

# Council Study: Phase 2 Implementation Plan

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The Mekong River Commission

## **THE COUNCIL STUDY**

**STUDY ON THE SUSTAINABLE MANAGEMENT AND DEVELOPMENT OF  
THE MEKONG RIVER, INCLUDING IMPACTS OF MAINSTREAM  
HYDROPOWER PROJECTS**

**DRAFT**

**3 February 2016**

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## EXECUTIVE SUMMARY

This document is prepared to describe the scope of work, implementation schedule, arrangement, and required budget for the Council Study Phase 2. This is in response to Member Countries' instruction during the 22<sup>nd</sup> Council Meeting in January 2016 to the Secretariat to prepare this document for Member Countries review before the Council Study can officially proceed with its Phase 2. It is also recognized that this document will enable the Member Countries to make an informed decision on corrective actions on scope, schedule, and budget to assure the successful completion of the Council Study.

With respect to the technical scope of work, this document does not propose a material change in the scope per the approved Inception Report dated 27 October 2014. It does propose a prioritization and sequencing of Council Study technical activities towards the full implementation of the full technical scope of the Council Study. The sequencing is based on the following:

- Assessing impacts on flow, sediment, and water quality
- Assessing impacts on bio-resources
- Assessing impacts on social and economic conditions
- Assessing impacts on coastal resources

With respect to the implementation schedule, the Council Study is divided into the following phases:

- Phase 1: October 2014 – March 2016
- Transition Phase: April – June 2016
- Phase 2 in 2016: June 2016 – December 2016
- Phase 2 in 2017: January 2017 – June 2017
- Project Closeout (administrative): July 2017 – September 2017

For Council Study Phase 1 progress to date, the reader is referred to Annex 2 - Council Study Draft 2015 Annual Report.

With respect to the implementation arrangement, the Council Study Team overall will feature a single Central Team supported by a Support Team which is overall smaller and more cohesive than the current implementation arrangement which involves several thematic and discipline teams and each team being led by an MRC Programme. The transition to this new implementation arrangement is anyway necessary because of the new MRC organizational structure which is built on core functions.

With respect to the budget required, it has been long recognized that the Council Study is not fully funded despite the strong commitments that the Study consistently receive from the highest government level of all the Member Countries. A significant funding gap of USD 2.5M is needed to be addressed for the successful completion of the Council Study.

In preparing this document, the required budget for the remaining scope of work for Phase 2 was re-evaluated given i) the expenses to date against progress in Phase 1, ii) the new implementation arrangement, and iii) the recognition for the need to sharpen the cost estimates due to budget constraint., The resulting revised estimated of USD 1.9M is lower than the original estimated funding gap of USD 2.5M.

It should be noted also that based on the remaining activities in Phase 1, an overflow budget of USD 192,522 which represents an anticipated excess (unused) budget in Phase 1 is available to be used for Phase 2.

However, the USD 500K allocated for the Council Study to fund proposed activities in Phase 2 in 2016 as per the Annual Work Plan 2016 is significantly inadequate. This inadequate funding will require the Council Study team to suspend its activities in midstream when the budget runs out. To fully cover the proposed activities in 2016 as per this implementation plan, the estimated additional budget required is USD 370,660 over the USD 500K allocated and this already takes into account the additional overflow budget from Phase 1. If additional budget cannot be made available to cover 2016 activities, then difficult decisions have to be made and they may involve the following considerations:

- Delay the start of Phase 2 to shorten the duration of implementation period in 2016 and therefore reduce the required budget in 2016. This will result to an equivalent extension of the implementation period in 2017 which translates to a corresponding increase in budget required.
- During the transition period, only perform what has been obligated when possible, and fund new activities (i.e., new contracts) at the minimum.
- During the transition period, review obligated contracts of current consultants and make the necessary adjustments when appropriate to free up obligated funds

Finally, another consideration is to reduce the scope of work of the Council Study including that of 2016. Based on the above-mentioned considerations, the following two options and associated costs are discussed in this document:

- Delay the start of Phase 2 to 1 October 2016 and keep the transition activities at the minimum
- Reduce the scope of work in 2016

Other cost and scope reductions considerations in 2017 are also presented.

Along with the proposed implementation plan of the full scope and alternative options, several risks and measures to mitigate these risks were identified.

It should be noted that this implementation plan was prepared based on the experience, challenges and lessons learned from Phase 1. These challenges and lessons learned were discussed in this document.

The following tables show a summary of the Council Study financial situation.

**Expenditure summary and anticipated overflow (unused) budget from Phase 1 which includes obligated contract amounts**

Project	Budget (USD)	Estimated Expenses (2014 – 2015)*	Estimated Budget Available for 2016	Estimated Budget Required for Phase 1 Remaining Activities (January – March 2016)**	Anticipated Overflow Budget(April 2016 onwards)
Trust Fund	2,874,220	2,122,101	752,119***	559,597	192,522
Programme-Managed	857,349	703,470	153,879	153,879	0
<b>Total</b>	<b>3,731,569</b>	<b>2,825,571</b>	<b>905,998</b>	<b>713,476</b>	<b>192,522</b>

\*Includes invoiced paid, outstanding invoices not paid, and anticipated invoices for work done in 2015.  
 \*\*Detailed budget breakdown for the remaining Phase 1 activities in January – March 2016 is included in Annex 1.  
 \*\*\*Of this amount, USD 428,185 had been obligated to consultants' contracts

**Total available budget for Transition Phase and Phase 2**

Item	Budget
Basket Funding as per AWP 2016	500,000
Overflow Funding from Phase 1	192,522
<b>Total</b>	<b>692,522*</b>

\*Of this amount, USD 422,071 is obligated to consultants' contract. Detailed breakdown of obligated contracts is shown in Annex Table A-1. This obligated contract amount includes new contracts in January – March 2016 for the modelling team and inherited contract from former ISH Programme for the hydropower international and national consultants

**Summary of budget required for the Transition Phase and Phase 2 in 2016**

Item	Amount USD
Transition Phase	146,084
Phase 2 in 2016 – Central Team	255,954
Phase 2 in 2016 – Support Team	370,777
Phase 2 in 2016 – Process	187,558
<b>Sub-Total</b>	<b>960,373</b>
Operation (3.5 percent)	33,613
Contingency (5 percent)	48,019
11 percent MAF for the Phase 1 Overflow Funding	21,177
<b>Total</b>	<b>1,063,182*</b>

\*With only USD 692,522, the required budget for the Transition Phase and Phase 2 in 2016 results to a funding gap of 370,660

**Summary of budget required for Phase 2 in 2017**

<b>Item</b>	<b>Amount USD</b>
Phase 2 in 2017 – Central Team	182,580
Phase 2 in 2017 – Support Team	209,520
Phase 2 in 2017 – Process	546,928
<b>Sub-Total</b>	<b>939,028</b>
Operation (3.5 percent)	32,866
Contingency (5 percent)	46,951
<b>Total</b>	<b>1,018,845</b>

**Overall summary of budget available and required for Phase 2**

<b>Item</b>	<b>Budget Available</b>	<b>Budget Spent or Budget Required</b>
<b>Secured External Funding</b>	<b>3,731,569</b>	
Inception and Phase 1 Spending (2014 – 2015)		2,825,571
Phase 1 Spending (January – March 2016)		713,476
Phase 2 2016		1,063,182
Phase 2 2017 and Project Closeout		1,018,845
<b>Total</b>		<b>5,621,074</b>
<b>Funding Gap</b>	<b>1,889,505</b>	
<b>2016 Basket Funding Allocation</b>	<b>500,000</b>	
<b>Funding Gap After 2016 Basket Funding Allocation</b>	<b>1,389,505*</b>	
*Of this amount, USD 370,660 should be made available in 2016 to complete planned activities in 2016.		

# 1. Introduction

## 1.1 Context and Purpose

The implementation phase of the Council Study is divided into two phases: Phase 1 and Phase 2 as illustrated in Figure 1, primarily because of budget constraint.

Only about \$3.7M of the required total external budget of \$6.2M had been secured. This represents a \$2.5M funding gap which is the estimated budget required to fully implement Council Study Phase 2 implementation activities. The current secured funding of \$3.7M was used to cover the inception planning phase in 2014-2015 and is expected to be mostly spent for Phase 1 implementation activities.

Other factors were considered including the MRC transition to the new structure which necessitates for the Council Study Team to transition also into a new implementation arrangement from being co-managed by several Programmes in Phase 1 to a smaller and more cohesive team in Phase 2.

The implementation phase of the Council Study was originally intended to take a three-year period but was compressed to about 1.5 year to compensate for the delays during the inception planning phase and in the completion of the inception report. However, early in the process, it was recognized that this compressed schedule was unrealistic and was putting undue pressure to the Council Study Team.

The proposed extension of the implementation phase of the Council Study as a corrective action was proposed as early as the 4<sup>th</sup> RTWG Meeting (March 2015) and the 41<sup>st</sup> JC Meeting (April 2015). The Phase 1 and Phase 2 implementation (with Phase 2 as basically representing the proposed extension of the implementation phase of the Council Study) was presented during the 5<sup>th</sup> and 6<sup>th</sup> RTWG Meetings, and proposed during the 42<sup>nd</sup> JC Meeting. The MCs have been in principle in agreement with the proposed extension but expressed that additional information should be provided by the Council Study Team before any approval can be officially made. During the 22<sup>nd</sup> MRC Council Meeting, the Member Countries instructed the Council Study Team to prepare a detailed implementation plan for Phase 2 (this document).

