

Programme Document 2013-2015



Mekong River Commission

Navigation Programme

Cambodia • Lao PDR • Thailand • Viet Nam
For sustainable development





Mekong River Commission

NAVIGATION PROGRAMME

2013-2015

PROGRAMME DOCUMENT

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EXECUTIVE SUMMARY

The Mekong River is a source of valuable natural resources and has extensive natural navigation potential. Waterborne transport along the Mekong has served as one of the main modes of transportation between communities in the riparian countries since they first settled along its embankments many centuries ago.

While the riparian governments and development banks are directing their investment in regional infrastructure towards road and rail transport, the Mekong River Commission continues to stress the importance of investing in the waterborne transport sector. The underlying reason is to attract investment and realise regional trade potential, thereby creating better livelihoods for future generations living in some of the poorest countries in the world.

Since the first agreement on Mekong cooperation was signed, the riparian countries have entered into various forms of agreements addressing regional navigation. In the Mekong Agreement of 1995, the overall role of the MRC is defined as assistance in regional coordination and policy development. Article 9 gives MRC a specific mandate to promote and coordinate water transportation and to encourage freedom of navigation in the Lower Mekong region.

The MRC Navigation Strategy and Navigation Programme (NAP) were formulated and approved in 2002 and 2003. The Navigation Strategy identified significant opportunities as well as barriers to regional navigation development in the Lower Mekong Basin. It also identified institutional issues as the biggest barriers to overcome, providing preliminary suggestions in how they could be addressed. The first Navigation Programme was prepared in close cooperation with MRC Member Countries and other regional stakeholders to ensure national and regional ownership of the suggested activities. Dialogues ensured that the five components of the programme were in line with other regional integration and development initiatives. It took some time before financing was found for the implementation of the programme but in 2005 the Government of Belgium stepped in, followed by the Government of Australia. The first phase of NAP covered the period 2006-2012.

The NAP 2006-2012 is being implemented until the end of December 2012 and consists of five components: (1) *Socioeconomic Analysis and Regional Transport Planning* (2) *Legal Framework for Cross-border Navigation* (3) *Traffic Safety and Environmental Sustainability* (4) *Information, Promotion and Coordination* and (5) *Institutional Development*. Total funds required for implementing all activities under the five components were US\$ 22.6 million of which about US\$ 1 million was national in-kind contributions from MRC Member Countries. Total funds secured amounted to EUR 9.8 million (approximately US\$ 13.5 million) from the Government of Belgium and US\$ 1 million from the Government of Australia. Until now, the programme lacks about US\$ 7.1 million in external funds to be fully financed.

From 2006 until now, many of the projected outputs of the original programme have been achieved, including initiating NAP implementation structures, formulating and signing the Agreement on Waterway Transport between Cambodia and Viet Nam, preparing the legal navigation framework between Lao PDR and Thailand, conducting a risk assessment and preparing a risk management strategy for the transport of hazardous cargoes, procuring and installing buoys and beacons, installing two tidal monitoring stations at the Mekong and Bassac estuaries, developing a Master Plan for Mekong Navigation in Cambodia, holding navigation forums, conducting condition surveys for navigation improvement, cooperating with the People's Republic of China and Myanmar, and strengthening the capacity of relevant officials and staff of line agencies in Member Countries.

In addition, with a view to addressing newly-emerging issues in the region and as requested by the high profile Navigation Advisory Body, NAP also implemented several activities that were not included in original NAP document such as providing inputs to the PNP/PCA process for proposed hydropower dams, making manuals and operational systems for the sustainable management of dangerous goods at the

Chiang Saen Commercial Port, conducting a feasibility study for dredging the Tonle Sap Lake for navigation, developing electronic navigation charts in Viet Nam, developing the Phnom Penh Management Information System, and providing passenger landing facilities in the Lao PDR.

In January 2011, the MRC Council approved the Strategic Plan 2011-2015 with the goal of supporting Member Countries to implement fully Integrated Water Resources Management (IWRM) and MRC core functions, especially seven river basin management functions and related capacity building. MRC programme planning is now aligned with the five-year planning cycle for 2011-2015. As the current six-year NAP will be completed at the end of 2012 a new NAP document is being formulated for 2013-2015 (NAP 2013-15) in line with the planning cycle.

NAP 2013-15 is based on the Development Objective of the NAP Strategy, i.e. *“To promote freedom of navigation and increase the international trade opportunities for the MRC Member Countries’ mutual benefit, and to assist in coordination and cooperation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment”*. To be in line with the format of the MRC Strategic Plan, NAP 2013-15 changed from components to outcomes. The five outcomes of NAP 2013-2015 are very much in line with the contents of the five components used in NAP 2006-2012:

1. *Cross-border and international trade opportunities for navigation in the Mekong basin are increased through the development and promotion of regional transport plans;*
2. *Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the on-going development and implementation of an appropriate legal framework;*
3. *Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety and environmental management measures;*
4. *Active participation of stakeholders, including relevant agencies in Member Countries, development and Dialogue Partners, MRC programmes, regional entities in the navigation sector, is enhanced through improved coordination and information exchange and sharing;*
and
5. *Institutional arrangement and capacity building are strengthened for the effective implementation of the programme in line with the MRC decentralisation process.*

The formulation of NAP 2013-2015 is guided by a number of external and internal drivers including, compliance with the MRC Navigation Strategy, alignment with the MRC SP 2011-2015 and Integrated Water Resources Management (IWRM)-based principles, new regional trends in the navigation sector, the move towards core functions and decentralisation, cooperation with the other MRC programmes, and most importantly, the inputs by the Member Countries. Some planned outputs from NAP 2006-2012 were not completed or only partly implemented. These outputs were evaluated considering the priorities of the Member Countries and the MRC core river-basin management functions. The outstanding outputs and activities from NAP 2006-2012 were condensed to align with the MRC Strategic Plan of 2011-2015 which moves away from a component-based to a results-based programme which focuses on outcomes, outputs and activities.

This Programme Document is based on comments and suggestions derived from a round of national consultations held in Bangkok, Vientiane, Hanoi and Phnom Penh in late May and early June 2012 and further feedback from the four Member Countries and relevant MRC Programmes at a regional consultation workshop held in Vientiane on 21 June. As finance is a critical issue relating to NAP continuity and sustainability, participants at the workshop reached a consensus on priority outputs of the programme and those activities to be decentralized. While MRC Member Countries are committed to bearing all costs of MRC programmes starting from 2030, external support for the transition period is very important. The NAP 2013-15 document, after being approved by the MRC Joint Committee, will be officially submitted to potential development partners for funding. The Government of Belgium has already pledged EUR 4 million for 2013-2014.

A detailed programme implementation plan (PIP) with priorities in regards to funds available will be elaborated on at a later stage.

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ACMECS	Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy
ASEAN	Association of Southeast Asian Nations
BDP	Basin Development Plan (of MRC)
CCNR	Central Commission for the Navigation on the Rhine
CNMC	Cambodia National Mekong Committee
CSO	Civil Society Organisation (= Non-Governmental Organisation)
CWG	Country Working Group (= National Counterpart to the NWG at the Mekong River Commission Secretariat)
DGPS	Digital Global Positioning System
EIA	Environmental Impact Assessment
EP	Environment Programme (of MRC)
ESCAP	Economic and Social Commission for Asia and the Pacific (UN)
EU	European Union
FMMP	Flood Management and Mitigation Programme (of MRC)
FOI	Field of Intervention
GIS	Geographic Information System
GMS	Greater Mekong Sub-region (ADB)
HCMC	Ho Chi Minh City
IBRD	International Bank for Reconstruction and Development (World Bank)
IFC	International Finance Corporation
IKMP	Information and Knowledge Management Programme (of MRC)
ILO	International Labor Organization
IMO	International Maritime Organization
ISH	Initiative on Sustainable Hydropower
IWT	Inland Waterway Transport
IWRM	Integrated Water Resources Management
LA	Line Agencies
LAD	Least Available Depth
LMB	Lower Mekong Basin
LNMC	Lao National Mekong Committee
LAD	Least Required Depth
MIO	Million
MPM	MRC Programme Manual
MNFC	Mekong Navigation Facilitation Committee
MRC	Mekong River Commission
MRCS	Mekong River Commission Secretariat

MRC NPO	Mekong River Commission Secretariat Navigation Programme Office
NAB	Navigation Advisory Body
NAP	Navigation Programme (of MRC)
NEG	Navigation Expert Groups
NGO	Non-Governmental Organisation
NMC	National Mekong Committee
NPIU	Navigation Programme Implementation Unit
NPO	Navigation Programme Office
NSG	Navigation Sub-working Group
NWG	Navigation Working Group
ODA	Overseas Development Assistance
OSP	Office of the MRC Secretariat in Phnom Penh
OSV	Office of the MRC Secretariat in Vientiane
PDR	People's Democratic Republic
PIANC	International Navigation Association
PPAP	Phnom Penh Autonomous Port (Cambodia)
PRC	People's Republic of China
PRP	Police River Patrol
PRSP	Poverty Reduction Strategy Paper
RRU	River Rescue Unit
SEA	Strategic Environmental Assessment
SIA	Social impact Assessment
SMS	Safety Management System
TNMC	Thai National Mekong Committee
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UN-ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UN-ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
US	United States
VIWA	Viet Nam Inland Waterway Administration
VNMC	Viet Nam National Mekong Committee
WB	World Bank
WGN	Working Group on Navigation
WUP	Water Utilisation Programme (MRC)
WUP-FIN	Finnish Team under the Water Utilisation Programme

NAVIGATION PROGRAMME 2013-2015

1 INTRODUCTION

1.1 BACKGROUND

The Mekong is an international river running through six countries and is an important gateway to trade centres in the Southeast Asia region and beyond. To fully realise the trade and transport potentials, a regional development approach is very much needed.

A common interest in increasing international trade was the underlying motive for the MRC signatories to opt for a separate article on Freedom of Navigation in the 1995 Mekong Agreement (Article 9). For centuries, local people have depended on the Mekong River for trade and transport, both within their own countries and beyond their borders. Economic growth is an important common goal for the four MRC countries and they are all aware that regional and international trade are important means to achieve this end. There is much focus on reducing poverty and creating a positive environment for investment and income generation in all four countries. Efficient and cheap transport is a crucial underlying assumption for growth strategies throughout the region – and the main justification for national and regional attention to navigation development. As the Lower Mekong Basin (LMB) economies grow, river trade between them will increase and shipping beyond the basin will expand as well.

Article 9: Freedom of navigation

“On the basis of equality of right, freedom of navigation shall be accorded throughout the mainstream of the Mekong River without regard to the territorial boundaries, for transportation and communication to promote regional co-operation and to satisfactorily implement projects under this Agreement. The Mekong River shall be kept free from obstructions, measures, conduct and actions that might directly or indirectly impair navigability, interfere with this right or permanently make it more difficult. Navigational uses are not assured any priority over other uses, but will be incorporated into any mainstream project. Riparians may issue regulations for the portions of the Mekong River within their territories, particularly in sanitary, customs and immigration matters, police and general”.

Under the MRC framework, many navigation projects have been formulated and implemented.

These projects have helped to improve navigation significantly in the basin. In applying IWRM-based principles to achieve the MRC goal of sustainable development, the individual project approach was replaced by a programme approach. In August 2003, after consultation with stakeholders, the MRC Joint Committee (JC) approved a new MRC Navigation Strategy, which identified significant opportunities and obstacles related to regional navigation development.

