to elaborate on the technical guidelines for the PMFM and PWQ even beyond the completion of the project by engaging the services of the IKMP and EP.

Component C. Institutional Strengthening of MRC and NMC to implement the Project. Implementation of this component is considered satisfactory. The program has been managed in general in a satisfactory manner without any major issue on the fiduciary aspects.

Project Management Support (C1) At the MRC, the WUP has been managed by a team of four riparian experts; three of them lead working groups responsible for each component, and one serves as team leader. The team was supported by a full time international expert. At the member country level within the national NMC, two staff (WUP coordinator and WUP assistant) has been assigned to form a WUP national team and together the eight staff will form a regional team to provide guidance to the MRC WUP Team. The WUP coordinators have played more substantive role during the extension period when certain activities have been delegated to the NMCs. In the mission's view, this arrangement was effective to implement the Project.

In summary, the following achievements are noted:

- *Technical Training and Capacity Building (C2).* In general, the Project was effective to strengthen the MRC and NMCs through extensive engagement in the process of developing the DSF and computer models, and the rules/procedures and guidelines. The Project has effectively engaged the technical staff at the MRC as well as at country level to develop the hydrological model and negotiate over the water rules. During the extension period, the Project has focused on the development of human resources at the NMCs and line ministries; this approach has been adopted under the IKMP to some extent.

- *Communications, Participation, and Public Awareness (C3).* In general, there has been no major achievement in this subcomponent, except for a few stakeholder workshops carried out to disseminate the outcome of the agreed procedures and technical guidelines to the stakeholders. In retrospect, this subcomponent should have supported the broader MRC's communication strategy, rather than a project-specific communication support.

- *Participation in GEF Regional and Global Programs (C4).* The outcome of this subcomponent is modest. The Project has supported the MRC to participate in some global programs, such as the World Water Forum, to exchange views on the international river management. The MRC has also received delegations from the Nile River Basin to exchange experience and learn from each other.

Annex 3: Economic and Financial Analysis

The Project is exclusively technical assistance, and a conventional economic and financial analysis has not been carried out.

Annex 4: Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Supervision/ICR			
Guy J. Alaerts	Lead Water Resources Specialist	EASRE	
Greg J. Browder	Sr Water Resources Spec.	LCSUW	
Toru Konishi	Senior Economist	EASRE	
Chinnakorn Chantra	Procurement Specialist	EAPCO	
Kannathee Danaisawat	Financial Management Specialist	EAPCO	
Yoshiharu Kobayashi	Sr Water Resources Specialist	MNSSD	
Oithip Mongkolsawat	Senior Procurement Specialist	EAPCO	
Douglas C. Olson	Lead Water Resource Specialist	LCSEN	
Cuong Hung Pham	Senior Operations Officer	EASVS	
Manida Unkulvasapaul	Sr Environmental Specialist	EASRE	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY96		
FY97		
FY98	Data not available	122.74
FY99	Data not available	76.75
FY00	20.36	80.27
FY01		
FY02		
FY03		
FY04		
FY05		
FY06		
FY07		
FY08		
Total:	20.36	279.76
Supervision/ICR		
FY96		
FY97		

FY98		
Stage of Project Cycle	**Staff Time and Cost (Bank Budget Only)**	
	No. of staff weeks	**USD Thousands (including travel and consultant costs)**
FY99		
FY00	1.90	7.85
FY01	17.88	83.47
FY02	17.08	76.39
FY03	17.62	71.52
FY04	15.61	78.91
FY05	8.97	43.36
FY06	15.23	97.81
FY07	15.95	71.26
FY08	10.72	42.55
FY09	9.37	62.44
Total:	120.96	635.56

Annex 5: Beneficiary Survey Results

While there was no formal beneficiary survey for the project, an extensive consultation with the NMCs has been carried out in conjunction with an independent evaluation of the project commissioned by the MRC, which took place in May 2007. The interview included an evaluation survey followed by a 1-2 day interviews with each. The survey was designed to get the views from each NMC on the project in general including the approach, outputs, lessons learned and recommendation for a possible future follow up operation. The following is a brief summary of the results.