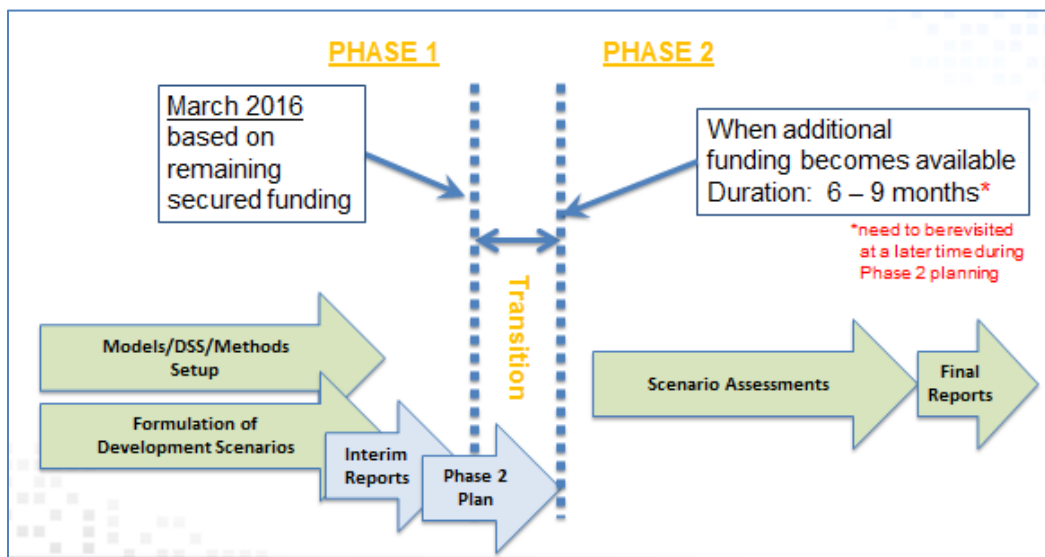


Figure 1. Proposed implementation phase



## 1.2 Content of this Document

This document was prepared to describe the detailed implementation arrangement and schedule of tasks and deliverables for Phase 2 with the assumption that budget required will be made available for the Council Study through the MRC Basket Funding. The amount of USD 500K was allocated for 2016 as per the Annual Work Plan 2016. It is assumed that the rest of the budget required will be available in 2017 to complete the Study.

This document does not materially change the scope of work of the Council Study as per the approved Inception Report dated 27 October 2014. However, this document does include the prioritization and sequencing of activities toward the full implementation of the full scope of the Council Study.

This document therefore supersedes Chapter 4 (Study Implementation) and 5 (Study Management) of the Inception Report. However, Chapters 1-3 which are about the Council Study objectives, approach, and assessment methodology largely remain valid. When necessary, portions of the scope of work as described in the Inception Report is further elaborated in this document including any scope adjustments that have been agreed by the Member Countries in Phase 1.

## 1.3 Assumptions

The following assumptions were used in preparing this document.

- Required budget to complete the Council Study will be made available in 2016 and 2017 through the MRC Basket Funding but not beyond
- Phase 1 activities will be completed as planned in 31 March 2016. Any significant delays will impact the schedule and budget presented in this document
- Transition phase will commence immediately after Phase 1 and will be completed on 30 June 2016 and that the new riparian Council Study Coordinator will be on board during this transition activities
- Proposed key personnel will be on board by the start of Phase 2 and any necessary revisions of existing contracts and TORs of the current consultants completed
- The Council Study objective of capacity building is primarily achieved with MCs learning by doing principle. As per the Inception Report, no training is explicitly funded unless it can be justified as part of performing the technical work.

## 1.4 Sequence of Events for Approval of This Document

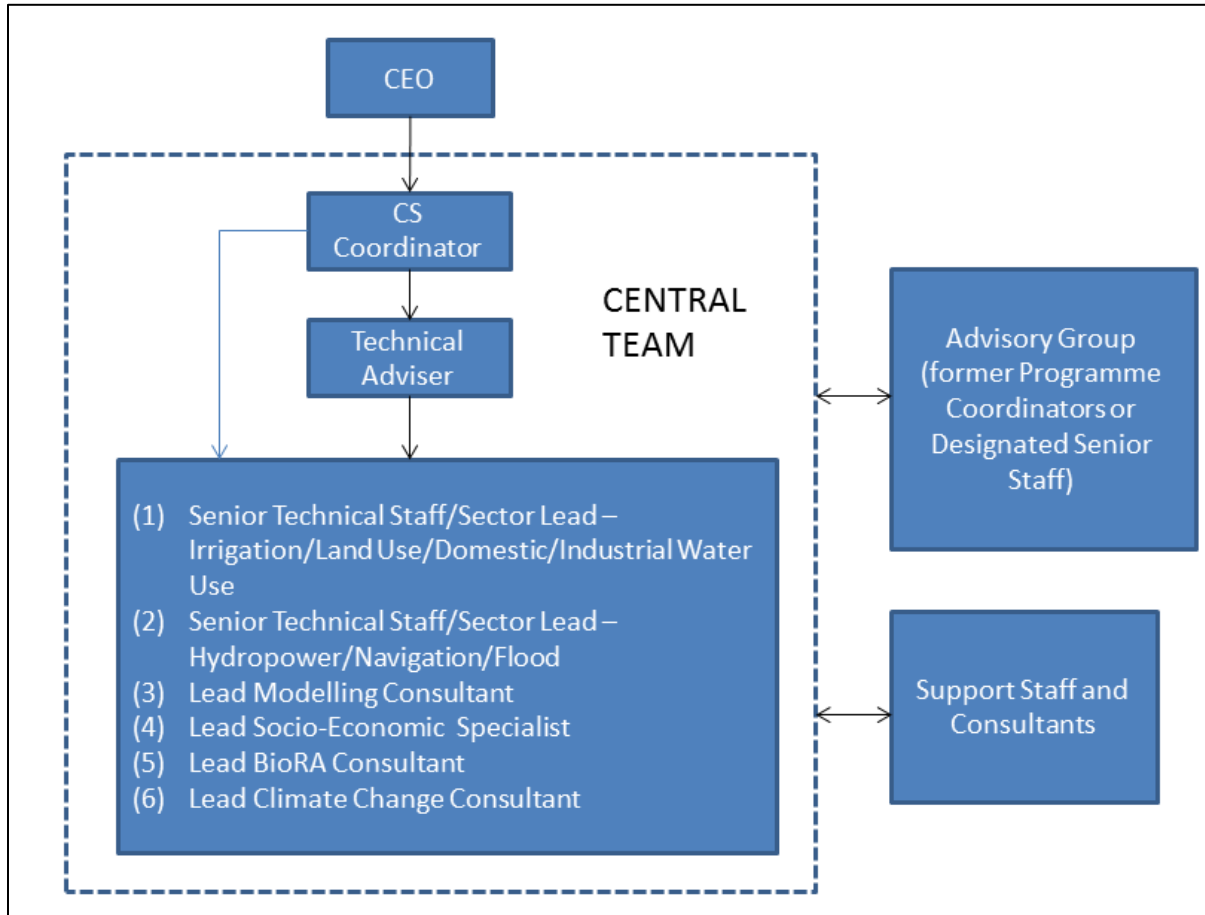
This document will follow the following sequence for its review and approval.

- Initial Draft (end of January 2016)
- Member Countries Review (due on 15 February 2016)
- Member Countries Discuss and Review During JCTF (February 2016)
- Revised Draft presented to Member Countries (7<sup>th</sup> RTWG Meeting – tentative 3<sup>rd</sup> week of March 2016)
- Final Draft (31 March 2016)
- Transition Begins and Provide Additional Details as Needed

## 2. Phase 2 Implementation Arrangement

### 2.1 Rationale

The MRC new organizational structure presents opportunities to improve the implementation arrangement of the Council Study. With the Programmes not existing anymore in the new MRC structure, a new implementation arrangement for the Council Study Secretariat Team is inevitable and necessary. The following sections described the key features of the Phase 2 implementation arrangement. Figure 2 illustrates the proposed implementation arrangement.



**Figure 2. Proposed implementation arrangement for Phase 2**

### 2.2 Council Study Coordination

The current implementation of the Council Study is being managed and coordinated by the Council Study Coordinator who currently serves two distinct and separate roles as described in the Inception Report namely:

- Council Study Coordinator to manage the scope, budget, schedule, and process

- Technical Coordinator to coordinate and consolidate the technical inputs of the various technical teams, provide additional technical direction, guidance, and quality control, and lead the preparation of the main report.

For Phase 2, it is proposed to recruit two personnel, one for each distinct role as originally planned in the Inception Report.

### **2.2.1 Full-Time Council Study Coordinator**

A full-time Council Study Coordinator will be selected from the current staff or if necessary recruited (as a consultant) from the region. The Council Study Coordinator will focus on day-to-day coordination and management aspects that include the following:

- Scope management
- Tracking schedules
- Controlling and tracking expenditure
- Overall management of consultants (including review/approval of timesheets and outputs)
- Coordination and communication with MCs
- Reporting to CEO and Division Heads
- Planning and implementation (including facilitation, note taking, post-meeting follow-up) of regional and national meetings and consultations (including stakeholder consultations)
- Communication and reporting to DPs
- Assistance to fund raising activities including proposal preparation and presentation

The Council Study Coordinator as per AWP 2016 will report directly to the MRC CEO. If the Council Study Coordinator is selected from MRC staff, then all consultants will be administratively supervised directly by and report directly to the Council Study Coordinator. If a regional consultant is recruited instead, then all consultants will still report directly to the Council Study Coordinator but another administrative supervisory arrangement will have to be adopted.

### **2.2.2 Part Time (SSA-Consultant) Technical Adviser for Technical Coordination**

The part-time technical adviser for technical coordination will work closely with the Council Study Coordinator in the technical aspects that include the following:

- Coordinate, review, and consolidate technical inputs of the Team Members
- Provide technical direction and guidance according to technical scope and approach as per the Inception Report and agreed and documented adjustments during the implementation
- Participate during regional and national technical meetings and on as needed basis and directed by the Council Study Coordinator, participate in thematic- and discipline-specific technical meetings
- Lead and serve as the primary author of the main report deliverable

The technical adviser will be supervised by and will report directly to the Council Study Coordinator. If a consultant is recruited for the Council Study Coordinator, then the Technical Adviser will also be under the direct supervision of the CEO.

### 2.2.3 Central Team

A central team will be formed to lead the technical work on the various thematic areas and disciplines. This central team which is smaller and focuses more on the technical aspects essentially replaces the MRCS Coordinating Group of the Council Study which was composed of the Programme Management Leads (i.e., former Programme Coordinators) and key staff of the various thematic and discipline teams.

