



**Mekong River Commission Secretariat**

**Concept Note**  
**on the**  
**Follow-Up of the MRC Council Meeting decision of 8 December**  
**2011 to Conduct a Study on Sustainable Management and**  
**Development of the Mekong River including Impacts by**  
**Mainstream Hydropower Projects**

15 January 2013

---

## 1. Introduction and Overview

---

### 1.1 General Context

The Mekong River Commission (MRC) aims for sustainable development of the Lower Mekong River Basin for the benefit of its people. The MRC's Strategic Plan 2011-2015 and the MRC Basin Development Strategy (approved in January 2011) states that basin development is to follow Integrated Water Resources Management (IWRM) principles. Moreover the need to improve the sustainability (in all its aspects) of the basin's overall development is a key priority in the MRC's Basin Development Strategy (BDS). This is therefore reflected in the MRC framework and its IWRM approaches, which steer the MRC countries and the Programmes towards this central objective.

On 8 December 2011 the MRC held its 18<sup>th</sup> Council Meeting and *'agreed in principle to implement the outcome of the verbal discussion by the Member Countries' Prime Ministers at the 3rd Mekong-Japan Summit in Bali, Indonesia, in November 2011, to approach the Government of Japan to support the conduct of a study on sustainable management and development of the Mekong river including impacts by mainstream hydropower projects. Some Member Countries require an additional national approval process and thus agreed to bring this matter back to their respective governments for their internal discussion and necessary actions'...and... 'Other development partners may consider providing support to MRC in this regard'* (paragraphs 21 and 22 in the minutes from the meeting of the Council).

This Concept Note responds to the Council decision above. During the last few years The MRC has been developing a comprehensive basis for such a Study with the aims of the Basin Development Strategy at its apex, supported by the different programmes of MRC. However, uncertainties still exist which need to be addressed. Furthermore, new phenomenon are emerging, especially related to climate extremes and unpredicted variables as well as the different water management and development options are in planning stage, further studies needs to be carried out for better informed decision making and basin development planning.

Therefore, the content of this Concept Note builds on existing MRC knowledge and structures as pillars for the requested Study. **The Concept Note is intended to establish the objectives and setting the scope of the Study and process for development of a more detailed Terms of Reference for the study before approaching the Government of Japan and other Development Partners for more focused discussion.**

### 1.2 Rational for the Study

The rapid development in the Mekong River region is increasingly putting pressure on the Mekong Basin's water and related resources. In line with the 1995 Mekong Agreement the Member Countries strive to cooperate in the sustainable development of the basin's resources in order to achieve the basin Vision of an economically prosperous, socially just and environmentally sound Mekong River Basin.

The current knowledge of how different water uses will impact the river basin still has many gaps and the predictions made using models and other tools does, in many subjects, still have a large uncertainty. This causes uncertainty in the planning framework and in the cooperation for sustainable development. In order to facilitate the cooperation within the MRC framework there is an urgent need to close the most important knowledge gaps and improve the certainty of predictions of impact from major developments in the Mekong River Basin.

Building on the substantial knowledge base of the MRC and other initiatives in the region addressing water and related resources use and its related issues, the MRC Secretariat will initiate and coordinate a broad

Study to fill the knowledge gaps and minimize the uncertainty in the predictions of impact caused by different major water and related resources uses in the Mekong River basin. The Study will include results and findings from other relevant initiatives and will build on the current work of the MRC Programmes. At the same time it will specifically focus on predicted impacts from development and management, and will aim to address the largest impacts in the near and medium term. It will also develop recommendations on how to address the impacts, both in terms of generating new opportunities as well as prevention, mitigation or compensation options.

In essence the Study will address the current uncertainties of the different development opportunities in the Mekong River basin.

### ***1.3 Preliminary data and information to be used as reference for the Study***

#### ***MRC Basin Development Planning process and Basin Development Strategy***

Basin Development Planning (BDP) is a key MRC responsibility and is one of the central elements of the 1995 Mekong Agreement. Under the IWRM-based Basin Development Strategy (BDS) and its scenario assessment a number of assessments and modelling of impacts under different development scenarios have been undertaken, the most recent one completed in early 2011.

The scope of the scenario assessment<sup>1</sup> embraces environmental, social and economic cumulative impacts ('triple bottom line') at a level that future directions for development can be determined jointly. Hydrological changes caused by each basin-wide scenario have been assessed with MRC's suite of simulation models, taking into account the developments and plans in the Upper Mekong Basin. Based on the hydrological changes and physical impacts caused by each scenario, a multi-disciplinary expert group had conducted an integrated assessment with the set of agreed criteria.