Cambodia NMC & Joint Committee Representative

The CNMC viewed that the project design was good and realistic. The project is very important and useful for implementation of the 1995 Mekong Agreement and utilization and sharing of benefits of the Mekong River System; it strengthened cooperation among the MRC member countries and helped harmonization of position of MRC members. Although it was on an ad hoc base, the project has also offered an opportunity for mutual learning. The VNMC provided CNMC with a one-week training and application course to address some commonly shared border water issues. This would be scaled up and institutionalized.

Overall implementation has also been satisfactory with concrete outputs; in addition, the project has made good impacts on improving the technical capabilities of the CNMC and line agencies. The CNMC feels that the project outputs have not been yet fully consolidated, and continued support is needed. In particular, for the hydrological model, the most critical issue is data updating; even though the PDIES and PWUM are in place, some countries do not send their data to the MRCS in a timely fashion. The CNMC also sees that the MRC needs to work on improving the procedures developed under the project, as these procedures are now under the authority of the MRC Procedures. Lastly, the CNMC feels that special attention should be given to a continued capacity building program in order to strengthen the riparian staff at the MRC as well as NMCs, as the MRC has accelerated full “riparianization”, phasing out international staff.

Lao PDR NMC

The LNMC’s view is that the project has met project requirements; the project design and implementation were good and much was accomplished in the original components. The hydrological model is considered very complex and a follow-up would be necessary to apply the model to national issues to address acute water resources issues such as floods and hydropower development. In this context, the training carried out during the extension period was valuable, based on the national cases.

The procedures that were negotiated and finalized are very important. The PWQ was completed and accepted by the JC but were not adopted by the Council due to a political reason, and MRC should not be considered at fault for this. The most critical issue is how to implement the procedures in the future, particularly in the context of IWRM.

Thailand NMC

The overall assessment of WUP is moderately satisfactory. In particular, TNMC's concerns are about weak monitoring and evaluation, team management. The design of the project could have been better if the project focused on technical knowledge on water resources management before tackling the legal issues. The project implementation could have been more flexible to respond to the reality.

While there was good progress on the hydrological model, the knowledge base and use of the model could have been better; at this moment, the model is quite limited in use and information. The project could have also focused more on the strengthening of NMCs from the beginning, as many of the activities have been captured by the MRCS.

Viet Nam NMC and Joint Committee Representative

The project, its design, components, framework of organization and outputs are very good.

The progress and outputs should be considered to be par to many other international river basin organizations. The PAD was clear about the project design and procedures, and with GEF support there was an important major step to take into account the environment in terms of water resources management, particularly environmental flows. The studies on legal issues and international laws, rules and practices were important to build confidence that the MRC could develop procedures and a basin-wide model. The transboundary hydrological model, which is one of the more important outputs of the project, is becoming the core knowledge asset of the MRC.

The implementation was overall satisfactory; most important is that only in WUP have there been produced good tangible results, outputs, powerful tools and improvement in data useful to member countries. The project approach of substantial involvement of member countries produced five sets of procedures, many supporting technical guidelines and several permanent technical bodies to support the MRC. Lastly, it should not be overlooked that the project has nurtured and developed the momentum of the "Mekong Spirit" and kept it alive.

The outstanding issue beyond project completion is how to maintain the momentum and examine what have we learned from the project that can help guide us in future water resources development. The MRC needs to cooperate more with China, but equally important, each MRC member must look to other members and see how they can support each other. Riparianization of the MRC is important in the future to make the MRC a truly riparian organization. The Mekong Agreement should be implemented not by article, but by objectives, principles and expectations. This is the most important lesson we should have learned from the WUP experience.