The MRC Navigation Strategy and Navigation Programme (NAP) were formulated and approved in 2002 and 2003. The first Navigation Programme was prepared in close cooperation with MRC Member Countries and other regional stakeholders to ensure national and regional ownership of the suggested activities. Dialogues ensured that the five components of the programme were in line with other regional integration and development initiatives. It took some time before financing was found for the implementation of the programme but in 2005 the Government of Belgium stepped in, followed by the Government of Australia. The first NAP covers the period 2006-2012.

To continue its mandate and mission, the formulation of a new programme was initiated in 2012. Taking into account outstanding activities of the current NAP (2006-2012) and newly-emerging regional issues, the timeframe for updating and reformulating the programme is for the period 2013-2015, in line with the MRC Strategic Plan 2011-2015.

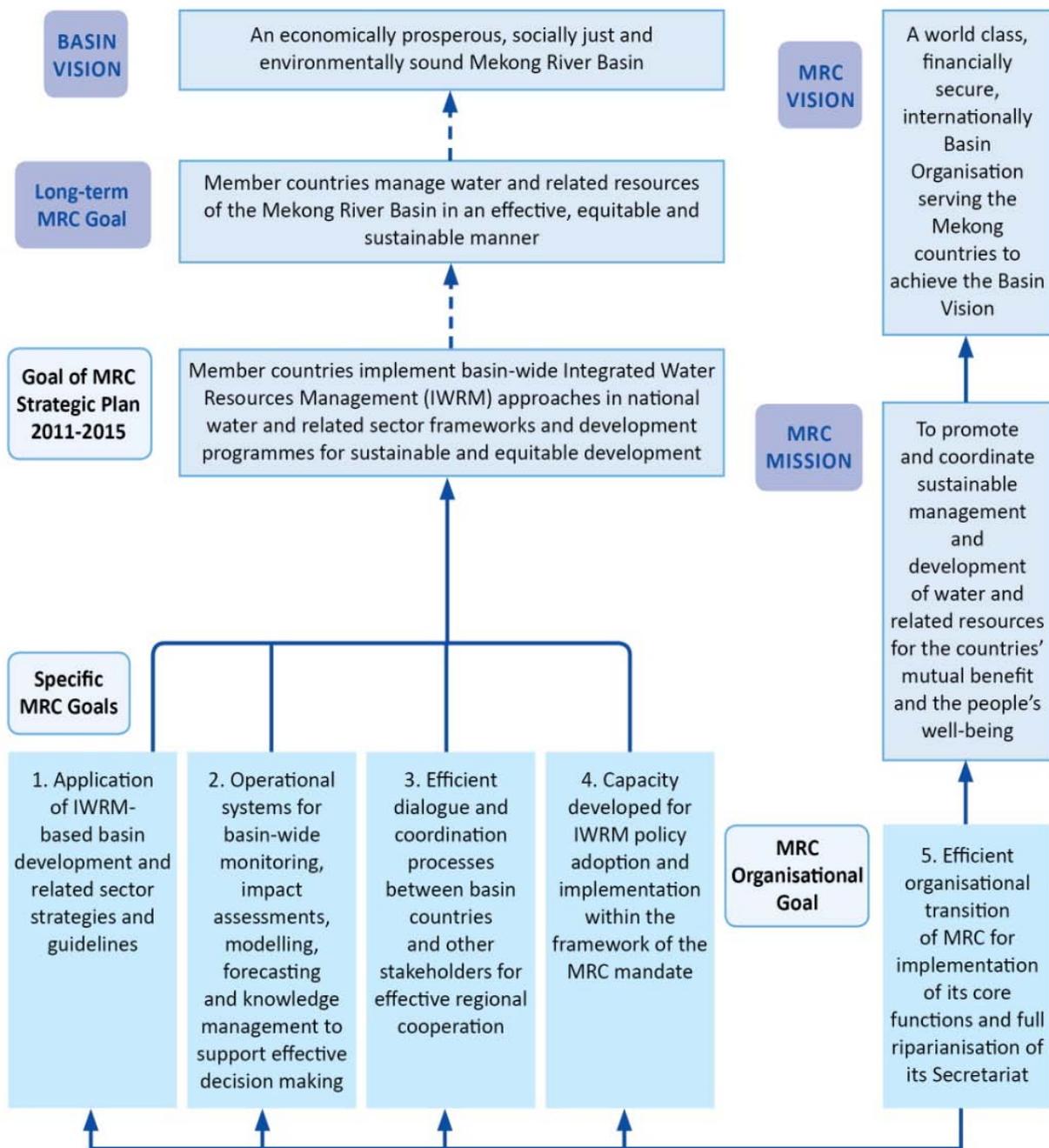
1.2 MRC AND ITS STRATEGIC PLAN 2011-2015

Established in 1995, the Mekong River Commission is an intergovernmental organisation consisting of three bodies. These are the MRC Council, represented by four members at ministerial and cabinet level (one from each member country); the Joint Committee (JC), composed of four members at director-general level (one from each member country); and the MRC Secretariat, which is permanently located in Vientiane in Lao PDR and Phnom Penh in Cambodia. The MRC is mandated as a cooperation framework to implement the 1995 Mekong Agreement. The first MRC Strategic Plan formulated for 1999-2003 was updated for 2001-2005 and followed by Strategic Plans for 2006-2010 and 2011-2015. The mandate, vision and mission of the MRC have remained unchanged:

Visions and Mission
<p>VISION for the Mekong River Basin An economically prosperous, socially just and environmentally sound Mekong River Basin</p>
<p>VISION for the Mekong River Commission A world class, financially secure, international river basin organisation serving the Mekong countries to achieve the basin vision</p>
<p>MISSION of the Mekong River Commission To promote and coordinate sustainable management and development of water and related resources for the countries' mutual benefit and the people's well-being</p>

To achieve the Mekong Basin vision, the long-term goal of the MRC is that *“Member Countries manage water and related resources of the Mekong river basin in an effective, equitable and sustainable manner.”* For 2011-2015, the goal of the Strategic Plan is that *“Member Countries implement basin-wide integrated IWRM approaches in national water and related sector frameworks and development programmes for sustainable and equitable development.”* To achieve this, the MRC has defined four specific goals and one organisational goal under SP 2011-2015 as shown in the figure below.

MRC Strategic Plan 2011-2015



In line with the Strategic Plan, the single project approach has changed into a programme approach with various integrated and thematic programmes. Applying IWRM principles, the MRC has formulated its Basin Development Strategy, considered the basis for rolling Basin Development Plans and other programmes. These programmes remain the main vehicle to fulfil the MRC mission and implement core functions. A significant change in the current strategic plan is a more coordinated approach for achieving basin-management objectives through a common focus on core functions, and new working arrangements building on recent experience and structured cooperation. The Navigation Programme (NAP) is currently among 12 MRC programmes which include both thematic and cross-cutting programmes.

In implementing the NAP, activities are closely linked with four specific goals. At the same time, the MRC has decided to gradually decentralise, with some core river basin management functions gradually being transferred to and financed by the Member Countries.

1.3 NAVIGATION STRATEGY 2003 AS GUIDANCE FOR NAP FORMULATION

Formulation of the Navigation Strategy was initiated in August 2002. With technical assistance from Statkraft Grøner/Royal Haskoning Consultants of Norway, a participatory approach was used similar to the approach taken to formulate the Flood Management and Mitigation Programme (FMMP). Consultations took place with the National Mekong Committees (NMCs), line agencies, regional counterparts, the private sector, NGOs and development partners. After national and regional workshops were held, the MRC Joint Committee (JC) approved the Navigation Strategy in August 2003.

The Navigation Strategy responds very well to many important principles of the MRC Strategic Plan including a sound legal framework for cross-border navigation, waterway improvement, modernising fleets and port infrastructure, capacity building, integrated inter-thematic and basin-wide planning, sustainable pro-poor development for the mutual benefit of countries and people's well-being, and environmental protection. The strategy's development objective is: *"to promote freedom of navigation and increase the international trade opportunities for the MRC Member Countries' mutual benefit, and to assist in coordination and cooperation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment."*

The priorities set out in the Navigation Strategy remain relevant to the vision for the Mekong River Basin and, with adjustments, the vision and mission of the MRC. Under the strategy, the MRC plays four distinctive roles to (i) develop and implement Article 9 of the Agreement (Freedom of Navigation), (ii) provide technical products and services, (iii) strengthen institutions and capacity and (iv) promote and coordinate different investors in regional infrastructure sector.

Together with the Strategic Plan 2011-2015, the Navigation Strategy has been used as a guiding basis for formulating the Navigation Programme with concrete activities.

1.4 THE NAVIGATION PROGRAMME 2006-2012

From 2006 until now, many of the projected outputs of the original programme have been achieved including initiating the NAP implementation structures, formulating and signing of the Agreement on Waterway Transport between Cambodia and Viet Nam, preparing the legal navigation framework between the Lao PDR and Thailand, conducting risk assessments and preparing a risk management strategy for the transport of dangerous goods, procuring and installing buoys and beacons, installing two tidal monitoring stations at the Mekong and Bassac estuaries, developing a Master Plan for Mekong Navigation in Cambodia, holding navigation forums, conducting condition surveys for navigation improvement, cooperating with the People's Republic of China and Myanmar and strengthening the capacity of Member Country line agencies.

In addition, with a view to addressing newly emerging issues in the region, and as requested by the Navigation Advisory Body, NAP also implemented several activities that were not included in the original NAP document such as providing inputs to the PNPCA process for the proposed Xayaburi hydropower project (including preliminary design guidance), developing manuals and operational systems for the sustainable management of dangerous goods at Chiang Saen Commercial Port, conducting a feasibility study for dredging the Tonle Sap Lake for navigation, developing electronic navigation charts in Viet Nam, developing the Phnom Penh Management Information System and providing passenger landing facilities in Lao PDR.

The NAP 2006-2012 is being implemented until the end of December 2012 and consists of five components. Total funds required for implementing all activities under the five components were US\$ 22.6 million of which about US\$ 1 million came from national contributions from the MRC Member Countries. Total funds secured from development partners amounted to EUR 9.8 million (approximately US\$ 13.5 million) from the Government of Belgium and US\$1 million from the Government of Australia. The funding shortfall for this period is approximately US\$ 7.1 million.

The outputs are either fully accomplished (*done*), activities left to be done (*partly done*), some activities under the output are under implementation in 2012 (*on-going*), and some outputs have not been commenced (*outstanding*). The implementation status of the NAP 2006 - 2012 is summarized in the table below.