The scope of the proposed study, as outlined in this Concept Note is partly based on the important knowledge gaps, risks and uncertainties identified by MRC Programmes and prioritized in the BDS, which was adopted by the Council in January 2011. To facilitate the implementation of the BDS, the MRC Member Countries and MRC Programmes are currently preparing a Basin Action Plan. Set in the context of the wider development issues prioritized in the BDS, the study will fast track the minimization of the knowledge gaps and uncertainties related to development impacting the mainstream. The new generated information will support basin-wide dialogues and consensus building on such developments and help implement the BDS, leading to a structured and scientific evidence based framework for sustainable basin planning and management.

#### ***Procedure for Notification, Prior Consultation and Agreement (PNPCA)***

The Prior Consultation process under the PNPCA started by the notification of the Xayaburi hydropower project, the third in a potential cascade of six proposed mainstream dams upstream of Vientiane, provided an opportunity to assess the impacts of a specific development project in much greater detail than the BDP scenario analysis. A Working Group (WG) was established by the Joint Committee, supported by the MRC Secretariat (MRCS), and met three times between October 2010 and March 2011. The output was the *MRCS Prior Consultation Project Review Report* addressing relevant thematic topics of the project, highlighting areas of uncertainty and outlined further investigations needed to fill knowledge gaps. This report provides technical information relevant to the Study.

#### ***Other MRC resources***

---

<sup>1</sup> The assessment of Basin-wide Development Scenarios consists of a main report and 13 technical notes.

Other MRC assessments and studies that support the study include the technical findings of the State of the Basin Report, the Strategic Environmental Assessment of Mainstream Dams, the MRC Preliminary Design Guidance for Proposed Mainstream Dams, Annual Flood Reports, and several other studies and assessments (e.g. water quality, fisheries and fish migration, sediment transport, bio-monitoring, handling of dangerous goods, etc.).

The work plans of the MRC Programmes play an important role specifically in relation to thematic issues that are already planned to be undertaken towards basin-wide sustainability assessments as well as development. Once the scope and direction of the study has been agreed the plans of the programmes can be revisited to see what aspects are already planned and which will need additional support.

In addition, the Viet Nam National Mekong Committee has prepared a set of terms of reference for a 'Delta Study on the impacts of Mekong mainstream hydropower' which addresses many aspects of development on the Mekong mainstream which will be closely linked to the Study.

### ***Other relevant resources from International Organisations***

Finally, other organisations are undertaking investigations and studies which will be useful to the study. Work undertaken by agencies such as Food and Agriculture Organisation (FAO), International Water Management Institute (IWMI), International Union for the Conservation of Nature (IUCN), International Rice Research Institute (IRRI), United Nation Environment Programme (UNEP), World Fish Centre (WorldFish), World Wide Fund for Nature (WWF) to mention a few, are undertaking investigations and studies which will be useful to the study. Work undertaken by relevant agencies should be investigated for its relevance to the study. The MRC Development Partners have provided information on many useful resources which will be considered for use in the Study.

It is expected that other sources will be identified during the course of the planning of the study and information from these will be vetted and included as appropriate in the MRC knowledge base.

---

## 2. Objectives, thematic and geographic scope of the study

---

### 2.1 Objectives of the Study

The objectives of the study are threefold; firstly it aims to close knowledge gaps in the context of the impact of major water use sectors on key areas of the basin's social, environmental and economic systems. Secondly, the study should feed directly into the knowledgebase used for updates and developments of the MRC Basin Development Strategy. Thirdly, it should address the need for capacity development in the Member Countries with respect to scientific studies.

**Objective 1:** Further develop/establish a reliable scientific evidence base on the environment, social and economic consequences (positive and negative) of development in the Mekong Basin.

**Output 1.** Review the past scientific knowledge base and databases in terms of use as a basis and baseline for the study.

**Output 2.** Critical knowledge gaps in understanding of the Mekong River system and the impact of development of the main thematic topics of infrastructure and water use are closed.

**Output 3.** Climate change impacts are analysed in the context of the sector development impacts to assess opportunities and risks.

**Objective 2:** Results of the study are integrated into the MRC knowledge base and enhance the BDP process providing support to the Member Countries in the sustainable development of the Mekong River Basin.

**Output 4.** Inclusion of information from the Study and other parallel initiatives into the MRC knowledge base.

**Output 5.** The Basin development scenario assessment for the Basin Development Strategy 2015-2020 uses the information and knowledge generated from the Study.

**Objective 3:** Promote capacity building and ensure technology transfer<sup>2</sup> to Member Countries in the conduct of the study.