Annex 6: Stakeholder Workshop Report and Results

Two workshops were organized by the MRCS in Vientiane, Laos with representatives from the four NMCs and relevant national and international specialists from the MRCS, the first on May 7, 2008 to discuss the WUP Independent Evaluation Report (IER – December 2007) and draft WUP Implementation Completion Report (ICR-January 2008) prepared by the MRCS, and the second on June 16, 2008 to enable presentations by the NMCs of their WUP "winding down" reports.

Regional Discussion Meeting May 7 2008
The meeting focused on the IER and its recommendations, and the draft ICR. The meeting endorsed the IER, particularly overall satisfactory outputs of the project, and needs for a follow up project to sustain the outcome of the project.

The meeting also agreed on the transitional arrangement, including the transfer of the project staff to other programs such as EP. The meeting also endorsed and adopted key recommendations made by the IER (refer Appendix).

Regional Discussion Meeting of NMC Winding Down Reports 16 June 2008
On 16 June 2008 at MRC Headquarters each NMC presented winding down reports, presenting the activities carried out by the respective NMC during the extension period (July 2007 – June 2008), their reflection on the project implementation, and their prospective beyond project completion.

The Cambodia Winding Down Report mainly stressed the need to improve model capability and strengthening staff capacity to use it at the country level; and welcomed that the IKMP take over the responsibilities. The report also reiterated the importance of finalizing the procedures on water quality.

Lao PDR Winding Down Report confirmed the relevance and realism of the original project design to support the implementation of the 1995 Mekong Agreement. However, implementation arrangements faced challenges in management due to placement of MRC project team members in different divisions and no budget support to NMCs. The basin modelling had very good capacity building process for national modelers in water resources management, but since established the hydrological model, the model has not been applied by BDP to plan and check the BDP scenarios/project proposals before making a short-list of BDP national project proposals. Coordination with the BDP could have been better.

The environment and transboundary analysis is complex to understand and not easy to reach agreement among riparian countries. The procedures and related Technical Guidelines are in place but a common understanding for application has not been reached. Lastly, the report recognized the need to improve national water resources databases by establishing a National Data Base Center in each member country.

Thailand Winding Down Report presented their view on the project design and implementation quantitatively using a five-point scoring system with 1 (superior) to 5

(unsatisfactory), the overall design was rated good (Score 2.44), management was rated moderate (Score 2.67) and implementation scored moderate (Score 2.89). The basin modelling was scored moderate (Score 2.89), the impact assessment tools and knowledge base/database rated moderate (Score 2.78), and the environment and transboundary analysis was rated moderate (Score 3.22). Good progress was made on building up MRCS/NMCs modelling capacity in general, but they still lack capacity/capability to update/upgrade the DSF. The database is the main output of the project. Preparing the procedures for water utilization, both the legal and technical aspects scored a moderate (Score 2.78). On capacity building and institutional strengthening, the MRCS was rated moderate (Score 2.67) and NMCs and line agencies both scored a moderate (Score 3.00).

Viet Nam Winding Down Report: On the WUP design, the objective was very clear in setting-up linkages to "Rules of Water Utilization", but not sufficient links to BDP. Outcomes for Components A and B were well anticipated and proven the two most proud achievements. Negotiations demonstrated one of the most revolutionary and successful processes in Mekong cooperation; it helped build an invaluable capacity (both technically and legally) and trust for regional forums.

While overall implementation was satisfactory, in retrospect, the implementation could have been better; for example, in building the model, data verification and updating were not given serious consideration, and not all capabilities of the hydrological model have been properly demonstrated and/or documented, and surprisingly no consultant of other WUP components utilized the hydrological models in their works let alone other programs.

Further, Capacity building and institutional strengthening was not been mapped-out and implemented at expected levels. Collaboration with the two upper Mekong Basin countries never was a serious issue in the agenda due to the lack of initiations from the MRCS management.

Major recommendations were: (a) upgrading the DSF software to be more robust and user-friendly, improving the performance of model efficiencies but especially the hydrodynamic model in the Mekong Delta, and (b) using the hydrological model as the decision support tool of first choice for BDP, FMMP, IBFM and other MRC projects and programs requiring data and modeling support.