Outputs under NAP 2006-2012

Outputs under the 5 Components of the NAP 2006-2012	Done, Partly Done Ongoing, or Full outstanding
Component 1: Socio-economic Analysis and Waterborne Transport Planning	
1.1 Traffic and trade scenarios	full outstanding
1.2 Master plan for regional (intermodal) waterborne transport	full outstanding
1.3 Evaluate the socio-economic outcome of the development of both regional and rural waterborne transport	partly
1.4 Formulate recommendations for prioritised investments in the inland waterway infrastructure	partly
1.5 Identify sources of finance for the recommended investments	partly
1.6 Master Plan for Mekong Navigation in Cambodia	done
1.7 Study for the improvement of the navigation conditions on the Mekong River in Viet Nam	partly
1.8 Pilot projects	partly
1.9 Institutional strengthening, capacity building, training	ongoing
Additional Outputs between 2006 - 2012	
Sustainable Management of Dangerous Goods in Chiang Saen Commercial Port (Thailand)	ongoing
Defining the significance for navigation on the tributaries of the LMB, Phase 1	done
Feasibility Study for Dredging the Tonle Sap Lake for navigation	done
Guidelines for planning, design, construction and operation of navigation locks in relation with development of hydropower projects on the Lower Mekong Mainstream	done
Inputs provided on navigation matters to the PNPCA process for Xayaburi dam	ongoing
A technical study on the best practices for river regulating works for navigation safety	done
Component 2: Legal Framework for Cross-border Navigation	
2.1 A comprehensive legal study of the current regime of navigation on the Mekong	partly
2.2 A definition of basic principles for the development of navigational uses of the Mekong	done
2.3 A definition of roles for MRC as an international river (navigation) commission	done
2.4 An updated and harmonised legal regime for free navigation	partly
2.5 Legal capacity building, legal expertise and legal working group	ongoing
2.6 Legal assistance and implementation by MRC	ongoing
Component 3: Safety and Environment	
3.1 Aids to navigation	ongoing
3.2 Updated charts and maintenance plans	partly
3.3 Updated and Harmonised Rules and Regulations	full outstanding
3.4 Formation of river police patrols and rescue units	full outstanding
3.5 Development of a Safety Management System	partly
3.6 Concrete removal of physical and non-physical obstacles as identified in component 1.	full outstanding
3.7 Risk Analysis and scope for prevention and contingency	done
3.8 Strategy for prevention, management and combating pollution from navigation	ongoing
3.9 Development of a standardised regulatory framework	full outstanding
3.10 Environmental protection and impact assessment	full outstanding
3.11 Institutional Strengthening – Capacity Building	ongoing
Additional Outputs between 2006 - 2012	
Development of Electronic Navigation Charts (ENC) in Viet Nam	done
Procurement and installation of landing facilities for passenger and tourists in the Lao PDR	ongoing
Condition Surveys of the dangerous areas for navigation in the Lao PDR and Thailand	done
Condition Surveys for navigation in Cambodia	done
Condition Surveys for navigation in Viet Nam	done

Outputs under the 5 Components of the NAP 2006-2012	Done, Partly Done Ongoing, or Full outstanding
Component 4: Information, Promotion and Coordination	
4.1 RIS Implementation Plans	full outstanding
4.2 Standardisation and harmonisation of data	full outstanding
4.3 Mekong transport and traffic data: Cargo, passengers	partly
4.4 Operational services and fairway Information	partly
4.5 Organising and implementing specific promotion and information campaigns	partly
4.6 Navigation information and promotion training	partly
4.7 National and regional navigation forums	done
4.8 Coordination between Upper and Lower Mekong Navigation Agreements	done
4.9 Mekong Navigation Development Catalogue	full outstanding
4.10 Coordination Frameworks for Public-Private Partnerships	partly
4.11 Strengthen Regional Coordination Mechanisms	ongoing
Additional Outputs between 2006 - 2012	
Development of Phnom Penh Management Information System I and II	done
Installation of two tidal monitoring station at the Mekong and Bassac Estuaries in Viet Nam	done
Development of an Automatic Identification System in Cambodia	done
Verification on the Re-determination of the Chart Datum on the Upper Mekong	done
In cooperation with IKMP: discharge and sediment monitoring and fluvial geomorphology tools	done
Component 5: Institutional Development	
5.1 General Preparations and Coordination for Programme Implementation	done
5.2 Selection and Nomination of the Navigation Advisory Body (NAB) and the Navigation Working Groups (NWG)	done
5.3 Institutional strengthening, capacity building and training	ongoing
5.4 Establishment and functioning of the Navigation Programme Office and Working Groups	ongoing
5.5 Strengthening of Management Capacities of National Counterparts directly related to the implementation of the Navigation Programme and its functioning	ongoing
5.6 Establishment and functioning of the industry associations	full outstanding
5.7 Preparation for next phase	ongoing

1.5 PROCESS OF NAP 2013-2015 FORMULATION

A participatory approach was thoroughly applied in the formulation of NAP 2013-2015. After undertaking internal consultations with relevant MRC programmes and sections at the MRC Secretariat in April 2012, the first draft document of NAP 2013-2015 was prepared and circulated to the four NMCs prior to national consultations in Bangkok, Vientiane, Hanoi and Phnom Penh in late May and early June, 2012. Based on comments, feedbacks, suggestions at these national consultations and additional comments thereafter, the revised draft (Draft 2) of NAP 2013-2015 was produced and circulated to four NMCs for further discussion at a 21 June Regional Workshop in Vientiane with participation of representatives from the four Member Countries, relevant MRC programmes and stakeholders. After the regional workshop, further revision of the Draft 2 was undertaken by the NAP Office and again sent to Member Countries, the MRC programmes/sections and the Navigation Advisory Body (NAB) members. A NAB meeting on 15 August 2012 endorsed the draft in principle and given until 31 August to propose final adjustments. Final revisions were made to the programme document which was sent to the Joint Committee members in the first week of September in time for their review and consideration/approval at their October meeting. It is expected that the endorsed document of NAP 2013-2015 will be provided to potential donors for financial support beyond 2012. A detailed programme implementation plan (PIP) with priority regarding fund availability will be elaborated in a later stage.

2 CONTEXT AND RATIONALE FOR NAP 2013-2015

2.1 REGIONAL RELEVANCE AND CHALLENGES

By signing the 1995 Mekong Agreement, the MRC Member Countries have committed themselves to cooperate in all fields of sustainable development, utilisation, management and conservation of water and related resources of the basin. These include irrigation, hydropower, navigation, flood control, fisheries, timber floating, recreation and tourism. Cooperation aims to optimise the multiple use and mutual benefit for all people and to minimise harmful effects that might result from natural occurrences and man-made activities. With rapid economic growth, demand for water and related resources is increasing significantly. Interests and benefits of riparian countries can be affected negatively and, in some cases, damage may occur, having an impact on water security and hence security in the region.

For many centuries, local communities and traders have used the Mekong River network to transport goods and passengers. Article 9 of the 1995 Mekong Agreement stipulates the principle of freedom of navigation throughout the mainstream of the Mekong. This reflects the common interest of Member Countries in promoting domestic, regional and international trade for the economic development of each country and the region as a whole. The Lower Mekong Basin countries do not limit themselves in terms of geography. As stipulated in Article 38 of the Mekong Agreement, parties may enter into bilateral or multilateral special agreements. Accordingly, Lao PDR and Thailand have signed with the People's Republic of China and Myanmar the Agreement on Commercial Navigation on the Lancang-Mekong River from the Chinese port of Simao to Luang Prabang in Lao PDR. With this agreement, the entire Mekong River downstream from Simao is accorded with freedom of navigation, facilitating regional and international trade.

Navigation depends on sufficient water depths. In the Upper Mekong River, where the river slope changes rapidly because of that specific geographic area, the available water level may depend on the regulatory and operational regimes of existing upstream hydropower plants, or by planned schemes. If these plants operate during peak demand, daily and even hourly fluctuations in water levels may affect the operations of vessels. This could be an important driver with the planned hydropower scenarios on the Mekong mainstream. But in theory, if properly located, designed and well operated, a hydropower dam would increase the water depth, and the required lock will be raising and lowering boats between stretches of water of different levels. If a cascade of dams is built, very long stretches of navigable waterway can be created, enabling barges to transport mining and agricultural products in large volumes. The cascade would need to respond well to the navigational requirements. If the cascade responds only to energy needs, it does not mean that the navigational water depths can be obtained everywhere. For example, if the area between the backwater of one dam and the upstream dam is very large, then that area needs to be fully regulated by infrastructure works which may be very expensive and environmentally damaging. In other words, when a cascade of dams is planned on a large river, the purpose for navigation improvement is to be considered, especially for the location of the dams.

In addition to the MRC framework and cooperation between the lower and upper basins, other forms of Mekong cooperation include the Great Mekong Sub-region (GMS) initiative started by the Asian Development Bank in 1992, the Mekong-Ganga Cooperation initiative launched in 2000 and the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) begun in 2003. These initiatives recognise the role of multi-modal transportation relating to roads, railways and waterways in boosting regional economic cooperation. Many donors and investors including banks are interested in the transport sector in the Mekong region. Issues relating to the high clearance of bridges across the Mekong River, flow maintenance (water depth), bank protection and water quality (caused by oil spills, leakages of dangerous goods) need to be considered carefully.

All MRC Member Countries share this view and acknowledge that waterborne transport has many advantages in terms of being safer and cheaper as well as having less environmental impact than other modes of

transport. Proper guidelines and protection measures are needed to ensure the safe operation of vessels and port operation, especially in the carriage, handling and storage of dangerous goods and effective emergency response. Navigation on the Mekong River promotes regional trade and economic development, and due consideration is needed to protect aquatic ecosystems and avoid conflicts that may occur.

One of the many challenges faced by the four MRC Member Countries is how to overcome the natural obstacle of the Khone Falls on the Cambodia-Lao border to create a continuous route from the mouth of the river to upstream from the falls. Without structural measures, it is impossible for commercial vessels to ply through the Khone Falls. Depending on the volume of cargo and passengers, one option may be to combine river transport with road transit, although this needs to be carefully considered taking into account economic feasibility. It does not stop there, however, as the river is very wide and very shallow 200 km upstream and downstream of the Khone Falls, requiring major river regulating works if navigation needs to be improved.

One essential driver for navigation, which was not envisaged when the Navigation Programme was formulated, is the development of the new deep-sea port at Cai Mep near Ho Chi Minh City in Viet Nam which provides a huge push for cross-border waterborne transport. The introduction of container terminals in Cai Mep makes shipping of container barges between Phnom Penh and Cai Mep very profitable. Exports from Phnom Penh to the US or European ports will have only one transshipment, at Cai Mep Port. Before, only feeder ships could call at the Saigon port meaning that one transshipment to mother vessels berthed at Hong Kong or Singapore was still needed before the container could reach the US or Europe. Now it only takes two hauls: by barge from Phnom Penh to Cai Mep, then by mother vessel from Cai Mep to the final destinations. Moreover, the Waterway Agreement between Cambodia and Viet Nam, signed in 2009, has facilitated cross-border and international transportation by barges.

2.2 CROSS-CUTTING ISSUES

The flow of the Mekong River changes dramatically between the dry and wet seasons. Together with the regulation of hydropower plants, this change affects water quantity and quality as well as wetlands along riverbanks. In addition, banks are eroded at many locations along the river with navigation assumed to be responsible.

Transportation of dangerous goods is developing very rapidly and the environmental impacts of increased navigation, oil spills and generated waste affect aquatic fauna and flora as well as riparian communities whose livelihoods rely on fisheries and the water resources of the river.

In reality, however, navigation along the Mekong River greatly benefits the poor, many who live along the river network and rely on the waterways as a cheap and convenient means of transporting cargo and passengers, especially in rural areas. With increased cooperation in the navigation sector between China, Lao PDR, Myanmar and Thailand as well as more related activities under different cooperation frameworks, especially the GMS, the transport sector has become a focus of interest among many investors and other parties both globally and within the region. As a sub-sector, navigation alone or as part of multi-modal systems is expected to attract more opportunities for development, promoting regional economic development and trade as a whole.

In line with the MRC Gender Policy, attention needs to be paid to equal opportunities for women in the outcomes and institutional mechanisms of the Navigation Programme. Gender mainstreaming will be integrated into the implementation of the NAP 2013-2015.