**Output 6.** Comprehensive capacity on scientific assessment, survey and analysis are strengthened among Member Country study team members

**Output 7.** Member Countries' staff participating in the study are able to undertake major thematic studies and possible tools and guidelines are documented for future use of similar Studies.

The outcomes of the study would be a number of subject specific studies and assessments which would be integrated into a technical series with 6 thematic papers and one main synthesis report summarising the main conclusions and elaborates on a set of recommendations. In addition, much of the study's data and information will be integrated into the MRC's knowledgebase and provide a basis for future scenario analysis and other tools for the Basin Development Strategy 2016-2020.

---

<sup>2</sup> This could be closely linked to and distilled from the MRC Transboundary IWRM competency framework. Thus, the outputs could vary for each of the distinct studies undertaken depending on its design.

## **2.2 Thematic scope**

Taking into account the basin-wide MRC context as well as the needs for a comprehensive and holistic sustainability study for the Mekong River, the Study should cover the important thematic IWRM sectors that contribute to development in the basin. The main thematic sectors of infrastructure and water use identified for this study are; (1) Irrigation, (2) Agriculture and Land use, (3) Domestic and Industrial use, (4) Flood protection structures and flood plain infrastructure, (5) Hydropower and (6) Transportation.

These themes needs to be assessed in terms of positive and negative impact on (A) Fisheries production, (B) Environmental condition/health, (C) Biodiversity, (D) Hydrology/water quantity, (E) Water availability (drought), (F) Floods, (G) Food Production, (H) Sediment Transport, (I) Water Quality and possibly other aspects.

This then needs to be linked to the resultant positive and negative impacts on more complex social, economic and environmental aspects such as; (i) Food Security, (ii) Quality of Life, (iii) Flood Risk, (iv) Drought Risk, (v) Human Health, (vi) Social and Economic Development, etc. Finally, in order to focus the study the impacts are assessed in detail in prioritised geographic areas, e.g. the Mekong delta, Tonle Sap and surrounding areas, etc.

More specifically the thematic sectors include:

- 1) Irrigation<sup>3</sup>; which should cover use, return flows, water quality, proposed diversions, etc.
- 2) Agriculture and Land use; which should include watershed management, deforestation, livestock and aquaculture, fisheries etc.
- 3) Domestic and Industrial use; which should include mining, sediment extraction, waste water disposal, urban development, water quality etc.
- 4) Flood protection structures and flood plain infrastructure,
- 5) Hydropower, which should include potential of alternative energy options.
- 6) Transportation; which includes navigation (including use of infrastructure to promote navigation) and roads on major floodplains.

The specific areas of interest with respect to impact caused by these thematic sectors the focus is on three areas; environmental, social and economic. The transboundary nexus between the various water related sectors will also be assessed.

### **Environmental**

- (A) Fisheries and fish production; also addressing impacts of over-fishing and illegal fishing,
- (B) Environmental condition/health; the definition to be agreed upon for the study.
- (C) Biodiversity; using internationally established indices.
- (D) Hydrology/water quantity; which should also include ground water
- (E) Water availability (drought),
- (F) Floods,
- (G) Food Production,

---

<sup>3</sup> Including any proposed water diversion.

(H) Sediment Transport; including river bank stability, sand mining, delta sediment plume

(I) Water Quality; this includes salinity intrusion.

### **Social**

(i) Food Security; including addressing aspects of impact on food safety as far as practicable.

(ii) Quality of Life; based on existing indices of UN organisations or new ones developed for the Mekong region.

(iii) Flood Risk,

(iv) Drought Risk,

(v) Human Health, focussing on standard parameters used to assess health and MDG goals such as water borne disease.

(vi) Social Development, including changes in cultural and traditional aspects of life. In this context impact of demographic change will also be considered.<sup>4</sup>

### **Economic**

(vii) Economic development,

(viii) Employment; with a focus on income generation

(ix) Distribution of economic benefits

Throughout the Study the interconnectivity of these systems and their broader connectivity with the hydro-ecological regime of the Mekong River will be emphasised. Modelling, trend analysis, impact assessment techniques, vulnerability assessment and field surveys/monitoring of recognised international standards will be employed to fill the knowledge.

Gender aspect needs to be addressed within the development context, for example with regards to the level of access to water resources before, during and after different development plans are implemented and the access to the benefit brought by the development project between women and men. Women's participation in decision making in the different processes of the development projects is also of interest.