In addition to the Council Study Coordinator and Technical Adviser, the Central Team will be composed of the following members:

- Sector lead for the combined thematic areas on water use (irrigation, agriculture and land use change, and domestic/industrial). This role will be filled by a senior MRCS staff.
- Sector lead for the combined thematic areas: hydropower, flood protection, and navigation. This role will be filled by a senior MRCS staff.
- Lead Modeller Consultant
- Lead BioRA Consultant
- Lead Socio-Economic Specialist. This role will be filled by an MRCS staff.
- Lead Climate Change Consultant
- Administrative Assistant

Each technical member of the Central Team will be primary responsible for conducting the required technical work and preparing the report deliverables for their respective thematic areas and disciplines. The Administrative Assistant will report directly to the Council Study Coordinator to provide as-needed administrative and logistic support to the Council Study activities.

### 2.2.4 Support Team

The central team will be supported by a number of MRCS staff and international, regional, and national consultants. These are mostly staff and consultants that have been involved in Phase 1 of the Council Study and in the case of the consultants, have existing contracts that stipulate their involvement in Phase 2 activities. During the transition period, the existing contracts and TORs of these consultants will be reviewed and adjusted as needed to be compatible with Phase 2 implementation plan and schedule.

### 2.2.5 Advisory Group

An advisory group will be formed to advise the Central Team on a periodic basis or as per request by the Central Team. The advisory group will be composed of Division Directors, assigned senior technical staff including former Programme Coordinators who were involved in Phase 1 and have remained with the Secretariat.

## 2.3 Smaller and Leaner Management and Technical Team

The Central Team essentially is the core management and technical team and in addition to replacing the bigger MRCS Coordinating Group for the Council Study, it basically eliminates the

need for separate thematic and discipline teams. Therefore, in Phase 2, the thematic and discipline teams are dissolved. The Central Team is one team with leads identified for the various thematic areas and disciplines. Corollary to this, other changes include the following:

- The three separate water use thematic areas namely irrigation, agriculture/land use change, and domestic/industrial are combined and will be led by a sector lead (compared to three Programme Management Leads in Phase 1). It is important that these thematic areas are combined and coordinated effectively because they are closely interlinked with each other (i.e., all land use related).
- The hydropower, flood protection, and navigation thematic areas are similarly combined and will be led by a sector lead. This allows taking advantage of natural synergies in infrastructure investments, for example, related to multi-purpose hydropower dams that take account also of navigation and flood protection investment opportunities.
- A lead modeller consultant will lead the hydrologic assessment. The lead modeller will be supported by MRC Technical Support Division modellers and other modeller consultants directly recruited to support the Council Study.
- A lead BioRA consultant will lead the Bio-resource assessment. The lead BioRA consultant will be supported by MRC staff from the relevant MRC Divisions and also by other BioRA consultants. The current consultants of the BioRA discipline team will served these roles.
- A lead socio-economic specialist will lead the socio-economic/macro-economic assessment. The lead socio-economic specialist will be supported by MRC staff from the relevant MRC Divisions and also by socio-economic consultants.
- A lead climate change consultant will lead the climate change assessment and will be supported by MRC staff from the Planning Division.
- There will be no Cumulative Assessment Team anymore. The analysis of the modelling results and the preparation of the cumulative assessment report will be conducted by the Central Team with the riparian Council Study Coordinator leading the task with the assistance of the Technical Adviser.

## 3. Scope of Work

### 3.1 General Principles

In general, the technical scope of work and the main report deliverables remain the same as documented in the approved Inception Report dated 27 October 2014. In order to produce the Study deliverables, the technical scope of work was subdivided under four major technical activities namely:

- Activity 1: Formulation of Development Scenarios (Phase 1)
- Activity 2: Development and Setup of Models, DSS, and Tools (Phase 1)
- Activity 3: Scenario Assessments (Phase 2)
- Activity 4: Preparation of Final Reports (Phase 2)

This Phase 2 Implementation Plan is prepared with the expectation that the formulation of development scenarios (Activity 1) and the development and setup of the models, DSS, and tools except the BioRA DSS (Activity 2) will be completed in Phase 1. The version of the BioRA DSS targeted to be completed in Phase 1 only includes Focus Areas (FA) 1 (Chiang Saen – Pak Beng), FA 2 (Pak Beng – Vientiane/Nong Kai), FA 3 (Vientiane/Nong Khai – Se Bang Fai), FA 5 (Stung Treng – Kampong Cham), and 7 (Tonle Sap Lake). The full version of the BioRA DSS which includes FA 4 (Se Bang Fai – Stung Treng) and FA 6 (Tonle Sap River at Prek Kdam), and FA 8 (Delta) will be completed in Phase 2.

### 3.2 Scenario Assessments

The main technical work in Phase 2 is the assessment of the environmental, social, and economic impacts of water resource developments under the various development scenarios with and without climate change.

#### 3.2.1 Development Scenarios

Table 1 shows the complete list of main development scenarios and thematic sub-scenarios that were originally considered for assessment. During the 6<sup>th</sup> RTWG meeting, the following decisions were made in relation to these development scenarios.

- Flood Protection thematic sub-scenarios (scenario IDs 13, 14 and 15 in the table below) are removed from further consideration. As per RTWG concurrence, the level of flood protection infrastructure for 2020 and 2040 main development scenarios (scenario IDs 2 and 3) will be kept at the 2007 level unlike other thematic sectors. The justification is that the assessment of the 2020 and 2040 main development scenarios 2020 and 2040 will allow the determination in the increase or decrease in flood risk in the absence of any additional flood protection. This information will be useful in determining flood protection measures for 2020 and 2040 that will effectively reduce the flood risk at acceptable levels.
- Only two navigation development scenarios were proposed. The navigation scenario involving navigation infrastructure in conjunction with the full cascade of mainstream dams (Hua Xay to Kratie) is equivalent to the main development scenario 2040. The navigation scenario involving navigation infrastructure in conjunction with the cascade upstream of Vientiane (Hua Xay to Vientiane) is assigned to be a Navigation thematic sub-scenario (scenario ID # 22).

The above decisions consequently reduce the number of development scenarios to be assessed from 24 to 19 scenarios. These 19 scenarios are further categorized using the following priorities:

- High Priority: This includes main development scenarios 2007, 2020 and 2040 with and without climate change (6 scenarios)

- **Medium Priority:** This includes the thematic sub-scenarios for the hydropower, irrigation, and navigation thematic area (7 scenarios)
- **Low Priority:** This includes the thematic sub-scenarios for the agriculture/land use change, and domestic/industrial thematic areas (6 scenarios). It should be noted that for the domestic/industrial thematic area, the focus will be on level of sand mining and not on the domestic/industrial water consistent with guidance from the Member Countries that this water use is known to have insignificant impact.

**Table 1. List of development scenarios considered for assessment under the Council Study.**

Scen #	Name	Level of Development*						Climate Change	Priority
		ALU	DIW	FPF	HPP	IRR	NAV		
1	Early Development Scenario 2007	2007	2007	2007	2007	2007	2007	No	High
2	Definite Future Scenario 2020	2020	2020	2007**	2020	2020	2020	No	High
3	Planned Development Scenario 2040	2040	2040	2007**	2040	2040	2040	No	High
4	Planned Development 2040 Under Low Climate Change	2040	2040	2040	2040	2040	2040	Yes – Low	High
5	Planned Development 2040 Under Medium Climate Change	2040	2040	2040	2040	2040	2040	Yes – Medium	High
6	Planned Development 2040 Under High Climate Change	2040	2040	2040	2040	2040	2040	Yes – High	High
7	ALU Thematic Sub-scenario 1: Low Level of implementation of 2040 Planned Development	Low	2040	2040	2040	2040	2040	No	Low
8	ALU Thematic Sub-scenario 2: Medium Level of implementation of 2040 Planned Development	Medium	2040	2040	2040	2040	2040	No	Low
9	ALU Thematic Sub-scenario 3: High Level of implementation of 2040 Planned Development	High	2040	2040	2040	2040	2040	No	Low
10	DIW Thematic Sub-scenario 1	2040	Low	2040	2040	2040	2040	No	Low
11	DIW Thematic Sub-scenario 2	2040	Medium	2040	2040	2040	2040	No	Low
12	DIW Thematic Sub-scenario 3	2040	High	2040	2040	2040	2040	No	Low
13	FPF Thematic Sub-Scenario 1								Cancelled
14	FPF Thematic Sub-Scenario 2								Cancelled
15	FPF Thematic Sub-Scenario 3								Cancelled
16	HPP Thematic Sub-scenario 1	2040	2040	2040	HPS1	2040	2040	No	Medium
17	HPP Thematic Sub-scenario 2	2040	2040	2040	HPS2	2040	2040	No	Medium
18	HPP Thematic Sub-scenario 3	2040	2040	2040	HPS3	2040	2040	No	Medium
19	IRR Thematic Sub-scenario 1	2040	2040	2040	2040	Low	2040	No	Medium
20	IRR Thematic Sub-scenario 2	2040	2040	2040	2040	Medium	2040	No	Medium
21	IRR Thematic Sub-scenario 3	2040	2040	2040	2040	High	2040	No	Medium
22	NAV Thematic Sub-scenario 1	2040	2040	2040	2040	2040	HPS1***	No	Medium
23	NAV Thematic Sub-scenario 1								Cancelled
24	NAV Thematic Sub-scenario 1								Cancelled

Note:  
 \*Levels of developments for the various thematic areas: ALU = Agric/Landuse Change; DIW = Domestic and Industrial Water Use; FPF = flood protection/floodplain infrastructure; HPP = hydropower; IRR = irrigation; and NAV = Navigation  
 \*\*Level of flood protection in development scenarios 2020 and 2040 are maintained at 2007 level  
 \*\*\*Navigation level of infrastructure is in conjunction with HPP sub-scenario HSP1 (i.e., mainstream dams upstream of Vientiane)

In addition to the abovementioned development scenarios, the following two development scenarios listed in Table 2 be considered for assessment as per agreement by the Member Countries during the

Small Technical Workgroup Meeting on Reference Scenario. For additional details, the reader is referred to the Draft Working Paper on Reference Scenario and Meeting Minutes which are available in the Council Study Team Site. It should be noted that the assessment of the 1960 and 2000 development scenarios will focus on impacts on flow and sediment. It should also be noted that data has not been identified and collected to support the formulation of these development scenarios although BDP2 Study can be used to provide initial data for the hydropower, irrigation, and domestic/industrial water use for the 2000 development scenario. As per agreement of the Member Countries, the availability of the data required to support the 1960 development scenario will be evaluated first before formulation of the 1960 development scenario and its assessment can proceed.