2.3 ALIGNMENT WITH THE MRC STRATEGIC PLAN 2011-2015

In Section 3.1, the development and immediate objectives of NAP 2013-2015 will be described in detail. Although the Navigation Programme has a distinct and very long term development objective which originates from Article 9 of the 1995 MRC Agreement, the new NAP 2013-2015 will be aligned with the MRC SP 2011-2015. The following NAP milestones from SP 2011-2015 have been fully integrated into the new NAP 2013-2015 (See Annex 1 for further detail):

- NAP01 Regional Master Plan for overall navigation development in the LMB prepared
- NAP02 Overall strategy for incorporation of ship locks in planned mainstream dams, including standards for lock design and operations formulated
- NAP03 Regional Feasibility Study for Mekong Waterway Improvement prepared
- NAP04 Operational rules, regulation, institutional and engineering standards (including waterway and vessel classification, safety construction, training syllabi, etc.) pertaining to navigation formulated, standardised and harmonised among all the Member Countries
- NAP05 Significance of the tributaries of the LMB for navigation identified
- NAP06 Cross-border navigation legal regime and a mechanism for the effective implementation and monitoring of the legal framework established
- NAP07 Specific strategy designed to support small-scale activities related to the development of rural waterborne transport specifically targeting vulnerable groups
- NAP 08 Trans-boundary environmental impact assessment of physical navigation improvement conducted
- NAP 09 Risk analysis prepared leading to a scope for prevention and contingency of spills and navigation disasters, and management strategy for prevention, management and combating pollution from navigation developed
- NAP10 Operational Automatic Identification System for the Mekong Delta in Viet Nam and Cambodia established and a communication system for navigation in Lao PDR and Thailand developed
- NAP11 Navigation-related database (River Information System, fairway information, voyage planning, cargo and passenger statistics, record of accidents, and proposed economic developments) established, and forecasting system of Low Water Alerts for navigation developed
- NAP12 Recommendations provided for coordinated frameworks for public-private partnerships in Mekong waterborne transportation and tourism to be updated
- NAP13 Aids to navigation as per priority needs, including landing facilities for tourists installed
- NAP14 River survey: comprehensive analysis of the river by multi-beam echo-sounding conducted
- NAP15 Information on navigation accidents published and disseminated to regional, dialogue and development partners
- NAP16 Standards for waterway classifications developed

These milestones have been directly or indirectly allocated to the five outcomes from the NAP 2013-2015. The outcomes lead to achieving the NAP development goal which in turn will contribute to the Goal of MRC SP 2011-2015, *'Member Countries implement basin-wide IWRM approaches in national water and related sector frameworks and development programmes for sustainable and equitable development'*.

2.4 COORDINATION WITH RELEVANT PROGRAMMES WITHIN THE MRC FRAMEWORK

As explained above, the goal of MRC Strategic Plan 2011-2015 is to implement basin-wide IWRM approaches. That implies close working relations between the different MRC programmes. To achieve this objective, NAP coordinates its work mainly with the Basin Development Programme (BDP), the Environment Programme (EP), the Integrated Capacity Building Programme (ICBP), the Information and Knowledge Management Programme (IKMP), the Initiative on Sustainable Hydropower (ISH), the Fisheries Programme (FP), and the International Cooperation and Communication Section (ICCS).

The Basin Development Plan (BDP): This is a framework and a process to support overall development planning in the Lower Mekong Basin related to the Mekong water resources. While the planning formats applied in BDP divide the Mekong Basin into 10 distinct geographical regions with different characteristics,

resources, and development opportunities, the mainstream of the Mekong and its tributaries integrally link these sub-areas with development opportunities of relevant sectors therein. The navigation baseline survey and the scenarios formulated will be important inputs to the BDP process in connection with defining the river stretches where development of navigation, commerce and tourism in particular should be promoted to achieve broad-based economic development.

The BDP is also concerned with public participation and the impacts of Mekong development on local people and local market structures, and it would be beneficial for the NAP to work closely together with the BDP on approaching these issues. The studies carried out within Outcome 3 will help the BDP to identify certain Basin assets that will need to be protected and help to assess whether the technical achievability of navigation is justifiable compared with the impacts on other sectors and basin resources. In addition, Outcome 3 of the Navigation Programme will also contribute to better regional safety standards that will prevent or limit the impact of accidents with hazardous goods. The major expected outcome is that lives will be saved by reduced accidents, and pollution prevented. That could attract investment to the Mekong Basin in terms of tourist operators, cargo and passenger transport as more efficient and safe transport options will be available. Preparing technical guidelines for implementation of the Procedures on the Maintenance of Flows in the Mainstream of the Mekong River is a task assigned to BDP. There is room for the NAP to cooperate with the BDP in meeting requirements for water depth for safe operation of vessels.

In addition, NAP may investigate existing and planned river crossings such as bridges, power lines, tunnels, dredging pipes and underwater cables that may be obstructions to navigation, and draft Upper Mekong air clearance standards as recommended for the construction of river crossings. These clearances belong to general waterway classification. They have not yet been standardised or harmonised, and must be when nautical accessibility needs to be studied.

Environment Programme (EP): The overall regional SEA and EIA for Navigation Development would be inputs to be used by BDP in this regard, whereas the BDP will be able to supply Outcome 1 with information on other development activities that might have an impact on or feed into regional and/or rural navigation development activities. The main focus is to strengthen environmental management systems and monitor the state of the Mekong environment. The EP is also taking the lead on formulating a Trans-boundary Environmental Impact Assessment (TbEIA) system and in implementing the MRC Procedures for Water Quality to be used by all MRC Member Countries. Outcome 1 will produce a regional EIA and Social Impact Assessment (SIA) for regional navigation development. Through consultation with the EP and the MRC Member Countries, it should be possible to draw up suggestions for how to prevent and mitigate negative impacts, especially in transporting dangerous goods. In connection with the promotion campaigns carried out within Outcome 4, it will be useful to learn from the EP how its awareness-raising work has been carried out and what lessons have been learned when it comes to environmental protection in the MRC Member Countries. The NAP might also be a channel for the EP to convey its messages and distribute its reports to the private sector and reach ministries and public agencies other than those with which it usually collaborates.

Initiative on Sustainable Hydropower (ISH): The MRC has established ISH to help Member Countries assess opportunities for hydropower development in a sustainable manner. In helping the Member Countries to implement the Procedures for Notification, Prior Consultation and Agreement (PNPCA), with contribution of NAP, the MRC has developed the Preliminary Design Guidance for Mekong Mainstream Dams in the Lower Mekong Basin providing initial recommendations in the form of design and operating principles for mitigation measures, as well as compliance monitoring and adaptive management. Under this guidance, the MRC proposed preliminary design specifications for navigation locks, based on a Review of International Ship Lock Dimensions and their relevance to proposed hydropower development on the Mekong mainstream. The future NAP contribution to the MRC process regarding hydropower schemes will depend on the situation but NAP will see it as a priority to assist whenever needed. Possible areas of intervention could be to define best practices for the planning and design of the navigation locks within the Lower Mekong Basin which eventually would lead to harmonised standardisation of ship locks on the Mekong mainstream; to assess the details of the plans and engineering specifications including an assessment of whether the locks will work efficiently and what the private developer has proposed for operations and maintenance of the ship locks etc. The cooperation between NAP and ISH will be further strengthened under tasks ahead, especially in the prior consultation process relating to development of hydropower dams on the mainstream.

International Cooperation and Communication Section (ICCS): The MRC Member Countries are committed to jointly reviewing any mainstream project. To carry out freedom of navigation on the mainstream of Mekong as stipulated in Article 9 of the 1995 Mekong Agreement, NAP will be requested to provide necessary inputs including preparation of technical reports, review designs etc when ship locks need to be constructed in a hydropower dam. Cooperation between NAP and ICCS in relevant activities is necessary. As NAP will strengthen relations with Upper Mekong countries as well as with other regional entities in navigation and navigation-related activities, coordination between NAP and ICCS will be important.

Mekong Integrated Water Resources Management Project (M-IWRMP): In addition to support or providing inputs for implementing relevant MRC procedures, NAP will closely cooperate with M-IWRMP in preparing relevant specific regulations, guidelines that will supplement implementation of the MRC procedures.

Information and Knowledge Management Programme (IKMP): NAP will cooperate with IKMP in relevant modelling activities to determine the extent and potential impacts of oil/pollution spill from operation of the existing ports, petroleum terminals and vessels, sediment transport in the Mekong River etc.

Fisheries Programme (FP): Collaboration between NAP and FP is mainly related to monitoring of impacts caused by navigation activities to the Mekong biodiversity.

Integrated Capacity Building Programme (ICBP): Under Outcome 5 of NAP 2013-2015, there are a lot of activities relating to institutional strengthening, capacity building and training for relevant agencies in Member Countries as well as the NAP team that call for close cooperation and coordination between NAP and ICBP. The two programmes would also jointly recommend practical activities for mainstreaming gender in the navigation sector.

Other MRC Programmes will and may have relations with various NAP 2013-2015 outcomes, even on an ad hoc-basis. The planning of regional navigation development will need advice from the sector programmes on specific matters to be taken into consideration to take an integrated and holistic approach to develop the Mekong Basin. Such inputs could come from the Flood Management and Mitigation Programme, the Drought Management Programme, the Climate Change Adaptation Initiative and the Agriculture and Irrigation Programme.

2.5 TRANSITION TO LONG-TERM CORE FUNCTIONS AND DECENTRALISATION PROCESS 2012-2015

Fundamental functions of the MRC Secretariat need to be maintained in the long term if the organisation is to be sustainable and administer the 1995 Agreement. It has been recommended that the MRC agrees on the core functions of the organisation.

Detailed conclusions on a subject as complex as the long-term development of the Mekong River Basin and the role of the MRC are naturally difficult to make. In the broadest sense, however, the history of other river basins and their organisations seems to suggest that basin organisations over time, and with the increasing development status of their basins, shift from a development phase to a longer-term monitoring and interstate-facilitation phase with an emphasis on providing necessary regional services to Member Countries. While this point of paradigm shift has not yet come in the Mekong Basin, it has started and is likely to occur gradually over the next fifteen years. It is therefore necessary to analyse a financing outlook within such a framework, assuming that monitoring and routine functions will increase in importance over time.

As the level of external financial support to the MRC reduces over time, an increasing proportion of the budget will be funded by member states. Although only one of MRC's development partners has so far indicated a reduction of funds availability as a result of the global economic downturn, MRC needs to assess the likely risk of an earlier-than-planned reduction in external support and prepare necessary contingency plans. There is also a general recognition that the discussion on core functions needs to be linked with MRC SP 2011-2015.

Based on the provisions of the 1995 Mekong Agreement and discussions within the Secretariat, seven categories of core River Basin Management (RBM) functions were identified and endorsed by the 29th JC Meeting. They are the functions of the MRC through which it engages routinely in water resources

development and management issues at different scales in the Mekong Basin – monitoring, expanding the knowledge base, undertaking analysis, forecasting, planning, reporting and facilitating discussion. They are functions that will continue in some form over the life of the commission.

Broad categories are used to organise the list of functions: data acquisition, exchange and monitoring, analysis and modelling, planning support, implementing MRC procedures, promoting dialogue and coordination, and reporting and dissemination.