It will be important to identify the key areas for which more field studies and research are needed in order to minimize the uncertainty in predicting the impact, both positive and negative, on the Mekong River from development. In order to facilitate this process a causal chain of impact (or a simple causal chain analysis) is used, which in the context of this study means that one identifies the impact caused by a particular water use or related action on a set of identified parameters, see Table 1 below. This approach is in line with the UNEP's Global International Waters Assessment (GIWA) and has also been adopted by ADB-GMS in addressing impacts.

It should be noted that the linkages in Table 1 are not one-to-one and are only listing the possible relationships and more details will have to be developed for each thematic topic. It does provide a structure for how the impacts of the Infrastructure/water use developments are affecting a number of parameters which we need to understand in order to assess the impact.

---

<sup>4</sup> Demographic change is directly affecting important parameters (e.g. employment, food security, resource use intensity, etc.) In a "business as usual," it would affect issues such as "traditional lifestyle of farmer and fishers along the Mekong" etc, which may not be possible to sustain and it is therefore an important parameter to consider.

In many cases the relationships are well understood and can be modelled or predicted with greater accuracy and certainty if more primary information is available (e.g. hydrology, floods, etc.), whereas for others there is a need to improve the understanding of the processes involved (e.g. sediment transport, biodiversity, etc.). In order to cover the impacts on the issues in the last column it will be necessary to add information from other areas, such as waterborne disease (health), employment (social and economic development), etc.

Table 1: Relationships of impact

Infrastructure/Water Use	Impacts on	Results in impacts on
1. Irrigation 2. Agriculture and Land Use 3. Domestic and Industrial Use 4. Flood protection structures 5. Hydropower 6. Transport	A) Fisheries production B) Environmental condition/ health C) Biodiversity D) Hydrology/water quantity E) Water availability F) Floods G) Food Production H) Sediment Transport I) Water Quality J) Bank erosion	(i) Food Security and Fisheries Production (ii) Quality of Life (iii) Flood Risk (iv) Drought Risk (v) Human health (vi) Social development (vii) Economic development (viii) Employment (ix) Distribution of economic benefits

Table 2 below is an example of how the analysis could look like for one thematic topic (the issues listed may not be relevant in the Mekong context).

Table 2: Examples of potential linkages

Infrastructure/Water Use	Impacts on	Results in impacts on
Agriculture and Land Use	A) Fisheries production – e.g. agro-chemicals runoff on toxicity to fish  B) Environmental condition/ health – e.g. agro-chemicals leakage impact on adjacent water bodies causes algal blooms  C) Biodiversity – e.g. loss of species due to agricultural expansion or agro-forestry  D) Hydrology/water quantity – e.g. polluting effects of fertiliser run-off and seepage in to aquifers  E) Water availability – e.g. changes in forest cover reduce	(i) Food Security – e.g. more resilient crops increase food security (ii) Quality of Life – e.g. broadened livelihoods reduce need for labour migration and stabilise household incomes (iii) Flood Risk – e.g. risk is increased due to agricultural land use practices (iv) Drought Risk – e.g. impact of droughts are reduced by more resilient crops (v) Human health – e.g. health risks are increased due to unsafe agro-chemicals handling (vi) Social development – e.g. migration to urban areas are reduced due to increased viability



	<p>water availability in dry season</p> <p>F) Floods – e.g. loss of forest cover increase the risk of flash floods</p> <p>G) Food Production – e.g. improved practices increase water efficiency and food production</p> <p>H) Sediment Transport – e.g. increased sedimentation from run-off</p> <p>I) Water Quality – e.g. changes due to agro-chemicals use.</p>	<p>in small rural communities</p> <p>(vii) Economic development – e.g. contribution of agriculture production is enhanced by a supportive post harvest processing industry ensuring good prices</p> <p>(viii) Employment – e.g. sustainable agriculture provide year round employment for agricultural labourers</p> <p>(ix) Distribution of economic benefits – e.g. differences between urban and rural households are reduced</p>
--	---	--

Note that the listed items above are intended as initial suggestions which can be elaborated on in terms of relevance and importance.

Based on the identified linkages a number of specific studies need to be devised. For example, in order to address the sediment transport issue, work on the sediment content of run-off for different agricultural practices and land cover needs to be quantified and modelled to quantify changes in response to changes in agricultural practices or land cover changes. The whole range of such specific studies will be determined within each thematic topic and coordinated across the topics to draw on synergies and minimise duplication of effort.

### **2.3 Geographic focus**

In order to focus the study and allow for more detailed and differentiated assessment of both positive and negative impacts a set of geographic focal areas are selected.