**Table 2. Additional development scenarios as per Technical Working Group Meeting on Reference Scenario, 12 November 2015, OSV**

Scen #	Name	Level of Development*						Climate Change	Priority
		ALU	DIW	FPF	HPP	IRR	NAV		
25	Development Scenario 1960	1960	1960	1960	1960	1960	1960	No	High
26	Development Scenario 2000	2000	2000	2000	2000	2000	2000	No	High

### 3.2.2 Reference Period

The daily time-series flow, sediment, and water quality will be simulated for all development scenarios over the common 24-year reference period 1985 – 2008. As an additional analysis specifically requested by Lao PDR for their specific purpose, the 1960 development scenario will also be simulated over the period 1960 – 1984. The available of data to support the technical feasibility of conducting this additional simulation will be evaluated and presented to the Member Countries. More detailed information on the reference period is available in the Draft Working Paper on Reference Scenario and Meeting Minutes.

### 3.2.3 Reference Scenario and Indicator Statistics for Scenario Comparison

The development scenario 2007 will be used as the reference scenario which will be used as the common basis for comparing the assessment results of all other development scenarios. The comparison will be using a number of indicator statistics (e.g., average monthly flow, annual average sediment load, etc.). These indicator statistics will be identified and selected in consultation with Member Countries. These indicator statistics may be selected from the modelled (hydrologic, hydraulic, sediment, and water quality) indicators that have been already identified for the BioRA DSS (i.e., modelled indicators that are linked with the various ecosystem indicators. More detailed information on the reference scenario is available in the Draft Working Paper on Reference Scenario and Meeting Minutes.

## 3.3 Report Deliverables

Annex IV of the Inception Report lists the various thematic and technical reports and supporting working papers deliverables for the Council Study. This section proposes the following consolidation of these reports when necessary.

### 3.3.1 Cumulative and Thematic Reports

The cumulative and 6 main thematic report deliverables remain the same and they are the following:



- Cumulative Positive and Negative Impacts of the Selected Water Resources Developments and infrastructure on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Irrigation Development on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Non-irrigated Agriculture Development and General Trends in Major Land-Use Categories on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Domestic and Industrial Water Use on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Flood Protection Structures and Floodplain Infrastructure on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Hydropower Development on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.
- A Thematic Report on the Positive and Negative Impacts of Navigation Infrastructure Development on the Social, Environmental and Economic Conditions of the Lower Mekong River Basin and Policy Recommendations.

It should be noted that the Cumulative Report will be equivalent to the Main Report. This report will incorporate and apply the knowledge gained from the thematic reports as well as the results of the assessment of the main development scenarios to understand better the interrelated and cross-cutting dynamics among the different sectors and produce policy recommendations that enhance positive benefits and reduce negative impacts.

In addition to the above reports, an Executive Summary will be prepared.

The Interim Thematic Assessment Reports submitted in Phase 1 represent an incremental version of the abovementioned thematic reports.

### 3.3.2 Technical Reports

Table 3 shows the various discipline-specific technical report deliverables, status and proposed consolidation when appropriate.

**Table 3. List of Council Study technical report deliverables, their status, and proposed consolidation.**

Technical Report as per Inception Report Annex IV	Proposed Consolidated Report	Status
Inception Report of the MRC Council Study	As Is	Completed
Scoping and Assessment Report of Existing Information, Data and Knowledge for the MRC Council Study.	As Is	Completed as Chapter 2 of the Inception Report
Hydrology Data, Modelling and Results Report for the Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure	Hydrology, Sediment, and Water Quality Data, and Results Report for the Assessment of Positive and Negative Impacts of	Several technical documents have been prepared and submitted to the Member Countries that will serve as

in the Lower Mekong River Basin – A Report for the Council Study.	Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	input or attachments to this technical report including the following:  ISIS Baseline Model for Mekong River in Upper Kratie  Improvements of the ISIS LMB Baseline Scenario Model  SWAT Model for Sediment and Nutrient Simulation in the Mekong River Basin  The Sediment and Nutrient Data Available and Analysis for the DSF model Simulation in the Lower Mekong Basin  eWater Source Model (Baseline 2007): Application in the Upper Mekong River Basin
Groundwater Hydrology Data, Modelling and Results Report for the Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.		
Sediment Data, Modelling and Results Report for the Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.		
Water Quality Data, Modelling and Results Report for the Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.		
Fisheries Assessment of the Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	Bioresources Assessment of the Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	Several technical documents have been prepared and submitted to the Member Countries that will serve as input or attachments to this technical report including the following:  Volume 1: Specialists’ Report Volume 2: Guide to Viewing and Updating the BioRA DSS Volume 3: Preliminary Calibration Report
Environmental Assessment of the Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.		
Socio-Economic Assessment of the Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	Socio-Economic (including Macro-Economic) Assessment of the Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	The following technical documents will serve as input to the methodology section or attachment to this technical report:  Social Assessment Methodology Report  Economic Assessment Methodology Report
Macro-Economic Assessment of the Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.		
A Climate Change Assessment of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	As Is	

### 3.3.3 Working Papers

Table 4 shows the working papers deliverables, status and proposed consolidation when appropriate.

**Table 4. List of Council Study working papers, status and proposed consolidation.**

<b>Working Paper as per Inception Report Annex IV</b>	<b>Consolidated Report</b>	<b>Status</b>
Specifications of Selected Irrigation Developments and Infrastructure for Use in Hydrological Modelling.	Development Scenarios for the Irrigation Thematic Area	Draft Completed
Specifications and map of Selected Non-irrigation Agriculture Development and General Trends in Major Land-Use Categories in the Lower Mekong River Basin for Use in Hydrological Modelling.	Development Scenarios for the Agriculture and Land Use Change Thematic Area	Draft Completed
Specifications and Map of Selected Domestic and Industrial Water Use in the Lower Mekong River Basin for Use in Hydrological Modelling.	Development Scenarios for the Domestic and Industrial Water Use Thematic Area	Draft in Preparation
Specifications and Map of Selected Flood Protection Structures and Floodplain Infrastructure for Use in Hydrological Modelling.	Development Scenarios for the Flood Protection and Floodplain Infrastructure Thematic Area	Draft Completed
Specifications and Map of Selected Hydropower Developments for Use in Hydrological Modelling.	Development Scenarios for the Hydropower Thematic Area	Draft Completed
Specifications and Map of Selected Navigation Infrastructure Development.	Development Scenarios for the Navigation Thematic Area	Draft Completed
Data Collection Guidelines for the Integrated Basin Flow Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin – A Report for the Council Study.	Incorporated as a chapter or annex in the Various Technical Reports (Modelling, Bio-resource assessment, and socio-economic assessment)	In Preparation
Description and Map of Consolidated Eco-hydrological Zones and the Representatives Sites for the Integrated Basin Flow Assessment of Positive and Negative Impacts of Selected Water Resources Developments and Infrastructure in the Lower Mekong River Basin.	Incorporated in the Bio-resources Assessment Technical Report	Draft Completed and incorporated in the Bio-resources Assessment Report
Modelling Report on the Impact of Climate Change on Hydro-Climatology in the Lower Mekong River Basin	Incorporated in the Climate Change Assessment Report	

## 4. Budget

### 4.1 Estimated Total Budget Required and Funding Gap

Table 5 shows the estimated total budget for the Council Study which is an update of the original estimated budget in the Inception Report in March 2015 based on the staffing plans of the various Council Study thematic and discipline teams. The revised estimated total budget was presented during the 4<sup>th</sup> RTWG Meeting and has been used since then in subsequent planning, fund raising, and reporting.

**Table 5. Estimated total budget for the Council Study (updated in March 2015, 4<sup>th</sup> RTWG)**

Description	MRC Funded (In-Kind Staff Time)	External Funding (from DP)	Total Budget
Coordination & Management	856,000	885,000	1,741,000
International Experts/Consultants		1,739,383	1,739,383
Riparian Experts/Consultants		127,740	127,740
National Experts/Consultants		879,000	879,000
Travel	58,300	403,500	461,800
Meeting Costs	33,300	859,667	892,967
Operational Costs		231,625	231,625
Payment of Coastal Assessment		<b>250,000</b>	<b>250,000</b>
<b>Sub-Total</b>	<b>947,600</b>	<b>5,375,915</b>	<b>6,323,515</b>
Contingency 5%	47,380	268,796	316,176
Management & Admin 11%	104,236	591,351	695,586
<b>Total</b>	<b>1,099,216</b>	<b>6,236,061</b>	<b>7,335,277</b>

Table 6 shows a summary of the budget situation of the Council Study. The secured funding is about USD 3.7M. A funding gap of USD 2.5 M remains.

**Table 6. Budget summary including funding gap**

Budget Item	Amount USD
Total Budget Required	7.1 M
External Funding Required	6.2 M
Secured Funding (Australia, Finland, Germany, Luxembourg, SDC, USA)	3.7 M
External Funding Gap	2.5 M

The current secured funding of USD 3.7 M covered the Council Study activities in 2014 and 2015 and will also cover to complete Phase 1 on 31 March 2016. It should be noted that a portion of the USD 3.7M secured funding has been already contractually obligated to international, regional, and national consultants. These obligated funding includes providing services for activities in Phase 2.

The funding gap of USD 2.5M is needed to be addressed to cover the Council Study activities in Phase 2 and successfully complete the Study. This is in addition to the obligated contract amounts to

consultants for anticipated consulting services in Phase 2. It should be noted however, that the proposed implementation arrangement for Phase 2 may result to cost efficiencies that potentially could translate to a smaller funding gap. This document attempts to determine what potentially the actual funding gap is by evaluating the remaining scope of work for Phase 2 given the expenses to date against progress in Phase 1, and the new implementation arrangement.