When defining MRC's functions for navigation and while recognising the need for a transition to monitoring and interstate facilitation, some important aspects have to be taken into consideration:

- The different levels of development of the Member Countries. Cambodia and Lao PDR have not reached the same level as Thailand and Viet Nam. There is recognition that MRC will be required to continue assisting Cambodia and Lao PDR relatively more during the next two strategic plan periods to close this gap.
- To a certain extent MRC still needs to engage actively in small and medium-scale waterway-related development projects with concrete outputs. There are a number of such basin-wide navigation projects that cannot be done by an individual country; hence there is a role for MRC. Such projects are well appreciated by the Member Countries.
- Mekong waterborne transportation is a truly cross-boundary sector and will always require an intergovernmental body to coordinate its safety and efficiency, and promote sustainable use.

The MRC Navigation Strategy is a very useful and applicable tool to determine the **core functions for navigation** towards the future. Moreover, the development goal of the current MRC NAP will remain in place for a very long time as the NAP is not a fixed-term programme but a plan consisting of long-term functions.

Important Core Functions for the Navigation Sector:

- *Planning*
 - Preparing and updating the regional master plan of waterborne transport; and
 - Integrated planning with BDP.
- *Monitoring*
 - Establishing and maintaining a Regional Data Management Centre that includes statistics on trade and transport, navigation accidents and oil spills etc; and
 - Combining results of river surveys.
- *Interstate Facilitation and Mediation*
 - Establishing legal frameworks for cross-border navigation;
 - Examining cross-border complaints, assist in mediating;
 - Assist in implementing the operational frameworks;
 - Harmonising transport, inspection, safety regulations; and
 - Standardising carriage of dangerous cargo.
- *Capacity Building and Institutional Strengthening*
 - Regional training needs assessment;
 - Promoting and organising the “Mekong Patent” (skippers certificate required to be able to navigate commercial ships on the Mekong – valid in all countries);

- Establish standards for navigation training; and
- Riparianisation, quality assurance and how to maintain standards.
- *Promotion and Coordination*
 - Coordinating plans and activities in-house with other MRC programmes, and integration into BDP plan;
 - Promoting Mekong transportation;
 - Maintain relationship with the private sector;
 - Establishing regional fleet and port associations;
 - Representing MRC in other international navigation river commissions and organisations;
 - Coordinating activities with China and Myanmar (overlaps with other functions, for example implementation of Article 9 can only be done in collaboration with China); and
 - Promoting “green ships”.
- *Developing Projects*
 - Based on the planning function, prepare and implement crucial cross-border projects to implement Article 9, freedom of navigation;
 - Regional feasibility studies;
 - Regional EIA relating to transporting dangerous goods; and
 - Develop contingency plans + search and rescue.
- *Providing Products and Services*
 - Developing a knowledge base on river harnessing works and river morphology;
 - Mekong Ports and Tourism Atlas;
 - Aids to Navigation; and
 - Publish Notices to Mariners.

In line with the transition to long-term core functions comes the **decentralisation process**. Decentralisation means transfer of decision making power and assignment of accountability and responsibility for results from the MRC Secretariat level to the country level. It is accompanied by delegation of commensurate authority to individuals or units at all levels even those away from the MRC Secretariat.

MRC is preparing a framework to define the target for how a particular activity will be managed in the long term and to compare that with the current approach. The balance between national and regional implementation will be different for each group of activities and the framework will help describe the process of broadening the involvement of national agencies through an informed decision making process ultimately forming part of the process for decentralisation.

For navigation, the process is based on:

- identifying the existing gaps of capacity of Member Countries in navigation management functions;
- identifying and prioritising the potential activity that can be transferred to Member Country line agencies;
- discussing with Member Countries and agreeing on the plan and activities to be implemented;
- a degree of centrality of the activity to the MRC-NAP mandate; and

- identifying whether the activity is of a “routine character” or needs MRC-NAP to build up procedures before the actual decentralisation can take place.

Decentralisation will vary among the Member Countries and will have a high degree of decentralisation in areas such as navigation safety, data acquisition and monitoring. Other areas will require a substantial implementation role of MRC-NAP due to the need for a more independent and regional perspective. The activities for accelerated decentralisation and centralised activities are indicated in the table below.

Activities for Accelerated Decentralisation 2012-2015

Activity	Lead Programme	Contribution Programme	2011-2015 Target	Final Target	End date
Preparation and coordination of National Indicative Plans for Basin Planning	BDP	All others	HD	HD	2011-15
Implementation of the Critical Low Water Level Alert System	NAP	IKMP	HD	HD	2011-15
Installation of aids to navigation	NAP	IKMP	HD	HD	2011-15
Monitoring of and response to pollution spills and navigation accidents	NAP/EP	M-IWRMP	MD	MD	2011-15
In-country coordination and reporting for the Procedures for Notification, Prior Consultation and Agreement	ICCS	All others	HD	HD	2011-15

2.6 TRANSITION FROM THE NAP 2006 - 2012 TO THE NAP 2013-2015

The formulation of the NAP 2013-2015 depends on a number of external and internal drivers including compliance with the MRC Navigation Strategy, alignment with the MRC Strategic Plan and IWRM-based principles, regional trends in the navigation sector, the move towards core functions and decentralisation, cooperation with the other MRC programmes and, most importantly, the inputs by the Member Countries. Some planned outputs from NAP 2006-2012 were not completed or only partly implemented. These outputs were evaluated considering the priorities of the Member Countries and the MRC core functions. The outstanding outputs and activities from NAP 2006-2012 were condensed to align with the MRC SP 2011-2015 which moves away from component-based programmes to focus on outcomes and results-based outputs and activities. An overview of these outcomes, outputs and activities is included in Section 3.2.

3 NAP 2013-2015

3.1 DEVELOPMENT AND IMMEDIATE OBJECTIVES

Development Objective

The NAP is directly based on the MRC Navigation Strategy. As mentioned in the introduction to this document, all NAP outcomes share the development objective of the strategy, which is:

To promote freedom of navigation and increase the international trade opportunities for the MRC Member Countries' mutual benefit, and to assist in coordination and cooperation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment

Immediate Objectives

In the three-year timeframe, the programme aims to:

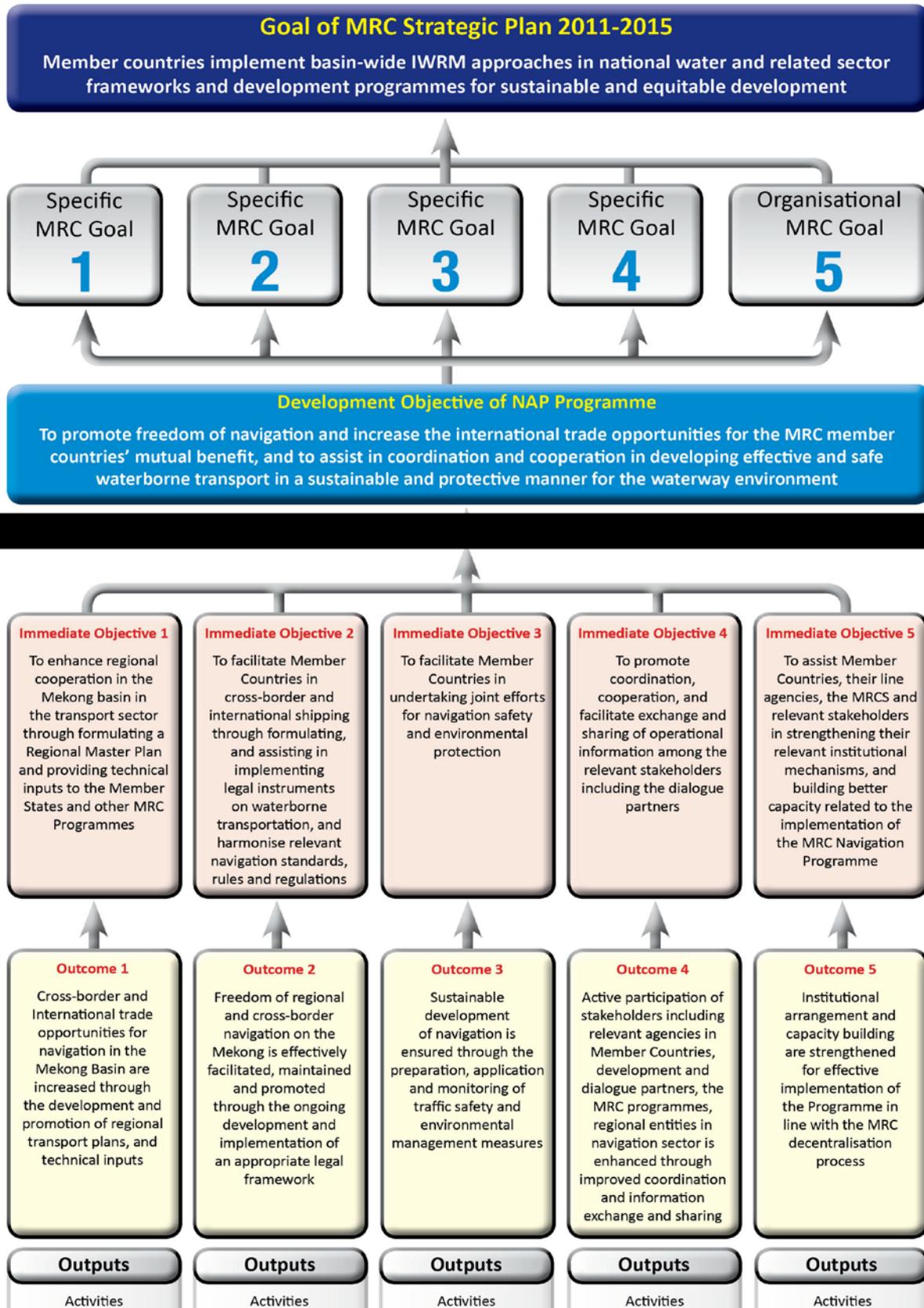
- i. enhance regional cooperation in the transport sector in the Mekong Basin through formulating a Regional Master Plan and providing technical inputs to the Member States and other MRC Programmes;
- ii. facilitate Member Countries in cross-border and international shipping through formulating and assisting in implementing legal instruments on waterborne transportation, and harmonising relevant navigation standards, rules and regulations;
- iii. facilitate Member Countries in undertaking joint efforts for navigation safety and environmental protection;
- iv. promote coordination, cooperation, and facilitate exchange and sharing of operational information among the relevant stakeholders including the Dialogue Partners; and
- v. assist Member Countries, their line agencies, the MRCS and relevant stakeholders in strengthening their relevant institutional mechanisms, and building better capacity related to the implementation of the MRC Navigation Programme.

Outcomes

Achieving these immediate objectives is reflected in **five outcomes**:

1. Cross-border and international trade opportunities for navigation in the Mekong Basin are increased through the development and promotion of regional transport plans, and technical inputs.
2. Freedom of regional and cross-border navigation on the Mekong are effectively facilitated, maintained and promoted through the on-going development and implementation of an appropriate legal framework.
3. Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety and environmental management measures.
4. Active participation of stakeholders including relevant agencies in Member Countries, development and Dialogue Partners, the MRC programmes, regional entities in navigation sector is enhanced through improved coordination and information exchange and sharing.
5. Institutional arrangement and capacity building are strengthened for effective implementation of the programme in line with the MRC decentralisation process.

In order to achieve these immediate objectives, concrete outputs and relevant activities have been proposed. Details of each activity will be elaborated in the PIP at a later stage. The diagram below shows the hierarchy and the link between objectives and outcomes in relation to the MRC SP 2011-2015. The table appearing before Section 3.2 details the transition from NAP 2006-2012 to NAP 2013-2015.