The proposed geographic focus is on the positive and negative impacts on the mainstream. The main rationale for this is that direct causal impact of major development on the main stream as well as the aggregate of many developments on the tributaries are of importance in a transboundary context. In addition the MRC Basin Development Planning through its various initiatives is addressing the basin-wide context of impacts through its support to the implementation of the BDS by the MRC Member Countries together with MRC Programmes. As a second objective this study could add a significant body of knowledge and understanding to this work.

For the thematic topics identified as causing impact, listed in the previous section, the whole Mekong River basin would be considered. A special focal area would be addressing the development on the Upper Mekong (Lancang) with respect to infrastructure and water use.

However, with respect to impact (positive and negative) of a physical nature the focus would be on the following four areas.

1. A corridor on both side of the mainstream from Chinese border to Kratie (Cambodia)
2. The Cambodia Flood plains including the Tonle Sap River and Great Lake
3. The Cambodian and Vietnamese delta

#### 4. The coastal areas directly influenced by the Mekong estuary

The Mekong main stream corridor is chosen based on the fact that along the mainstream the cumulative impact of development and management in the basin is being directly felt, whereas in the tributaries the impact is mainly due to the activities in the specific tributary. An initial proposal of a 15 km corridor on both sides of the mainstream is based on the extent of direct impact on livelihoods dependent on the main stream (as defined by the MRC Social Impact Monitoring and Vulnerability Assessment, or SIM/VA, of the Environment Programme), however, this may need to be adjusted (wider or narrower) depending on different circumstances, such as confluences of tributaries and areas of steep and narrow geography.

Tonle Sap River and Great Lake and other flood plains in Cambodia is an important area as it forms a unique hydro-ecological system within the Mekong River basin which is potentially directly impacted by changes in the flow of the Mekong mainstream with respect to the flood pulse, sediment replenishment, flood extent, etc.

The Mekong Delta in Cambodia and Viet Nam are proposed because being at the end of the river's course it will be affected by the cumulative impact of infrastructure and water use. The central importance of the delta in agriculture and fisheries/aquaculture productivity makes it important to assess potential impact, but also competing uses of water from high population and many urban centres needs to be considered.

The coastal areas in this context are to be delimited to the areas directly affected by changes in the Mekong River's discharge into the sea together with the significance of coastal fisheries and coastal processes (affecting issues such as coastal erosion and impacts of sea-level rise) makes this an important area to study.

### ***2.4 Impact of climate change***

Climate change is an important factor in the Study and will be assessed in terms of how it may exacerbate (increase) or mitigate (reduce) some of the impacts caused by changes in water use, in essence identify the risks and opportunities that climate change is providing in the context of basin development.

The impact of climate change can be assessed in the context of the above identified study areas, which will allow Member Countries to differentiate between the impacts of the infrastructure/water use and climate change impacts caused by change in rainfall, temperature and extreme meteorological events. In addition it would also be possible to identify under which circumstances climate change may exacerbate impacts and where opportunities are created. Of importance here is to ensure that the interaction between possible climatic changes are assessed in the context of the different development initiatives, e.g. does the impoundment from hydropower development allow for better mitigation of flood events?

There are already a number of climate change initiatives in the region, including the Climate Change and Adaptation Initiative (CCAI) of MRC. The study would be able to draw from the information of these initiatives and use the modelling outputs to provide insights into the impacts relevant to the study. If deemed necessary a new set of modelling results may be used to assess the changes resulting from climate change in the basin.

---

### 3. Conducting the Study

---

#### 3.1 Principles of the study

In order to be coherent across the whole study and ensure that the different components or parts of the study all contribute to the whole the approach taken will be characterised by the following working principles:

- 1) Build on experience and understanding gained in the past decade especially since the re-emergence of LMB mainstream dams as a development option, but also overlaying the emerging knowledge of climate change impacts (especially related to droughts and floods).
- 2) Differentiate between the impacts of the major development trends/categories/sectors/themes (as identified in BDP) e.g. the hydropower in the Upper Mekong Basin, large irrigation development, LMB mainstream dams, infrastructure on the flood plains, etc. This is to complement the understanding gained from the BDP Scenario studies which grouped likely development paths for certain time lines to assess “possible futures”. As indicated in Objective 2 the results of the sectoral/thematic scenario assessments will be used to update the BDP scenario assessment, which will provide a basin-wide cumulative assessment of the considered levels of sectoral and area development.
- 3) A thorough “triple bottom line” approach to account for social and environmental impacts into the study’s economic assessment, but not convert all non-monetary aspects to financial proxy values. A triple bottom line requires that social, environmental and economic aspects are considered and compared, but not only in terms of economic value. There is a clear need to look at the social gains, environmental costs and the distribution of economic gains in a holistic perspective in order to provide advice to policy development. It is also noted that the overall policy development in the region (such as the ASEAN Economic Community) and national interests needs to be considered in this context as well.
- 4) Ensure contribution of natural resources, including flow contributions, and the distribution of benefits and costs are identified in detail as to provide a better understanding of the true nature of the investments impact on the people in the basin.
- 5) The level of detail provided in the study results should be high to provide the Member Countries with a knowledge base/information of the benefits and costs of particular development initiatives as to be able to assess the anticipated impact in the selected parameters for the selected geographic area.
- 6) Ensure highest level of Member Country engagement and participation in all aspects of the study and accountability of MRC Secretariat to the Member Countries in the discussion and review of study findings with a view to establish credibility. Promote actions to achieve ownership of the process by the Member Countries.
- 7) Engage external expertise where necessary.