#### 4.1 Available Budget for Phase 2 in 2016 from the Basket Funding

As per the Annual Work Plan for 2016, the allocated budget to the Council Study from the MRC Basket Funding is USD 500K. As noted earlier, this amount is supplemented by a portion of the secured funding that has been already obligated to the consultant to support Phase 2 activities. In addition, it is supplemented by the overflow funding from Phase 1 or funding amount that is not anticipated to be used in Phase 1 (see next section).

#### 4.2 Available Budget from Anticipated Overflow Funding from Phase 1

Phase 1 will end on 31 March 2016 with the plan of completing the following two major activities:

- Formulation of Development Scenarios
- Development and Setup of Models, DSS, and Tools (except for the BioRA DSS for FA3, FA6, and FA8 – Delta)

It is anticipated that not all of the remaining budget will be used or obligated on contracts and therefore this unused funding can overflow to the Transition Phase and Phase 2 (after 31 March 2016).

Table 7 shows estimated budget available for 2016 for the Trust Fund is USD 905,998 of which USD 428,185 is obligated to current consultant’s contract against the Trust Fund. The estimated budget required for Phase 1 remaining activities from January to March 2016 is USD 713,476 resulting to an anticipated overflow (excess) budget of USD 192,522 that is available to use in Phase 2.

**Table 7. Expenditure summary and anticipated overflow (unused) budget from Phase 1 which includes obligated contract amounts**

Project	Budget (USD)	Estimated Expenses (2014 – 2015)*	Estimated Budget Available for 2016	Estimated Budget Required for Phase 1 Remaining Activities (January – March 2016)**	Anticipated Overflow Budget(April 2016 onwards)
Trust Fund	2,874,220	2,122,101	752,119***	559,597	192,522
Programme-Managed	857,349	703,470	153,879****	153,879	0
Total	3,731,569	2,825,571	905,998	713,476	192,522

\*Includes invoiced paid, outstanding invoices not paid, and anticipated invoices for work done in 2015.  
 \*\*Detailed budget breakdown for the remaining Phase 1 activities in January – March 2016 is included in Annex 1.  
 \*\*\*Of this amount, USD 428,185 had been obligated to consultants’ contracts  
 \*\*\*\*Fund managed by IKM Team from Finland interest intended to cover WUP-FIN modelling

#### 4.3 Summary of Available Budget for Transition Phase and Phase 2

Table 8 shows that a total of USD 692,522 is anticipated to be available for the Transition Phase and Phase 2. It should be noted that of this amount, USD 422,071 is already obligated to consultant’s contract.

During the Transition Phase (April to June 2016), these contracts and TORs will have to be revised to reflect at the minimum extension of the performance period and reporting lines as a result of changes in the MRC organizational structure. The Council Study Team may take advantage of this opportunity to review the scope and work of each of the contract to make any necessary adjustments and if possible free up a portion of the obligated contract amounts to support other Council Study activities.

**Table 8. Total available budget for Transition Phase and Phase 2.**

Item	Budget
Basket Funding as per AWP 2016	500,000
Overflow Funding from Phase 1	192,522
<b>Total</b>	<b>692,522*</b>
*Of this amount, USD 422,071 is obligated to consultants' contract. Detailed breakdown of obligated contracts is shown in Annex Table A-1. This obligated contract amount includes new contracts in January – March 2016 for the modelling team and inherited contract from former ISH Programme for the hydropower international and national consultants	

## 5. Implementation Details of Phase 2 in 2016

### 5.1 Implementation Guiding Principles

The following guiding principles are adopted for the Phase 2 implementation.

- Implementation planning will be highly evolving and will be evaluated periodically and any necessary adjustments reported during the RTWG Meetings.
- An agile development and implementation will be adopted by the Central Team to respond more quickly and effectively to uncertainties through an incremental and iterative process.

These principles take into account of the fact that not all information needed to prepare a definitive and specific plan are available and the successful application of the assessment framework (models, DSS, and the tools) is inherently complex and uncertain which may require some degree of iterations involving further enhancements of the assessment framework and the application. These guiding principles are also compatible with the highly participatory process that was followed in Phase 1 and will provide the necessary flexibility (i.e., explicit recognition by all parties that schedule and budget will be adjusted accordingly within reason) to even enhance the participatory process in Phase 2.

### 5.2 Technical Scope of Phase 2 2016

Given the funding available, the technical scope of Phase 2 in 2016 will focus on the assessment of the development scenarios with respect to hydrological, hydraulic (including flood), sediment, water quality (nutrients), and bio-resources impacts. This will involve the following activities:

1. Modelling Impacts on Hydrology, Hydraulics, Sediment, and Water Quality
  - Develop list of indicator statistics for comparison of modelling results
  - Modelling of Development Scenarios 2007, 2020, and 2040 (with and without climate change) and Thematic Sub-scenarios
    - Prepare input files for each development scenario
    - Run model and analyse results
    - Prepare draft report on results and analysis
  - Modelling of Development Scenarios 1960 and 2000
    - Conduct feasibility of formulating 1960 development scenario based on availability of data (including climate data from 1960 – 1984)
    - Collect data and formulate development scenario 2000
    - Collect data and formulate development scenario 1960 (if feasible)
    - Run model for each development scenario and analyse results
    - Revise draft report to incorporate results and analysis
2. Bio-resource Assessment
  - Development of the BioRA DSS for FA3, FA6, and FA7 (Delta)
    - Conduct Knowledge Capture Workshop to Develop Response Curves
    - Calibrate and Test Response Curves

- Assessment of Development Scenarios 2007, 2020, and 2040 (with and without climate change)
  - o Using model outputs from the modelling activity, run BioRA DSS for each development scenario and analyse results
  - o Prepare technical report on results and analysis

In conducting the above modelling and assessments, the prioritization specified for the development scenarios in section 3.2.1 of this document should be used as guidance.

It should be noted that the above activities will involve the support of the thematic sector leads and the sector experts from the Support Team. This support will include the following:

- Preparation of the input files associated with levels of development and operations for the development scenarios
- Analysis of the modelling and assessment results

The socio-economic impact assessment (including direct socio-economic impact assessment for each thematic sector) is mostly deferred for 2017 because it is dependent on completing the modelling and the BioRA activities. While it is recognized that some of the socio-economic assessment work can be done in parallel (i.e., direct socio-economic impacts associated with a planned construction and operation of a specific infrastructure), because of budget availability in 2016, it makes sense to focus the available budget on the modelling and bio-resource assessment activities which precedes the socio-economic assessment.

However, for 2016, the socio-economic lead (MRCS staff) as a member of the Central Team will be continuously engaged. By being closely engaged, he/she will be in a position to refine the plan to provide details on how to coordinate effectively the socio-economic assessment activities with thematic sector leads in the assessment of direct socio-economic impacts, and with the discipline leads in the assessment of indirect impacts (i.e., associated with flow, sediment, water quality, and bio-resource changes). In addition, the socio-economic specialist will work with the socio-economic national consultants and with relevant national consultants of the thematic sectors (in coordination with the sector leads) to review and further refine if needed the socio-economic assessment methodology including reviewing data availability.

Deferring the socio-economic impact assessment until 2017 will also provide the opportunity to take advantage of the following relevant MRC activities as per AWP 2016:

- MRC Indicator Framework
- State of the Basin Report specifically related to socio-economic indicators
- Additional data collection under SIMVA surveys

Finally, the task to analyse the rainfall and evaporation data for the reference period 1985-2008 for bias and determine their representativeness of the long-term record is not explicitly budgeted in this implementation plan. At this time, the riparian Council Study Coordinator, as part of his/her responsibility is to work with in-house MRCS staff and potential partners (i.e., Australia Bureau of



Meteorology) to develop a plan on to address this requirement by the Member Countries. It is noted that similar studies have been done in IBFM, and more recently by the former MRC CCAI Programme. These studies will have to be considered in preparing the plan.

### 5.3 Establishing and Funding the Central Team for 2016

The most important in an agile implementation environment is to establish the central team as soon as possible so they can begin the necessary iterative detailed planning and execution of Phase 2 activities. For the purposes of planning and budget estimating, Phase 2 is assumed to begin on 1 July 2016. Table 9 shows the funding required to establish the Central team for Phase 2 2016.

**Table 9. Budget required to establish the Council Study Central Team to perform activities during Phase 2 in 2016.**

Personnel	Level of Effort	Amount USD
Riparian Council Study Coordinator	Service Contract (SC) 6 months	48,000
International Technical Adviser/Technical Coordinator	SSA (60 days)	60,000
Sector Lead (Hydropower/Navigation/Flood Protection)	In-house Staff (Salaried) ¼ Full Time Equivalent (FTE)	In-Kind
Sector Lead (Irrigation, Agriculture, Land Use, Domestic, Industrial)	In-house Staff (Salaried) ¼ FTE	In-Kind
Modelling Lead Consultant (Riparian)	SC 6 months (new contract)	37,500
BioRA Lead Consultant	100 percent of the remaining obligated amount = 85,374	Funded
Socio-Economic Lead/Specialist	In-house Staff (Salaried) ¼ FTE	In-Kind
Climate Change Lead Consultant (Riparian)	SSA (30 days)	15,000
Administrative Assistant	SSA (equivalent to 6 months)	10,080
<b>Total</b>		<b>New = 170,580</b> <b>Obligated Spending = 85,374</b> <b>Total = 255,954</b>

### 5.4 Establishing and Funding the Support Team for 2016

Table 10 below shows the estimated budget to establish the Support Team and provide the required support services by the Central Team.