3.2 OVERVIEW OF THE TRANSITION NAP 2006-2012 TO NAP 2013-2015

FROM NAP 2006-2012 TO NAP 2013-2015		
Outputs under the 5 Components of the NAP 2006-2012	Done, Partly Done Ongoing, or Full outstanding	Proposed outputs under the Updated Programme 2013-2015
Component 1: Socio-economic Analysis and Waterborne Transport Planning		Outcome 1: Cross-Border and International Trade Opportunities for Navigation in the Mekong Basin are increased through the Development and Promotion of Regional Transport Plans and Technical Inputs
1.1 Traffic and trade scenarios	full outstanding	1.1 Master Plan for Regional Waterborne Transport developed
1.2 Master plan for regional (intermodal) waterborne transport	full outstanding	
1.3 Evaluate the socio-economic outcome of the development of both regional and rural waterborne transport	partly	
1.4 Formulate recommendations for prioritised investments in the inland waterway infrastructure		
1.5 Identify sources of finance for the recommended investments		
1.6 Master Plan for Mekong Navigation in Cambodia	done	
1.7 Study for the improvement of the navigation conditions on the Mekong River in Viet Nam	partly	Study for the improvement of the navigation conditions on the Mekong River in Viet Nam to be incorporated in the Regional Master Plan
1.8 Pilot projects	partly	Incorporated in the Regional Master Plan
1.9 Institutional strengthening, capacity building, training	ongoing	Institutional strengthening, capacity building, training to be continued and strengthened, within the framework of Outcome 5
		1.2 Technical inputs are provided to the Members States and to other MRC Programmes on specific navigation-related matters that need NAP's intervention
Additional Outputs between 2006 - 2012		
Defining the significance for navigation on the tributaries of the LMB, a comprehensive report Phase 1	done	
Feasibility Study for Dredging the Tonle Sap Lake for navigation	done	
Guidelines for planning, design, construction and operation of navigation locks in relation with development of hydropower projects on the Lower Mekong Mainstream	done	
Inputs provided on navigation matters to the PNPCA process for Xayaburi dam	ongoing	See 1.2
A technical study on the best practices for river regulating works for navigation safety	done	
Component 2: Legal Framework for Cross-border Navigation		Outcome 2: Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the ongoing development and implementation of an appropriate legal framework
2.1 A comprehensive legal study of the current regime of navigation on the Mekong	partly	See 2.1 and 2.2
2.2 A definition of basic principles for the development of navigational uses of the Mekong	done	
2.3 A definition of roles for MRC as an international river (navigation) commission	done	

Outputs under the 5 Components of the NAP 2006-2012	Done, Partly Done Ongoing, or Full outstanding	Proposed outputs under the Updated Programme 2013-2015
2.4 An updated and harmonised legal regime for free navigation	partly	2.1 Assistance provided towards the implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam
		2.2 Assistance provided to the elaboration of the Agreement on Waterway Transportation between the Lao PDR and Thailand
		2.3 The rules and regulations under which freedom of navigation is exercised, are harmonized
2.5 Legal capacity building, legal expertise and legal working group	ongoing	Institutional strengthening, capacity building, training to be continued and strengthened within the framework of Outcome 5
2.6 Legal assistance and implementation by MRC	ongoing	
Component 3: Safety and Environment		Outcome 3: Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety and environmental management measures
3.1 Aids to navigation	ongoing	3.1 Remaining stretches of operational aids to navigation and landing facilities
3.2 Updated charts and maintenance plans	partly	see new Outcome 4
3.3 Updated and Harmonised Rules and Regulations	full outstanding	3.2 Rules and Regulations are Updated and Harmonized
3.4 Formation of river police patrols and rescue units	full outstanding	
3.5 Development of a Safety Management System	partly	Will be part of the Regional Action Plan for the Transportation of Dangerous Goods
3.6 Concrete removal of physical and non-physical obstacles as identified in component 1.	full outstanding	
3.7 Risk Analysis and scope for prevention and contingency	done	
3.8 Management strategy for prevention, management and combating pollution from navigation	ongoing	3.3 The Regional Action Plan for the Transportation of Dangerous Goods (Phase II) is formulated and implemented
3.9 Development of a standardised regulatory framework	full outstanding	see 3.3
3.10 Environmental protection and impact assessment	full outstanding	
3.11 Institutional Strengthening – Capacity Building	ongoing	Institutional strengthening, capacity building, training to be continued and strengthened within the framework of Outcome 5
Additional Outputs between 2006 - 2012		
Sustainable Management of Dangerous Goods in Chiang Saen Commercial Port (Thailand)	ongoing	This output will be completed during 2012 but follow-up will be secured. The Port and Vessel Management Manuals for Dangerous Goods, and Waste Management System will be used for development in other ports in the Basin
Development of Electronic Navigation Charts (ENC) in Viet Nam	done	
Procurement and installation of landing facilities for passenger and tourists in the Lao PDR	ongoing	
Condition Surveys of the dangerous areas for navigation in the Lao PDR and Thailand	done	
Condition Surveys for navigation in Cambodia	done	
Condition Surveys for navigation in Viet Nam	done	

Outputs under the 5 Components of the NAP 2006-2012	Done, Partly Done Ongoing, or Full outstanding	Proposed outputs under the Updated Programme 2013-2015
Component 4: Information, Promotion and Coordination		Outcome 4: Active participation of stakeholders including relevant agencies in Member Countries, development and dialogue partners, MRC programmes and regional entities in navigation sector is enhanced through improved coordination and information exchange and sharing
4.1 RIS Implementation Plans	partly	4.1 Basic Functions of River Information Services Developed
4.2 Standardisation and harmonisation of data		
4.3 Mekong transport and traffic data: Cargo, passengers		
4.4 Operational services and fairway Information		4.3 Derived from Output 3.2: Development of a GPS Vessel Guidance System (including condition survey and feasibility study for AIS)
4.5 Organising and implementing specific promotion and information campaigns	partly	4.2 Trade and Tourism Facilitation: preparation of the Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam
4.6 Navigation information and promotion training	partly	
4.7 National and regional navigation forums	done	4.4 Regional Navigation Activities are Coordinated
4.8 Coordination between Upper and Lower Mekong Navigation Agreements	done	
4.9 Mekong Navigation Development Catalogue	full outstanding	see new outcome 1
4.10 Coordination Frameworks for Public-Private Partnerships	partly	
4.11 Strengthen Regional Coordination Mechanisms	ongoing	Institutional strengthening, capacity building, training to be continued and strengthened within the framework of Outcome 5
Additional Outputs between 2006 - 2012		
Development of Phnom Penh Management Information System I and II	done	
Installation of two tidal monitoring station at the Mekong and Bassac Estuaries in Viet Nam	done	
Development of an Automatic Identification System in Cambodia	done	
Verification on the Re-determination of the Chart Datum between the Golden Triangle and Vientiane	done	
In cooperation with IKMP: discharge and sediment monitoring and fluvial geomorphology tools project	done	
Component 5: Institutional Development		Outcome 5: Institutional arrangement and capacity building are strengthened for the effective implementation of the Programme in line with the MRC decentralization process
5.1 General Preparations and Coordination for Programme Implementation	done	Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the ongoing development and implementation of an appropriate legal framework
5.2 Selection and Nomination of the Navigation Advisory Body (NAB) and the Navigation Working Groups (NWG) to be ready for Phase 2		
5.3 Institutional strengthening, capacity building and training	ongoing	5.1 Management Capacities of National Counterparts and MRCS NAP Team directly related to the Implementation of the Navigation Programme and its Functioning Strengthened
5.4 Establishment and functioning of the Navigation Programme Office and Working Groups (NWG)		5.2 Gender issues for the inland navigation sector mainstreamed
5.5 Strengthening of Management Capacities of National Counterparts directly related to the implementation of the Navigation Programme and its functioning		
5.6 Establishment and functioning of the industry associations	full outstanding	
5.7 Preparation for next phase	ongoing	5.3 Navigation Programme 2016-2020 is prepared, in line with the next Strategic Plan of MRC

3.3 DESCRIPTION OF THE FIVE OUTCOMES

3.3.1 OUTCOME 1: Cross-Border and International Trade Opportunities for Navigation in the Mekong Basin are increased through the Development and Promotion of Regional Transport Plans and Technical Inputs

3.3.1.1 Justification

Context

To fully realise trade and transport potential, an in-depth socio-economic and technical feasibility study for the improvement of the waterborne transport on the Mekong is required. Determining the optimal inter-modal nodes and links between the waterways, ports, roads and rail is vital to improve the cost-effectiveness of the regional transport system. In line with the viability assessment, a regional master plan will be formulated to determine where and quantify to what extent the different stretches of the whole Mekong River system will be improved.

It is suggested that the MRC assist in drawing up a Master Plan for Regional Intermodal Waterborne Transport including the required intermodal terminals to show the socio-economic feasibility of various alternative development scenarios. Six main factors influence the extent to which the Mekong River and its tributaries are used for transportation purposes:

- economic and trade growth (development of cargo flows);
- presence of transport mode choices and strength of competition of other modes;
- policies and stimulus measures;
- physical restrictions (depth, rapids);
- non-physical (institutional) barriers; and
- labour skills in the waterborne transport sector.

Financial aid required may encompass projects to remove both physical and non-physical barriers to the development of waterborne transport opportunities. Prioritised investment opportunities are intended to be worked out at pre-feasibility level.

The output will elaborate on the most likely development scenarios for inland waterborne transport and maritime access into an action plan comprising four regional aspects:

- access of sea-going vessels in and transit of sea-going vessels through Viet Nam;
- waterway traffic between Cambodia and Viet Nam, and overseas trading partners;
- access to southern Lao PDR by means of multimodal transport; and
- multimodal transport between Lao PDR, Thailand, Myanmar and China.

Relevance of Waterborne Passenger Transport and Tourism

There is huge potential for waterborne tourism, even ecotourism. New international traffic opportunities such as tourist boat services between Siem Reap and Ho Chi Minh City are being promoted through the new navigation agreement between the two countries. Port facilities in Ho Chi Minh City and Phnom Penh are expected to be complemented by plans for improving the Chong Kneas Port on the Tonle Sap Lake near the Angkor temple complex. Waterborne tourism potential in Lao PDR is limited by the number of adequate ports and landing areas. Reliability and safety are matters of concern.

Major tourist sites are located close to a number of navigable channels and in reach of well-equipped cruise ships. Cross-border waterborne tourism in the region could add substantially to the existing tourism offering.

Tourism has proven to be a major force for social and economic development in all MRC Member Countries, and water-based tourism could play an important part in the diversification strategy to keep the tourism industry healthy and growing. Waterborne tourism has an added benefit in creating lots of jobs and, if managed well, the environmental impact is small.

Expansion of the tourism industry has until now been a major impulse to private sector growth in all MRC Member Countries. Until now, however, no clear policy has been formulated to develop waterborne tourism nor has specific support been made available to this branch of the industry.

Relevance of Rural Waterborne Transport

The socio-economic outcome of the development of both regional and rural waterborne transport on the Mekong River should not only be assessed in economic and financial terms. The pure economic function of navigation should, where possible, also be geared towards opportunities for poverty reduction and gender development.