As the study is intended to provide support for the achievement of the Mekong Vision the level of detail of the study needs to be sufficient to provide insight into how benefits and costs are distributed not only between the countries but also among the impacted groups. An improved understanding of this aspect of equity in development will aid the Member Countries in develop policies and strategies for development

initiatives which will directly contribute to the achievement of the Mekong Vision – An economically prosperous, socially just and environmentally sound Mekong River Basin.

It will also be crucial to apply an integrated planning approach for the development of a study on the sustainability of the Mekong mainstream in order to provide a basis for continuous exchange between all involved parties to ensure adequate integration of outcomes especially related to the additional studies and mitigations measures. In order to achieve the best possible results and highest effectiveness on activity completion, information sharing between the MRC countries, the MRCS and all relevant stakeholders throughout the entire follow-up process will be important.

In summary the Study aims to minimise uncertainties of impact of sustainable development on the Mekong River. The resolution of the study needs to have a level of detail than can clearly differentiate between the impact on different beneficiaries (in both positive and negative terms) to be able to support policy and decision making by the Member Countries in a achieving the economic, social and environmental goals of the Vision of the Mekong River Basin. All of these aspects are predicated on the cooperation among all the Member Countries to achieve a common view of the preferred development pathway in the Mekong River Basin.

#### Constraints

Although it will be able to reduce uncertainties in many areas it may not be able to address, in a comprehensive manner, all different linkages, especially where the impacts are confounded with other social or economic changes not directly attributable to changes in parameters part of the Study.

In order to address this issue it will be very important for the expert working groups to ensure that the ToR for the different Study components clearly state what is expected in terms of technical outputs as well as information about what may not be fully addressed in due to time, financial or technical constraints.

## ***3.2 Approach, Methodology and Roadmap***

### **3.2.1. Approach**

A substantive body of scientific knowledge related to the focal areas of the study exists and the intention is to build on and add to that knowledge base, specifically through the work of the BDP but also other past and ongoing initiatives. One of the main purposes of the Study is to fill critical knowledge gaps and to reduce uncertainty in predictions of impacts (positive and negative) from development of different water related infrastructure and changes in water use. To do so a review of existing knowledge is needed. However, through the BDP process, the different programmes of MRC and parallel initiatives by partners (e.g. WWF, ADB, IWMI, etc.) a number of knowledge gaps have already been identified which will be used as a starting point.

Prior to designing primary data collection schedules, a rapid review of the knowledge gaps is needed (desk study).

The knowledge gaps fall into two major categories. Firstly where the understanding of the processes is incomplete which makes any predictions or modelling of impacts uncertain. Secondly, where the processes are understood, but the primary data needed to make predictions or modelling outputs is lacking resulting in gross assumptions and unverified input matrices which in turn results in uncertain and/or unreliable impact assessments.

### **3.2.2. Methodology**

For each thematic topic and impact category the knowledge gap needs to be defined and a plan developed to address both uncertainties in the processes (if there are such) and the lack of primary data for developing predictions and modelling. This is best done through workshops with expert working groups for each thematic topic and impact category (this can draw on the approaches used by the cross sector studies under IBFM and BDP) who can identify the type of data and information needed.

### Expert Working Groups

The six different thematic topics should be guided by working groups of experts and cover all the relevant impact categories (it is proposed that four working groups are formed where two of them would cover two thematic topics). The different working groups would address the specific issues related to knowledge and data gaps specific for the topic and outline a study plan to close these gaps. Depending on the current ongoing work by MRC and other organisations the working group will decide on the best way of implementation; e.g. through MRCS programme, consultant work packages, joint investigation with other agencies, or a mix of approaches.