**Table 10. Budget required to establish the Council Study Support Team to perform activities during Phase 2 in 2016.**

Personnel	Level of Effort	Amount USD
Modelling Support Team (2)	SSA (60 days total)	43,200

International Consultants)		
Modelling Support Team (2 riparian consultants)	SC (4 months – new contract)	32,000
Modelling Support Team (4 national consultants)	SC (4 months – new contract)	40,000
Modelling Support Team (In-house staff)	In-house Staff (Salaried) 1/2 FTE	In-Kind
BioRA Expert Team (National, Regional, and International Consultants)	100 percent of the remaining obligated amount = 140,211	Funded
Hydropower Sector Expert (International Consultant)	½ remaining obligated funding = 15,873	Funded
Navigation Sector Expert (International Consultant)	SSA (20 days)	20,000
Flood Sector Expert (International Consultant)	1/3 remaining obligated funding = 11,000	Funded
Domestic/Industrial Sector Expert International Consultant	1/3 obligated funding = 6,573	Funded
Irrigation/Agriculture/Land Use Sector Expert	SSA (20 days)	20,000
Socio- Economic Consultants (International)	None in 2016 Deferred in 2017	0
Socio-Economic Consultants (National)	100 percent of remaining obligated funding = 17,670	Funded
Thematic Sector National Consultants (Irrigation, Agriculture/Land Use Change, Domestic/Industrial, Navigation)	100 percent of remaining obligated funding = 16,250	Funded
Thematic Sector National Consultants with Programme-Managed Funding Expired (Hydropower)	100 percent of remaining obligated funding = 8,000	Funded
GIS Specialist	In-house staff (Salaried) 1/5 FTE	Funded
<b>Total</b>		<b>New = 155,200</b> <b>Obligated Spending = 215,577</b> <b>Total = 370,777</b>

## 5.5 Funding the Process

Table 11 shows the estimated budget associated with the process – RTWG meetings, technical working group meetings, national consultations, etc.

**Table 11. Budget required for meetings, travel, and operational activities during Phase 2 in 2016.**

Activity	Unit	Budget
2 RTWG Meeting (August and December 2016)	2 x 2 days @ 10K/day	40,000
BioRA Capture Knowledge	5 days	20,000

Workshop		
4 1-day MRCS-Initiated National Consultations (two for each country)	4 x 1 day @5,000/day	20,000
MC-Initiated National Consultations/Meetings	Number as needed but up to an aggregate total of \$5000 per MC	20,000
4 1-day Small Regional Technical Work Group Meetings	4 x 1 day @5,000/day	20,000
Travel*	Detailed Estimate	67,558
<b>Total</b>		<b>187,558</b>
*This covers the transportation cost and DSA of international consultants and other miscellaneous travel not covered during the regional and national meetings.		

### 5.6 Funding Activities during the Transition Phase

During the transition phase, it is important that the new riparian Council Study Coordinator is on board to work on the following transition activities.

- Familiarization with the Study including review of the inception report, terms of references, and all documents and presentations produced during the course of the Phase 1 implementation
- Review, refinement, and addition of details to the implementation work plan for Phase 2 (this document)
- Initial Communication with Secretariat, Consultants, NMCs, and DPs
- Progress Reporting to DPs including any support to fund raising/proposal activities
- Review and revisions of obligated contracts and TORs

The current Council Study Coordinator is also proposed to be contracted as an SSA international consultant to provide assistance during the transition phase.

In addition to the above activities, the following activities may be considered.

- National Consultations to disseminate interim results to a broader stakeholder audience
- Support Capacity Building (especially if funding outside of the Council Study is available)

It is also possible that the transition activities will include completing a number of outstanding (unfinished) activities in Phase 1. This includes completing the calibration of the models which as noted earlier is highly complex and uncertain. With this in mind, the budget allocated to complete Phase 1 activities also covers the potential activities of the modelling team during the transition phase. This includes the following:

- Regional Modelling Experts (contracted to support Council Study from Jan – June 2016)
- National Modellers (contracted to support Council Study from Jan – June 2016)

Table 12 shows the estimated budget required to support the above transition activities.

**Table 12. Budget required for transition activities**

Item	Unit	Amount USD
Riparian Council Study Coordinator	SC 3 months	24,000
Administrative Assistant	SSA (equivalent to 3 months)	5,040

Current Study Coordinator (For Transition)	SSA 20 days @1000/day	20,000
Modelling Riparian Consultants*	Obligated	40,100
Modelling National Consultants	Obligated	30,000
National Consultation Meetings	4 x 1 day @5,000/day	20,000
Travel	Detailed Estimate	6,944
<b>Total</b>		<b>146,084</b>
*as per cost-share agreement with Climate Change Study		

## 5.7 Summary of Budget Required for Transition Phase and Phase 2 in 2016

Table 13 shows a summary of the budget required for the Transition Phase and Phase 2 in 2016. It should be noted that the available budget of USD 692,522 (which includes the overflow budget from Phase 1) is not sufficient to fully cover the anticipated activities. The funding gap in 2016 is estimated to be USD 379,307.

**Table 13. Summary of budget required for the Transition Phase and Phase 2 in 2016**

Item	Amount USD
Transition Phase	146,084
Phase 2 in 2016 – Central Team	255,954
Phase 2 in 2016 – Support Team	370,777
Phase 2 in 2016 – Process	187,558
<b>Sub-Total</b>	<b>960,373</b>
Operation (3.5 percent)	33,613
Contingency (5 percent)	48,019
11 percent MAF for the Phase 1 Overflow Funding	21,177
<b>Total</b>	<b>1,063,182*</b>
*With only USD 692,522, the required budget for the Transition Phase and Phase 2 in 2016 results to a funding gap of 370,660	

## 6. Implementation Details of Phase 2 in 2017 Including Project Closeout

Phase 2 in 2017 is intended to complete the Council Study and is anticipated to take six months from January – June 2017. In addition, a three-month period from July – August 2017 will be devoted for project close-out activities.

The same implementation guiding principles and arrangement described in Chapter 5 will be adopted.

With the modelling and bio-resource assessment anticipated to be completed by December 2016, the technical scope of 2017 will focus on the following:

- Socio-Economic Assessment of Development Scenarios 2007, 2020, and 2040 (with and without climate change) and thematic sub-scenarios
- Procurement and implementation of coastal assessment
- Preparation of thematic and cumulative reports
- Regional Stakeholder Meeting (February 2017)

It should be noted that the assessment of the 1960 and 2000 development scenarios is focused primarily on the impacts on flow and sediment only.

The project close-out will include the following activities and will be led by the OCEO since the Central Team will be completed by that time. If needed the Council Study Coordinator may be contracted to further to support these activities.

- national consultations
- 1 regional stakeholder meeting (September 2017)
- Performance of any administrative and contractual matters required to close the project

Tables 14 to 16 show the budget required for the central team, support team, and process, respectively. Table 17 shows the summary of the budget required.

**Table 14. Budget required for the Central Team to perform activities during Phase 2 in 2017.**

Personnel	Level of Effort	Budget Required
Council Study Coordinator (Riparian)	SC 6 months (not including Project Closeout Phase)	48,000
International Technical Adviser/Technical Coordinator	SSA (90 days)	90,000
Sector Lead (Hydropower/Navigation/Flood Protection)	In-house Staff (Salaried) ¼ Full Time Equivalent (FTE)	In-Kind
Sector Lead (Irrigation, Agriculture, Land Use, Domestic,	In-house Staff (Salaried) ¼ FTE	In-Kind

Industrial)		
Modelling Lead Consultant (Riparian)	SC 3 months	19,500
BioRA Lead Consultant	Contract Completed in 2016 May be contracted further if needed	0
Socio-Economic Specialist	In-house Staff (Salaried) ¼ FTE	In-Kind
Climate Change Lead Consultant (Riparian)	SSA (30 days)	15,000
Administrative Assistant	SSA (equivalent to 6 months)	10,080
<b>Total</b>		<b>182,580</b>

**Table 15. Budget required for the Support Team to perform activities during Phase 2 in 2017.**

<b>Personnel</b>	<b>Level of Effort</b>	<b>Budget</b>
Modelling Support Team (International Consultant)	SSA (30 days)	22,500
Modelling Support Team (2 riparian consultants)	Contract completed	0
Modelling Support Team (4 National Consultants)	Contracts completed	0
Modelling Support Team (In-house staff)	In-house Staff (Salaried) 1/2 FTE	In-Kind
BioRA Expert Team (National, Regional, and International Consultants)	Contracts Completed	0
Hydropower Sector Expert (International Consultant)	Remaining obligated funding = 15,873	Funded
Navigation Sector Expert (International Consultant)	SSA (20 days)	20,000
Flood Sector Expert* (International Consultant)	Remaining obligated funding = 22,000	Funded
Domestic/Industrial Sector* Expert International Consultant	Remaining obligated funding = 13,147	Funded
Irrigation/Agriculture/Land Use Sector Expert	SSA (20 days)	20,000
Socio-Economic Specialist (In-house staff)	In-house Staff (Salaried) 1/2 FTE	In-Kind
Socio- Economic Consultants (International)	SSA 120 days	96,000
Socio-Economic Consultants (National)	Contracts completed Maybe contracted further if needed	0
Thematic Sector National Consultants (Irrigation, Agriculture/Land Use Change,	Contracts completed	0

Domestic/Industrial, Navigation)*		
Thematic Sector National Consultants with Programme-Managed Funding Expired (Hydropower)	Contracts completed	0
<b>Total</b>		<b>New = 158,500 Obligated Spending = 51,020 Total = 209,520</b>

**Table 16. Budget required for meetings, travel, and operational activities during Phase 2 in 2017.**

<b>Activity</b>	<b>Unit</b>	<b>Budget</b>
2 RTWG Meetings (March and June 2017)	2 days @ 10K/day	40,000
4 1-day MRCS-Initiated National Consultations (two for each country)	4 x 1 day @5,000/day	20,000
MC-Initiated National Consultations/Meetings	Number as needed but up to an aggregate total of \$5000 per MC	20,000
4 1-day Small Regional Technical Work Group Meetings	4 x 1 day @5,000/day	20,000
2 Regional Stakeholder Meetings	February 2017 (50K) and September 2017 (100K)	150,000
Travel*	Detailed Estimate	46,928
Coastal Assessment	Contract	250,000
<b>Total</b>		<b>546,928</b>

**Table 17. Summary of budget required for Phase 2 in 2017**

<b>Item</b>	<b>Amount USD</b>
Phase 2 in 2017 – Central Team	182,580
Phase 2 in 2017 – Support Team	209,520
Phase 2 in 2017 – Process	546,928
<b>Sub-Total</b>	<b>939,028</b>
Operation (3.5 percent)	32,866
Contingency (5 percent)	46,951
<b>Total</b>	<b>1,018,845</b>



## 7. Overall Summary of Budget Available and Required

Table 18 shows the overall summary of budget available and required. It should be noted that based on this implementation plan, the revised total funding gap for Phase 2 is about USD 1.95M as opposed to the original estimate of USD 2.5M. With the USD 0.5M allocation from the MRC Basket Fund for 2016, the funding gap is reduced to about USD 1.45M. However, it should be noted that it is extremely important that of this funding gap, USD 379,307 should be made available in 2016 to cover the proposed activities that were described in this implementation plan.