For many riparian people, the river is the lifeline to the outside world and the only way to access basic social services. The poor rely on an unspoiled river for their livelihoods as they directly use the natural resources for nutrition and drinking water. The transport of people and goods by small craft is estimated to have a limited economic function, which might grow considerably if rural navigation networks can be linked to regional networks. The synergies between the two systems are clearly visible in the Mekong Delta where agricultural products are transported by linking small-scale rural transport with regional bulk shipping. More in depth information could help formulate interventions to have poor people reap the benefits of improved navigation.

3.3.1.2 Challenges

Serious constraints prevent a full assessment of the socio-economic benefits of enhancing navigation on the Mekong. These constraints refer to:

- unreliable data on demand for cargo and passenger transport or transport master planning;
- limited awareness of decision-makers on the importance of river navigation and therefore lack of budgets for waterway infrastructure and waterway authorities;
- perceived poor reliability of waterborne transport services due to physical and non-physical barriers;
- lack of availability of regional and national transport master plans;
- distorted transport markets, when considering (a) resource costing based on total and external costs associated with transport (b) cargo allocation practices and (c) attention paid to programmes for road and rail transport development;
- bottlenecks in waterways and ports, rivers, channels, inland ports, hinterland connections, navigation infrastructure, navigational aids, maintenance and surveys, and fleet capacity;
- non-physical constraints for cross-border navigation, costs involved to clear;
- poor coordination on data management of current and planned national and regional transport infrastructure works. The few statistics available are scattered across different organisations and institutions, and are not easy to access;
- no inventory of bottlenecks, specifying the nature of works to be done to eliminate them and sources of possible financing;
- declining cross-border passenger transport on the Mekong due to new roads and other modes of transport. In MRC Member Countries, lack of attention is paid to waterborne passenger transport which is often left out of transport planning with the needs of people in remote areas forgotten. In Lao PDR and Thailand, there are some regular passenger routes, although these systems are not linked; and

- limited data to quantify the number of passengers, either tourists or local residents who use the river daily or more regularly to travel. Such data could be important for developing the master plan and private sector activities linked to waterborne transport.

3.3.1.3 Outputs and Activities under Outcome 1

Output 1.1: Master plan for Regional Waterborne Transport developed

Successful development of regional waterborne transport on the Mekong River depends to a large extent of the volume of cargo to be transported. In general, waterborne transport is a suitable mode of transport for low-value, non-perishable dry and liquid bulk cargo over long distances and in large consignments. Waterborne transport is also close to tourism, especially it can create a link to diversified wetland areas where ecotourism is increasingly paid more attention. A Master Plan for Regional Waterborne Transport is therefore necessary for identifying potential projects in the region. The Navigation Programme therefore envisages as a short-term priority to establish traffic and trade scenarios for waterborne transport on the Mekong River as a basis for further development. The different transport scenarios will identify opportunities for private-sector development and the need for supportive policies for passenger transport and tourism. The potential impact on cultural and natural sites and the feasibility for tourism will be linked. Community development and gender involvement will be analysed before the full strategy, scenarios and recommendations are developed.

The ASEAN Secretariat recently proposed to prepare a Regional Master Plan for Waterborne Transportation in the ASEAN region. This master plan would include an important component on navigation. As the MRC NAP would include a Regional Master Plan for Navigation on the Mekong River as Output 1.1 under Outcome 1, it will be crucial to coordinate well with ASEAN Secretariat to either (i) do the project together or (ii) ensure the synergies between both agencies in this regard are secured and overlaps avoided. The MRC NAP will prepare a concept note on the Regional Master Plan for Navigation on the Mekong River and submit it to the International Affairs Division of the Marine Department under the Thai Ministry of Transport. This division will then liaise with the ASEAN Secretariat and advise MRC NAP and the TNMC of ASEAN initiatives. From then on, ASEAN and MRC can coordinate further. It is to be noted that this is an excellent opportunity for cooperation between MRC and ASEAN.

Activity 1.1.1 Formulate the strategy to stimulate the growth of the cross-border waterborne transportation based on the scenarios

This activity consists of several following sub-activities:

- *Collection and analysis of data and information*
- *Evaluation of national transport development strategies and master plans*
- *Conducting supply-demand analysis for waterborne cargo transportation*

Identify and justify alternative scenarios for the development of regional waterborne transport of cargo on the Mekong River.

On the **supply side**, the study will cover in particular but not be limited to an analysis and quantification of the physical, organisational and legal bottlenecks and issues with performance indicators and recommendations for eliminating bottlenecks.

On the **demand side**, an analysis based on data available from existing market surveys will be conducted with respect to the owners of inland water transport in the Lower Mekong Basin. This analysis will concentrate on the requirements of inland and maritime water transport operators to develop sustainable river transport lines to and from the boundaries of the Lower Mekong Basin.

- *Study the optimum accessibility of MRC Member Countries to regional and international maritime and inland navigation and waterborne trade*

This study will investigate which waterways are to be used for regional traffic.

- *Conduct the supply-demand analysis for waterborne passenger transport and tourism, and for rural waterborne transport*

Activity 1.1.2 Identify the qualification and quantification physical requirements

The result is the general identification of physical requirements in accordance with the compiled database with bottlenecks considering future physical requirements based on trade and traffic development and forecasts.

Activity 1.1.3 Analyse the different modes and the multimodal options for the development of a strategic regional intermodal transport scheme

Socio-economic analysis of the cargo scenarios identified before.

- *Conduct the modal split analysis.* A modal split analysis will be carried out encompassing, but not necessarily limited to total least financial costs, lot size of consignments, reliability (quality and regularity) of service, risks and safety (loss and pilferage, disruption of service).

Activity 1.1.4 Determine the Optimal Mekong Navigation Scenario and Least Required Depth (LRD)

Investment opportunities in regional waterborne transport will be identified and elaborated on regarding improvement of the waterway infrastructure and waterway management, fleet and fleet operations, port and port operations.

- *Conduct the modal split analysis, develop cargo scenarios for the development of waterborne transport and schematise the intermodal regional transport network*
- *Propose scenarios based on different sets of Least Available Depth (LAD)*
- *Develop waterborne transport development scenarios (cargo).* Alternative development scenarios to enhance and improve waterborne transport activities. These scenarios will be based on the potential of different routes between major destinations in the region. Include in the scenarios the currently underdeveloped areas of historical, natural and cultural interest along the river.
- *Develop scenarios for waterborne passenger transport/cruise industry*

Review promising scenarios to develop waterborne passenger transport and tourism in the Mekong Basin in relation to other modes of transport. Distinction is to be made between more urbanised areas and rural areas and local and inter-local transport.

Activity 1.1.5 Carry out environmental and social impact assessments for regional waterborne transport

A social impact assessment will be carried out on the alternative scenarios for the development of waterborne transport. Social and environmental impact assessments of increased waterborne cargo, passengers and tourism will be carried out.

Activity 1.1.6 Carry out an economic and financial evaluation of scenarios

The feasibility of alternative scenarios for the development of waterborne transport will be evaluated in both economic and financial terms.

Activity 1.1.7 Prepare recommendations for prioritised investments in inland waterway infrastructure and sources of finance for the recommended investments identified, and identify investment opportunities in regional waterborne transport (cargo) and for regional passenger transport, tourism and rural waterborne transport, and sources of finance including potential international finance institutions and bilateral donors for the recommended investments.

Activity 1.1.8 Investigate setting up public-private partnerships

Activity 1.1.9 Organise national consultations and a regional workshop for discussion on the Master Plan

Output 1.2: Technical inputs are provided to the Member Countries and to other MRC Programmes on specific navigation-related matters that need NAP's intervention

During the implementation of the NAP 2006-2012, it became obvious that some flexibility needs to be reserved for the execution of the programme.

For example, the work all the MRC programmes had to dedicate towards unexpected plans and proposals to build hydropower dams was substantial, and was not included in the original work plans and budgets of the programmes. Yet it was important for MRC to respond swiftly and with enough resources. Decision-making on hydropower development and operations rests with Member Countries. Still, MRC has an important role to play in monitoring environmental impacts, especially those related to trans-boundary issues. Hence MRC plays an important role in the dissemination of “best practices” with respect to hydropower development in the Lower Mekong Basin. It ensures consultation and evaluation of major development projects.

One of the major MRC roles involves helping Member Countries implement Procedures for Notification, Prior Consultation and Agreement (PNPCA) for mainstream projects. Under these procedures, the MRC had developed the Preliminary Design Guidance for Mekong Mainstream Dams in the Lower Mekong Basin, providing initial recommendations in the form of design and operating principles for mitigation measures, as well as compliance monitoring and adaptive management. The broader aims are, firstly, to ensure a consistent approach to the design of individual dams that could potentially form part of a cascade sequence in the Lower Mekong mainstream. Secondly, the approach of offering performance targets allows developers the flexibility to identify and propose the best solutions. Under this guidance, the MRC proposed preliminary design specifications for navigation locks, based on a Review of International Ship Lock Dimensions and their Relevance to the Proposed Hydropower Developments on the Mekong Mainstream. The document has been approved by all MRC Member Countries.

The notification for one dam, for instance, included a feasibility study by the developer which was screened against the Preliminary Design Guidance of the MRC to ensure that the best engineering designs for the planning, design, construction and operation of locks are being proposed by the developer. The MRC reviewed the feasibility study by assessing the details of the plans and engineering specifications, comparing the proposed situation for the ship locks under the planned dam against the specifications in the Preliminary Design Guidance, making outline recommendations to solve the problems, and making an outline recommendation on financing lock operations. To preserve freedom of navigation along mainstream stretches of the Lower Mekong Basin and to seize the opportunities for riparian trade, transport of mining products and tourism, guidelines are needed for the planning, design, construction and operation of navigation locks. These would be built to compensate the head created by dams, thus guaranteeing mainstream passage of vessels in the Lower Mekong Basin. Some of them, if properly planned and designed and well operated, could theoretically help improve mainstream navigation in the Lower Mekong Basin in terms of slope and speed reductions. But others could create obstacles to navigation development so the Navigation Programme needs to be directly and closely involved.

Another example where the navigation team needs to provide its inputs is regarding the relationship between climate change and navigation. As changes in weather patterns are being felt across the Lower Mekong Basin, the impacts of climate change have become a topic of strong public interest. Studies show that the basin is vulnerable to several climate change impacts that include a predicted mean temperature rise of approximately 0.8 degrees Celsius by 2030 as well as a regional increase in annual precipitation of 200 mm. With more extreme weather events such as typhoons, the basin is more vulnerable to floods and drought, affecting people's livelihoods and reducing agricultural productivity. The MRC Climate Change Adaptation Initiative (CCAI) continues its work to better understand how people in the basin can adapt to climate change. Adaptation initiatives are underway throughout the basin as part of regional and national projects. Most adaptation strategies focus on water resource management, agriculture, and disaster risk reduction.

Impacts of climate change on navigation: the navigation sector is vulnerable to the impacts of climate change through potential flooding of existing port and waterway infrastructure in the wet season and reduced water levels in the dry season, potentially limiting navigation in some areas. The increased prevalence of typhoons and monsoons may also damage port infrastructure and increase the likelihood of shipping accidents in the basin. The need for effective river information services, early warning systems, emergency response

mechanisms and enhancing ship standards will therefore be even more critical. Sea level rise may also impact on inland ports and existing infrastructure in the Mekong Delta in Viet Nam.

Impacts of navigation on climate change: Inland navigation in turn can reduce carbon emissions compared to road, rail transport and other modes of transport. Carbon mitigation initiatives could be developed in the navigation sector at the national and regional level¹.