The criteria for selection of experts to participate and the Job Descriptions of the working groups will be developed in consultation with the Member Countries.

A coordinating group, supported by the Secretariat, would integrate and share relevant issues across the working groups through joint meeting with representatives of the working groups (similar to the IBFM process). A draft outline of the coordination of the study is presented in Annex 1.

### Study Phases

The study would have 5 major phases; inception, field studies, analysis, consultation and recommendations.

Interim results and findings would be reported on at three stages; after field studies, after analysis and at recommendations.

Phase 1: Inception will develop the details of the different components of the study, engage with different stakeholders to get inputs into the priorities and issues to address, identify coordination needs and cooperation opportunities with other studies/investigations. This phase will also secure funding for the study as well as undertake a review of existing information for the different components of the study and identify the major data/information gaps to be addressed/filled. The methodologies for the field studies will also be identified or developed during this phase.

Phase 2: Field studies will focus on data gathering/generation to be able to fill the data and information gaps.

Phase 3: The analysis will take the field study results further in a concrete way focusing on impact analysis, using models, trend analysis or other impact assessment techniques. It is important here that the impact analysis identifies not only the types of impacts but in the sphere of social and economic impact also identifies the affected groups (for both positive and negative impacts).

Phase 4: Following the main analysis the results are to be reviewed and discussed in terms of reliability, significance, relevance and how it may be improved, if deemed necessary. This is to be undertaken in a consultation process driven by the Member Countries (through the expert working groups and other representatives) and engage a larger group of stakeholders. This also provides an opportunity for peer review of the results by interested organisations working on topics being addressed by the study.

Phase 5: A combination of the scientific findings of the results and the stakeholder feedback forms the basis for the development of recommendations from the study. These recommendations would aim to be practical and of direct relevance to the study's main objective.

## Stakeholder engagement

There is a need to have a broad stakeholder engagement in the design of the study and throughout the conduct of the study to ensure transparency and ownership of major groups interested in the results and conclusions. To this end a number of events are planned where a broader group of stakeholders are invited to participate; firstly during the design of the Study which will include a scoping meeting to get feedback from concerned parties including NGOs, CBOs, Development Partners, IOs, private sector and other interested individuals. There is also an intention to hold regular briefings and results presentations throughout the study period.

Engagement with stakeholders also has a purpose in managing the expectations from different groups. Although the study aims to be broad and encompassing, it is not possible to be comprehensive from all perspectives and there is a need to communicate clearly what the Study intends to address and what it may not be able to address. The different fora planned to engage with stakeholders will provide opportunities to do this.

Initially a stakeholder engagement plan consists of a scoping forum during the formulation of the study as to get inputs into the key elements of the study (this may in fact result in several fora since national consultation fora may be needed in advance of a regional one). The expert working groups are also expected to hold more targeted workshops with stakeholders focussing more on approaches and methodologies as to ensure credibility and sound technical approaches. It is also planned to hold two “results workshops” which would present results after the first year of work, and after the second year, for discussion and comment by a wider group of interested parties.

### **3.2.3. Road map**

A draft road map for the development and implementation of the Study has been prepared. However, it should be recognised here that this road map is focussing on the development of the Study and recognises that a number of details related to the timing of the implementation of the Study will not be evident until the different parts of the Study has been developed.

#### **Indicative Road Map**

Time	Action	Principal agent	Notes
Preparatory	Regional meeting on concept note	MRCS and NMCS	Aim to come to agreement on objectives, scope and road map
Start	Finalisation of concept note	MRCS with NMCS	The concept note would then be shared with Development Partners and other stakeholders
Month 1	Establishment of working groups <sup>5</sup> of experts	MRCS with NMCS	JD and selection criteria to be developed in advance
Month 1-2	First meeting of working groups of experts	MRCS as organizer and facilitator	Identifying specific data gaps and ways to close the gaps. Expected output is a draft study plan for each working group

---

<sup>5</sup> It is proposed to initiate this with the Regional Technical Working Group of the Basin Development Plan and additional groups may be formed as needed to cover technical and coordination needs.