**Table 18. Overall summary of budget available and required for Phase 2**

Item	Budget Available	Budget Spent or Budget Required
<b>Secured External Funding</b>	<b>3,731,569</b>	
Inception and Phase 1 Spending (2014 – 2015)		2,825,571
Phase 1 Spending (January – March 2016)		713,476
Phase 2 2016		1,063,182
Phase 2 2017 and Project Closeout		1,018,845
<b>Total</b>		<b>5,621,074</b>
<b>Funding Gap</b>	<b>1,889,505</b>	
<b>2016 Basket Funding Allocation</b>	<b>500,000</b>	
<b>Funding Gap After 2016 Basket Funding Allocation</b>	<b>1,389,505*</b>	
*Of this amount, USD 370,660 should be made available in 2016 to complete planned activities in 2016.		

## 8. Implementation Schedule

Figure 3 shows the proposed implementation schedule with the following phases:

- Phase 1 (completed in March 2016)
- Transition Phase (April – June 2016)
- Phase 1 in 2016 (July 2016 – December 2016)
- Phase 2 in 2017 (January 2017 – June 2017)
- Project Closeout (July 2017 – September 2017)

Num	Tasks	2016												2017								
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Phase 1	■	■	■																		
2	Transition Phase				■	■	■															
3	Phase 2 - 2016							■	■	■	■	■	■	■								
3.1	... Develop list of indicators for model comparison							■														
3.2	... Prepare input files for scen 2007, 2020, 2040							■	■													
3.3	... Run models for scen 2007, 2020, 2040							■	■	■												
3.4	... Prepare results report for scen 2007, 2020, 2040									■	■											
3.5	... Conduct feasibility of scen 1960							■														
3.6	... Collect data and formulate scen 1960 and 2000							■	■	■												
3.7	... Run models for scen 1960, 2000									■	■											
3.8	... Revise results report to include scen 1960, 2000										■	■										
3.9	... Develop BioRA DSS for FA3, FA6, and F8-Delta							■	■	■												
3.1	... Update Specialists Report							■	■	■												
3.11	... BioRa assess for scen 2007, 2020, 2040									■	■											
3.12	... Prepare results report for scen 2007, 2020, 2040										■	■										
4	Phase 2 - 2017													■	■	■	■	■	■			
4.1	Socio-Economic Assessment													■	■	■	■	■	■			
4.2	Preparation of Discipline Technical Reports													■	■	■	■	■	■			
4.3	Preparation of Thematic Reports													■	■	■	■	■	■			
4.4	Preparation of Cumulative/Main Report													■	■	■	■	■	■			
4.5	Preparation of Executive Summary													■	■	■	■	■	■			
4.6	Contract Procurement for Coastal Assessment									■	■	■	■	■	■	■	■	■	■			
4.7	Coastal Assessment													■	■	■	■	■	■	■	■	■
5	Close-out Activities																			■	■	■
6	RTWG Meetings			■					■				■			■			■			
7	Regional Stakeholder Meeting													■	■	■	■	■	■			■
8	National Consultations					■							■			■				■	■	■

Figure 3. Proposed implementation schedule

## 9. Options for Reduction in Cost and Scope of Work

The USD 500K allocated for the Council Study to fund proposed activities in Phase 2 in 2016 as per the AWP 2016 is significantly inadequate. This inadequate funding will require the Council Study team to suspend its activities in midstream when the budget runs out. The funding gap for 2016 is USD 370,660. If additional budget cannot be made available, then difficult decisions have to be made and they may involve the following considerations:

- Delay the start of Phase 2 to shorten the duration of implementation period in 2016 and therefore reduce the required budget in 2016. This will result to an equivalent extension of the implementation period in 2017 which translates to a corresponding increase in budget required.
- During the transition period, only perform what has been obligated when possible, and fund new activities (i.e., new contracts) at the minimum.
- During the transition period, review obligated contracts of current consultants and make the necessary adjustments when appropriate to free up obligated funds

Finally, another consideration is to reduce the scope of work of the Council Study including that of 2016. Based on the above-mentioned considerations, the following two options and associated costs are presented in the following sections:

- Delay the start of Phase 2 to 1 October 2016 and keep the transition activities at the minimum
- Reduce the scope of work in 2016

Other cost and scope reductions considerations in 2017 are also presented.

### 9.1 Delay the start of Phase 2 to 1 October 2016 and keep the transition activities at the minimum

This option involves the following:

- Riparian Council Study Coordinator and the full Council Study Team will not start until 1 October 2016
- Transition phase activities from April – September 2016 will be kept at the minimum and will be managed by an MRCS in-house staff on a part-time basis
- Continue important critical activities during the transition phase including completing the development of the BioRA DSS for the Delta using obligated contracts
- During the transition phase, review and adjust obligated contracts

This option basically defers a fraction of the original cost required in 2016 to 2017. The socio-economic assessment remains deferred to 2017

The budget required in 2016 under this option is shown in Table 19. It represents a USD 39,510 surplus.

**Table 19. Summary of 2016 budget required for Option: Delay Start of Phase 2 and Keep Transition Activities at the Minimum**

Item	Amount USD
------	------------

Transition Phase	44,111
Phase 2 in 2016 – Central Team	125,290*
Phase 2 in 2016 – Support Team	289,156*
Phase 2 in 2016 – Process	143,334
<b>Sub-Total</b>	<b>601,891</b>
Operation (3.5 percent)	21,066
Contingency (5 percent)	30,095
11 percent MAF for the Phase 1 Overflow Funding	21,177
<b>Total</b>	<b>674,229**</b>
*A fraction is allocated to complete the development of the BioRA DSS for the Delta with minimum support of the modelling team during the transition phase	
**Given the available budget of USD 692,522, this represents a surplus of USD 18,293.	

## 9.2 Reduce the scope of work in 2016

This option involves the following:

- Council Study Phase 2 starts in 1 July 2016 as planned after the April-June 2016 transition phase. However, the Riparian Council Study Coordinator will start on 1 July 2016
- Transition phase activities will be kept at the minimum and will be managed by an MRCS in-house staff on a part-time basis. The modelling Team will not be fully funded during the transition (April – June 2016) as originally planned.
- The development scenarios to assess will focus on the 2007, 2020, and 2040 main development scenarios. While it is difficult to assess the cost savings associated with reducing the number of scenarios to assess, the cost saving assumption used in this analysis is 50 percent of the level of effort of the assessment teams (i.e., modelling and bio-resource assessment).
- The thematic assessments will be deferred to 2017. This also means that all obligated contract amounts to the thematic teams will be deferred also to 2017.
- The socio-economic assessment remains deferred to 2017

The budget required in 2016 under this option is shown in Table 20. It represents a small funding gap of USD 1,459.

**Table 20. Summary of 2016 budget required for Option: Reduce Scope in 2016**

Item	Amount USD
Transition Phase	84,346
Phase 2 in 2016 – Central Team	149,330
Phase 2 in 2016 – Support Team	201,460
Phase 2 in 2016 – Process	184,960
<b>Sub-Total</b>	<b>620,096</b>
Operation (3.5 percent)	21,703
Contingency (5 percent)	31,005
11 percent MAF for the Phase 1 Overflow Funding	21,177
<b>Total</b>	<b>693,981*</b>

\*Given the available budget of USD 692,522, this represents a funding gap of USD 1,459

### 9.3 Cost and Scope Reduction Considerations in 2017

The scope of 2017 includes two major activities that can be potentially exclude or reduced in scope.

They are the following:

- Coastal Assessment (Budget = USD 250K)
- Two regional stakeholder meetings (Total Budget = USD 150K)

## 10. Risk Management

The Council Study Draft 2015 Annual Report lists the overall risks, specific issues, and measures to mitigate the risks. To supplement this, Table 21 below shows risks specific to this Phase 2 implementation plan and proposed measures. It should be noted that the risks and proposed measures are based on the experience of the Council Study Team in Phase 1 including lessons learned.

**Table 21. Risks and risk management associated with Phase 2 implementation**

<b>Risk</b>	<b>Specific Issues</b>	<b>Measures</b>
Administrative Capacity	New Riparian Council Study Coordinator not hired on schedule	Advertisement of the new riparian Council Study Coordinator has been posted (completed)  Assign an in-house staff to manage the Council Study until the Council Study Coordinator is on board
	Delay and loss of momentum due to required learning curve the new riparian Council Study Coordinator will have to overcome during transition	Get the riparian CS Coordinator on board as scheduled during the transition phase (April – June 2016 time frame)  Recruit the current CS Coordinator as an SSA consultant as per the plan to assist in the transfer of knowledge and other transition activities
Technical Expertise	International Technical Adviser (ITA)/Coordinator not hired on schedule	Expedite the recruitment of the ITA as planned  Assign an in-house staff to assist in the technical coordination until the ITA is on board
	Central Team not established on schedule causing delays and incomplete transition of day-to-day technical management of consultants; and the completion of technical activities as planned	Expedite the establishment of the Central Team by recruiting the following key positions: <ul style="list-style-type: none"> <li>• 2 MRCS staff to lead the combined thematic sectors</li> <li>• 1 MRCS staff to serve as the socio-economic lead</li> <li>• 2 riparian consultants (modelling, and climate change)</li> </ul>
Budget	Additional budget of 370,660 required in 2016 to cover all -2016 activities as per this implementation plan is not available	Strongly consider options to make the additional budget required available through the following:

		<ul style="list-style-type: none"> <li>• Revise the AWP budget allocation</li> <li>• Secure additional funding from DPs and other donors by presenting this implementation plan</li> </ul> <p>If the additional budget for 2016 cannot be secured, then implement either option 1 or 2 (see below for associated risks)</p>
	Budget required in 2017 to complete the study in 2017 is not available	<p>Initiate plan for 2017 as soon as possible to further evaluate this risk</p> <p>Revise CS implementation plan for 2007 accordingly</p> <p>Engage DPs in discussions early for the purposes of securing additional funding for the Council Study</p>
Scope	Review of scope of work of the Council Study for the purposes of reducing scope due to budget limitation will take enormous time and cause significant delays similar to delays in the preparation of the Inception Report	Member Countries to agree on a fixed limited time period to discuss reduction in scope. If consensus cannot be reached during that fixed time period, then Council Study will proceed in implementing the full scope of work as originally planned with schedule adjusted to be compatible with budget available
Implementation Option 1 (Delay in Start of Phase 2)	Loss of momentum and associated increase in the total budget required to complete the Study	Reflect impacts on schedule and budget for 2017 implementation
	Current consultants for example of the modelling team and the bio-resource teams not available anymore due to schedule causing more delays	Discuss early with consultants to know their availability and make necessary adjustments in the consultants roster if needed
	Development Partners losing interest in funding the Study and potentially causing current funding to be repurposed or cancelled (i.e., U.S.)	Discuss early with DPs to manage expectations
Implementation Option 2 (Reduce scope in 2016)	Loss of momentum and associated increase in the total budget required to complete the Study	Reflect impacts on schedule and budget for 2017 implementation
	Current consultants for example of the modelling team may not agree on part-	Discuss early with consultants to know their availability and make

	time consulting roles (on SSA instead of SC)	necessary adjustments in the consultants roster if needed
	Not enough meaningful results at the end of 2016 resulting to Development Partners losing interest in funding the Study	Discuss early with DPs to manage expectations
Others	Related to the proposed implementation plan, the completion of the analysis of impacts on flow, sediment, water quality, and bio-resources in 2016 may trigger premature dissemination of results to stakeholders without full knowledge of the socio-economic impacts	Discuss early with MCs to manage expectations and agree on what, when, how, and to whom to disseminate interim results  Aim for a much smaller regional stakeholder consultation in February 2017 and a much broader stakeholder consultation in September 2017 (as per the plan) when all assessments have been completed
	Setup and calibration of DSF and supplemental models are not completed on schedule.  Note that this activity is on the critical path (i.e., the rest of the assessments depend on completing the modelling). Its completion is delayed as per the original schedule. The modelling team has not been completely re-established for 2016 (i.e., new TORs and contracts have not been completed) due to a number of reasons and therefore, increases the risk that this task will not be completed by the end of Phase 1 (March 2016).	MRCS management to intervene and make the necessary corrective actions as soon as possible



## 11. Overall Assessment of the Council Study Implementation and Lessons Learned

The Council Study proposed implementation plan was prepared based on the experience, challenges and lessons learned from Phase 1.

In Phase 1, The Council Study was implemented under a significantly less ideal environment riddled by the following organizational challenges:

### 1. Leadership Vacuum

The Council Study was placed under the OCEO instead of under one of the MRC Programmes to take full advantage of the CEO's authority over the Programmes in order for the Programmes to fully participate in this cross-cutting Study. However, for most of 2015, the CEO has been vacant. During this period, the management of the Council Study has been to large extent never been fully defined and by default became a management by committee composed of the four Division Directors and the OIC-CEO. This resulted to lack of continuity, consistency, clarity, and a single strong management voice.

Lessons Learned: With the CEO in place, this challenge is potentially addressed. However, the new CEO has to be fully briefed about the Study including its progress to date and this proposed implementation plan.

### 2. Funding Gap

The huge funding gap has made the management of the Council Study more complex, time consuming, and unnecessarily cumbersome. Tasks have to be prioritized for funding. Recruitment of consultants has to be phased and TORs have to be crafted to account for funding constraints or when additional funding is expected to be available. Tasks that cannot be fully funded have led to management and coordination complications. The Council Study Coordinator instead of focusing on the implementation of the Council Study had to spend additional efforts on fund raising also.

Lessons Learned: The Council Study Team cannot be subjected under the same environment and be expected to be cost-effective. Either the additional budget required for 2016 should be provided or in the case of additional budget not available, one of the options should be implemented with clear recognition of the challenges, implications and limitations.

### 3. Cumbersome and Inherently Inefficient Implementation Arrangement

While the idea to involve all Programmes "equally" in the Council Study is laudable, it prove to be impractical and cumbersome and this led to inherent inefficiencies in the process. There are simply too many "managers" involved and coordination of Programme inputs become ineffective and costly. The Programmes for years have been accustomed to operating independently and therefore, making them manage their tasks following a different way and

collaboratively with the other Council Study Teams led by other Programmes has been very difficult.

Lessons Learned: With the MRC reorganization and the proposed implementation arrangement, this challenge is potentially addressed. The Council Study Team should be allowed to function as a seamless team without the new organizational challenges that may be imposed by the new Division structure.

4. Lack of Technical Support from OCEO/TCU

The inception report called for the recruitment of a Technical Coordinator to support the Council Study Coordinator but this was not implemented for a number of reasons. The Council Study Coordinator for Phase 1 ended up serving two separate roles: project management and the technical coordination. In addition, no core technical personnel were made available to assist in the technical coordination.

Lessons Learned: This challenge is addressed by recruiting a Council Study Coordinator, an ITA for technical coordination, and establishing the Central Team for Phase 2. The Central Team will primarily replace the CS Coordinating Group (composed of MRC Programme Coordinators and their designees) and will clearly provide the line of responsibility and hence, accountability that were lacking in Phase 1.

5. Programmes' Ineffective Input

Due to a variety of reasons including limited technical and management capacity, lack of time due to current Programme commitments, or perhaps simply lack of interest, the Programmes' input were in general lacking and ineffective. Programmes have complained in many occasions that Council Study was not in their Programme plans. Except for a few teams, in general, there was a lack of meaningful and quality technical input from in-house technical staff. There was heavy reliance on consultants to perform the technical work and the report preparation. Therefore, Programmes role (via the Programme Coordinators) was mostly relegated to managing the consultants, which to a varying degree had been less than satisfactory due to the abovementioned reasons.

Lessons Learned: With MRC reorganization and the proposed implementation arrangement, this challenge is potentially addressed. The Division Directors and former Programme Coordinators will form the advisory group for the Council Study Central Team to take advantage of their knowledge and experience with the Council Study. The Council Study Team should be allowed to function as a seamless team without the new organizational challenges that may be imposed by the new Division structure.

6. End of 5-Year Strategic Cycle and Transition to the New Organization Structure

In 2015, which was the final year of the 5-year 2011 - 2015 strategic cycle, the Secretariat was even less available for the Council Study primarily because of competing Programme commitments combined with transition activities to the new organizational structure. Staff turnover during this difficult period has also impacted the Council Study. With some Programmes in financial difficulties, the Council Study budget had been used to cover some Programme staff participation in Council Study activities including “related” activities. Programmed-managed funds that had been secured to cover Council Study activities may have been compromised as a result of these financial difficulties.

Lessons Learned: With the new strategic 5-year cycle combined with the proposed implementation arrangement, this challenge is potentially addressed. The new riparian Council Study Coordinator should continue to be vigilant in managing the finances of the Council Study, and the Secretariat should provide clarity on what “related” activities (including travel of MRCS staff) can be supported (with proper authorization) by the Council Study funding.

## Annex A. Estimated Budget for Phase 1 Remaining Activities

**Table A-1. Estimated budget for the remaining activities in Phase 1 (January – March 2016)**

Item	Unit	Estimated Budget	Obligated Contract's Budget Remaining from April 2016
<b>Consultants</b>			
Coordination and Management	Obligated	67,000	0
Modelling International Consultants	30 @700/day (New contract)	21,000	0
Modelling Riparian Consultants*	6 months (New contract)	0	40,100
Modelling National Consultants	6 months* (New contract)	30,000	30,000
BioRA Lead	Obligated	24,650	85,374
BioRA Consultants (International/Regional)	Obligated	20,875	100,651
BioRA Consultants (National)	Obligated	0	39,560
Socio-Economic Consultants (International)	5 days @ 750/day (New Contract)	3750	0
Macro-Economic Consultant (International)	Obligated	16320	0
Socio-Economic/Macro-Economic Consultants (National)	Obligated	4650	17670
Agriculture/Land Use Change (National Consultants)	Obligated	18,000	0
Irrigation Consultants (All)	Obligated	54,600	0
Navigation International Consultant	10 days @1000 (New contract)	10,000	0
Navigation National Consultant	Obligated	3,450	6,900
Flood Consultants (International)	Obligated	33,000	33,000
Hydropower Consultants** (International)	Obligated	31,746	31,746
Hydropower Consultants** (National)	Obligated	6,000	8,000
Domestic/Industrial Consultants (International)	Obligated	17,000	19,720
Domestic/Industrial Consultants (National)	Obligated	8,500	9,350
Climate Change Consultants	Not Needed***	0	0
<b>Meetings and Travel</b>			
Modelling Small TWG	2 days @5000/day	10,000	-
BioRA DSS-Workshop	Detailed Estimate	30,000	-
Socio-Economic TWG	2 days @5000/day	10,000	-
Agriculture/Irrigation Combined	2 days @5000/day	10,000	-

TWG (2-day)			
Domestic/Industrial (1-day)	1 day @5000/day	5,000	-
Hydropower (1-day)	1 day @5000/day	5,000	-
Navigation (1-day)	1 day @5000/day	5,000	-
Flood (1-day)	1 day @5000/day	5,000	-
7 <sup>th</sup> RTWG Meeting	2 days @10,000/day	20,000	-
Travel	Detailed Estimate	33,600	-
<b>Sub-Total</b>		<b>504,141</b>	
MAF (11 percent)		55,456	
<b>Total</b>		<b>559,597</b>	<b>422,071</b>
<p>*Riparian modelling consultants are 50-50 percent cost-shared with Climate Change study from Jan-Jun 2016  **Obligated contracts inherited from ISH after ISH funding expired in December 2015  ***Remaining Phase 1 work is completed by in-house MRCS staff</p>			

**Annex B. Council Study Draft 2015 Annual Report**