Appendix to Annex 6

Short statement on MRC actions to implement WUP Independent Evaluation Report Recommendations

The WUP Independent Evaluation Report (IER) provided MRCS in mid-2007 (finalized and released in December 2007) contained 27 recommendations. When the MRCS completed its Project Implementation Completion Report in January 2008, many of the recommendations had already been acted upon or in the process of being carried out during the turnover period or included in the potential follow-up project. The MRCS fully agreed with the main conclusions and recommendations recognizing the achievements of the WUP as well as the fragile nature of their sustainability. MRCS concluded that strengthening and sustaining of the WUP key outputs (modeling and procedural tools) would only be achieved through their application when the member States begin to see evidence of sustainable development of tangible investments enabled and facilitated by the work of the MRC in transboundary water resources management projects and programs. Recommendations completed or being acted upon include:

1. The NMCs have prepared and presented WUP "winding down" reports to obtain input from the member countries into lessons learned and shaping of a follow-up project.
2. The MRCS has established permanent offices for the Council and Joint Committee at the MRC Headquarters to more fully integrate the three bodies of the MRC.
3. Improvements and updating of the models and DSF have been and will continue to be made as will making the DSF available to and encourage its use by other projects and programs of the MRC.
4. The IKMP and TACT will continue to strengthen and improve the quantity, quality and timeliness of data and information placed in the MRC-Information System and update baseline data.
5. The MRCS has initiated the process for annual status review, strengthening and reporting of all procedures and has adopted MRCS internal procedures for processing and facilitating submissions under the PNPCA.
6. Member states, through their respective NMCs and line agencies are more directly involved in MRC activities and implementation efforts through case studies and capacity building.

Annex 7: List of Key Supporting Documents

A. Key Project Documents:

GEF2 Concept Note, GEF Contribution to the MRC Programme, 1999
Global Environmental Facility Trust Fund Grant Agreement, IBRD, 2000.
Project Implementation Plan, Water Utilization Project Start-Up Project (GEF-TF23406), MRCS, December 1999.
Project Appraisal Document, Water Utilization Project Start-Up Project, World Bank, January 2000
Progress Report 2002 and Workplan 2003, Water Utilization Project Start-up Project (GEF-TF23406), MRC, 2002.
Mid-Term Review Report 2003 and Workplan 2004, Water Utilization Project Start-up Project (GEF-TF23406), MRC, 2003.
Progress Report 2004 and Workplan 2005, Water Utilization Project Start-up Project (GEF-TF23406), MRC, 2004.
Progress Report 2005 and Workplan 2006, Water Utilization Project Start-up Project (GEF-TF23406), MRC, 2005.
Extension Workplan WUP 2007, Water Utilization Project Start-up Project (GEF-TF23406), MRC, 2006.Independent Evaluation of Water Utilization Project, Final Report, Dr. G. Radosevich and Dr. G. Wright, World Bank, December 2007
World Bank WUP Aides Memoires, (2003, 2004, 2005, 2007), World Bank Supervision Missions.
Project Implementation Completion Report, Water Utilization Project (WUP) Start-up Project (GEF-TF23406) MRCS, January 2008

B. Key WUP Output Documents:

Decision Support Framework Final Report, Water Utilisation Project Component A: Development of Basin Modelling Package and Knowledge Base (WUP-A), DSF 100 Main Report, Volumes 1-16, Halcrow Group Limited, MRCS, March 2004
Integrated Basin Flow Management, Phase 1 Reports 1-4 2004, Phase 2 Reports 5-8 – 2005, WUP & EP, MRCS.
Documents of the MRC: MA 1995 Agreement, Rules of Procedures, and Water Utilization Procedures and Technical Guidelines, MRCS, 2007.
Overview of the Hydrology of the Mekong Basin, WUP, MRCS, November 2005

IBRD 30089

JANUARY 2000