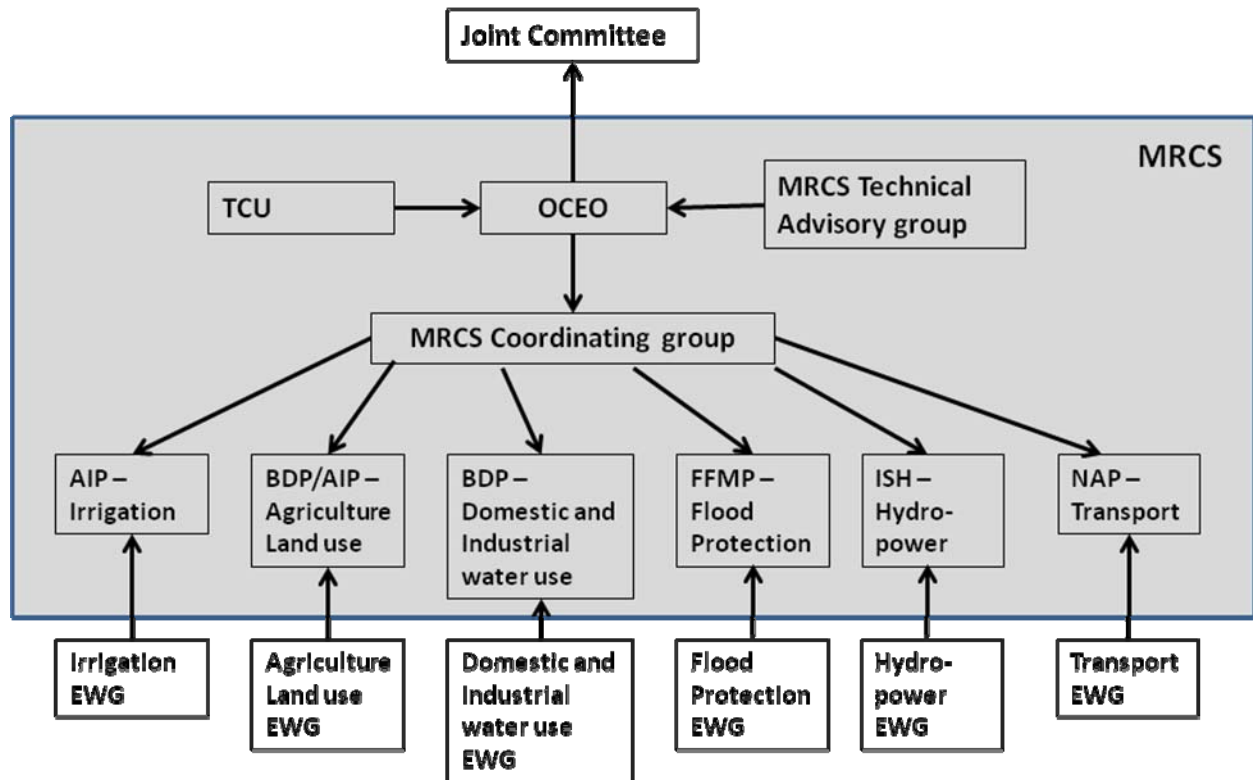
Month 2	Scoping workshop (there may be a need for national workshops in advance of a regional workshop)	MRCS, NMCS, expert groups and other stakeholders	The study is presented and inputs sought from different stakeholder groups
Month 2-3	Development of specific TOR for the different component studied identified by the working groups	Expert groups with support from MRCS	This would be done in cooperation with development partners to ensure funding support as needed
Month 1-2	Prepare contract and coordination for desk study to review existing knowledge	MRCS with consultant support	This would focus on the documented information in MRC and as made available by partners
Month 2-3	Regional meeting on ToRs and additional funding	MRCS, NMCS and development partners	Seek to get agreement on the ToR and identify and secure funding required.
Month 3-4	Finalising work packages for components	MRCS and NMCS	Bidding for certain components may start here
Month 4	Begin study (reorient on-going work and tender consultancies)	MRCS and working groups	
Month 4-16	Regular meetings of working and coordination groups	Working groups and coordination group supported by MRCS	
Before Month 18	First "Results workshop"	Facilitated by MRCS	
Before Month 24	Integration of results – first report	MRCS and working groups	
Month 12-24	Continued field studies	Working groups and coordination group supported by MRCS	
Before Month 30	Second "Results workshop"	Facilitated by MRCS	
Before Month 36	Integration of results and development of recommendations	MRCS and working groups	

---

## Annex 1

---

Schematic overview of the coordination, management and oversight structure for the Council Study. This structure may be modified during the design phase. Note that the number of Expert Working Groups may not be as many as indicated in the diagram as more than one theme may be covered by the same Expert Working Group.



In short the diagram illustrates how the OCEO oversees the MRCS Coordination group, which in turn coordinates the different programmes in charge of the six themes. The Expert Working Groups (EWG) oversees the programmes work in relation to the Council Study. The OCEO is supported by TCU for management issues and by a MRCS Technical Advisory group. The CEO reports to the Joint Committee on progress or issues to be resolved/decided.