Transport affects people in many ways. It enables economic growth and creates social benefits. At the same time, it has negative impacts on people's health, the economy and the environment. Thus transportation's greenhouse gas emissions will be only one aspect of future transport development and must be addressed in the context of sustainable transport. Although navigation is not a main driving force to increase climate change caused by greenhouse gas emissions, the navigation sector should evaluate the possibilities to contribute to a reduction of anthropogenic greenhouse gas emissions to emphasise navigation as an environmentally sound mode of transportation.

Recognition of current and future climate change impacts – both anticipated and unanticipated – provides an opportunity for Member Countries, line agencies and key stakeholders in the basin to shape policies, adaptation strategies and mitigation measures for inland navigation. The NAP will coordinate activities with the CCAI to realise the potential opportunities inland navigation presents as a carbon mitigation initiative, determine future impacts from climate change and ensure adequate adaptation strategies are developed in the sector.

Ad Hoc Activities

The activities involving the technical inputs by the Navigation Programme cannot be fixed at this stage as they will depend on the situation. NAP will see it as a priority to assist whenever needed.

At the time of NAP 2013-2015 formulation, collaboration between NAP and CCAI regarding activities that are possibly funded by CCAI is still subject to consideration by the CCAI Steering Committee.

Examples of possible interventions:

- define good practices for the planning and design of navigation locks within the Lower Mekong Basin which eventually would lead to harmonised standardisation of locks on the Mekong mainstream;
- assess the details of the plans and engineering specifications including an assessment of whether the locks will work efficiently and what the private developer has proposed for operations and maintenance of the ship locks;
- compare the proposed situation for ship locks under the planned dam against the specifications in the Preliminary Design Guidance;
- make recommendations on financing lock operations and coordination between locks;
- define the full technical year-round navigation accessibility of the Upper Mekong in association with planned hydropower development;
- investigate the dimensions of ship locks taking into account navigation accessibility;

¹ **Fuel-efficiency is the trademark of the industry:**

- average self-propelled vessels consume up to 0.013 litre per tonne-km, whereas modern vessels can achieve gas oil consumption as low as 0.0044 litre per tonne-km
 - rail is estimated to consume on average 0.0095 l/tkm and road transport 0.0292 l/tkm.
 - inland ships today emit one-third to one-fifth of the carbon of road trucks per tonne-km (a 15% reduction has been achieved since 1999).
- Smart steaming (equivalent to eco-driving) leads to carbon savings of between 10 and 30%.

- assess the positive consequence on available water depth for the range of discharges compatible with navigation and analyse the impact of dredging, rock removal, bend realignment enlarging the hydraulic section of the river;
- investigate existing and planned river crossings such as bridges, power lines, tunnels, dredging pipes and underwater cables that may be an obstruction to navigation. The study should compare standards in the country with regional and international standards and, taking into account the assessment of the technical feasibility of navigation accessibility and the comparative study, draft Upper Mekong air clearance standards as recommended for the construction of river crossings. These clearances belong to the general waterway classification. They have not yet been standardised or harmonised, and must be when nautical accessibility needs to be studied. At least the formulation of a detailed draft waterway classification should be part of this study;
- study the impacts of climate change on navigation;
- study the impacts of navigation on climate change; and
- other technical matters that are urgent enough for NAP's involvement.

3.3.2 OUTCOME 2: Freedom of Regional and Cross-Border Navigation on the Mekong is Effectively Facilitated, Maintained and Promoted through the Development and Implementation of an Appropriate Legal Framework

3.3.2.1 Introduction

Previous outputs and activities

Navigation on the Mekong River consists of Inland Waterway Transportation (IWT) and Maritime Transportation. Both types can take place at a national level (domestic trade, rural water transportation or access by sea-going vessels to Vietnamese ports, for example), and at a trans-boundary level (vessels plying the river between Lao PDR and Thailand, for example, or sea-going vessels sailing between the South China Sea and Phnom Penh).

In preparing the NAP in 2003, it was noted that the most striking weakness in the Lower Mekong Basin navigation regime was the lack of a regional legal framework defining common standards, procedures and rules for navigation. At the time, the legal situation was widely considered as an obstacle to the growth of navigation, free trade and ultimately the sustainable development of the riparian countries.

From 2003 onwards, under Component 2 of the NAP, studies were conducted, legal instruments prepared and assistance provided to a number of initiatives and projects. These legal activities contributed to a better understanding of the pre-existing legal regime and helped MRC Member Countries take important steps towards a substantial improvement of the navigation regime.

Freedom of navigation throughout the mainstream of the Mekong is binding under Article 9 of the 1995 MRC Agreement, which reads:

On the basis of equality of right, freedom of navigation shall be accorded throughout the mainstream of the Mekong River without regard to the territorial boundaries, for transportation and communication to promote regional cooperation and to satisfactorily implement projects under this Agreement. The Mekong River shall be kept free from obstructions, measures, conduct and actions that might directly or indirectly impair navigability, interfere with this right or permanently make it more difficult. Navigational uses are not assured any priority over other uses, but will be incorporated into any mainstream project. Riparians may issue regulations for the portions of the Mekong River within their territories, particularly in sanitary, customs and immigration matters, police and general security.

However, this article is considered too concise and does not assign any operational or financial responsibilities to the riparian countries. As a result, it does not provide an effective legal basis for freedom of navigation.

Under Component 2 of the NAP, bilateral initiatives were undertaken to elaborate Article 9 of the MRC Agreement into clear rules on free navigation and to establish harmonised technical and operational rules to liberalise cross-border navigation in line with the regimes of other international rivers.

In this context, Cambodia and Viet Nam signed, on 17 December 2009, an Agreement on Waterway Transportation which entered into force on 20 January 2011. The purpose of this breakthrough agreement is to establish a legal framework for the effective implementation of freedom of navigation in the Mekong River system, thereby implementing the aforementioned Article 9 of the MRC Agreement as well as to create favourable conditions for transit and cross-border navigation within the regulated waterways (Article 1 of the 2009 Agreement). Within the NAP's legal outcome, assistance was furthermore provided for the concrete implementation of the Agreement on Waterway Transportation.

Under NAP Outcome 2, a draft framework agreement was prepared for navigation along the stretch of the Mekong River between Luang Prabang and the Khone Falls. During a regional workshop between Lao PDR and Thailand, held in Vientiane on 27 October 2010, it was agreed that there is a need to have a clear and up-to-date legal framework for navigation on the Middle Mekong which implements Article 9 of the MRC Agreement for that part of the river. In 2011, a paper was prepared on international legal aspects of navigation on the Middle Mekong. This study elaborated on the existing regime as well as on recommendations for future actions². In April 2012, a draft agreement was presented to the Lao and Thai governments for a 'Navigation Agreement between the Lao PDR and Thailand'.

Legal assistance was also provided to the project on the carriage, handling and storage of dangerous goods along the Mekong River. The objective of the comprehensive risk analysis was to identify and determine the magnitude of risks associated with of dangerous cargo in ports, vessels and oil and gas terminals on the Mekong River, and determine feasible prevention and mitigation measures to manage the risks. The risk analysis also focused on the legal framework and institutional capacity in the MRC Member Countries. In this framework, a number of legal recommendations were formulated as well.

Relevance for Development within a Regional Context

The legal outcome of the NAP is of paramount importance as navigation on the Mekong cannot be further developed without improving the legal framework for unhampered cross-border navigation. Without a fully-fledged legal framework, it will be impossible to improve and encourage cross-border trade and transport. Investors need an attractive and competitive legal framework and especially legal certainty in the long term. The provision of a fully operational international legal framework is an important step in the removal of non-physical obstacles to navigation. In the medium and long-term, this will ensure the implementation and sustainability of other outcomes.

The common interest in increasing international trade was the underlying motive for the MRC signatories opting for a separate article in the 1995 Agreement on Freedom of Navigation (Article 9).

In the absence of appropriate legal rules implementing Article 9 of the MRC Agreement, governments and the private sector are presently not capable of fully realising the advantages of waterborne transport although it is cheap, environmentally friendly, offers large cargo capacity, relieves road congestion and maintenance, and is attractive to tourists.

3.3.2.2 Challenges

A number of important difficulties and challenges with regard to the legal framework for cross-border navigation on the Mekong River continue to exist. The implementation of the 2009 Agreement on Waterway Transportation has proven particularly challenging. Firstly, the Mekong Navigation Facilitation Committee (MNFC) still has to be established. Article 31 of the 2009 Agreement stipulates that the committee be created

² Van Hooydonk, E., International law pertaining to navigation on the Middle Mekong. Current regime and recommendations for the future, study commissioned by the Mekong River Commission, 2011.

and composed of representatives of the Contracting Parties. According to Article 32 of the Agreement, the MNFC is charged with:

- ensuring the smooth implementation of the Agreement and actively contributing to the realisation of its objectives;
- improving and harmonising regulations and other conditions under which freedom of navigation is exercised;
- promoting and intensifying cooperation between the Contracting Parties in all matters related to navigation in the Mekong River system and related activities; and
- obtaining compliance with the provisions of the Agreement.

Article 33 of the 2009 Agreement describes the specific duties of the MNFC, which include the drafting of proposals for adoption and, if need be, the revision of rules and regulations by the contracting parties. Article 34 of the 2009 Agreement lays down the institutional organisation of the MNFC. According to this article, the MNFC consists of an Executive Council, a Board, Working Groups and a Waterway Transportation Consultative Group. In practice, the MNFC is not yet operating.

Furthermore, it is reported that the provisions of the 2009 Agreement on abolishing a number of border controls have not been effectively implemented either. The implementation of the Agreement, and in particular the establishment of the MNFC, is of key importance as shipping companies and traders will depend on it to get goods across the border in a smooth and easy way and to maintain or improve their competitive position.

Secondly, a framework agreement for navigation for the Mekong River between the Lao PDR and Thailand still has to be put in place. A draft agreement was forwarded to the Lao PDR and Thailand in April 2012. It contains, inter alia, a chapter on a future bilateral river commission, to be known as the Middle Mekong Committee. This Committee would be charged with:

- ensuring the smooth implementation of the agreement;
- formulating common rules and regulations;
- promoting and intensifying the cooperation between the contracting parties; and
- designating the opening of additional ports.

This draft agreement may provide a basis for further discussions, study and possibly official negotiations between the riparian countries involved.

Thirdly, the competitive position of international, cross-border and domestic navigation in the Mekong Basin may, in the absence of an attractive legal framework, even start to deteriorate due to the gradual improvement of conditions for road transportation, both through infrastructure investments and legal measures to liberalise transportation.

Other problems are:

- lack of specialised knowledge of relevant principles of international river and maritime law and of the specific instruments on the Mekong and their background;
- insufficient level of implementation of international instruments pertaining to navigation by some riparian states; and
- the need to monitor developments in non-MRC Mekong countries.

The nature of the above-mentioned challenges indicates that the legal regime of navigation on the Mekong River is still inadequate and that Outcome 2, regional coordination facilitation by MRC, remains essential.

3.3.2.3 Outputs and Activities under Outcome 2

Output 2.1: Assistance for the Implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam provided

In order to implement the Agreement between the Royal Government of Cambodia and the Government of the Socialist Republic of Viet Nam on Waterway Transportation, signed on 17 December 2009 and entering into force on the 20 January 2011, NAP was requested to help establish the Mekong Navigation Facilitation Committee (MNFC), and take steps toward harmonising rules and regulations which will further contribute to the development of navigation on the Mekong River.

In 2011, NAP formulated a road map for the implementation of the legal framework and prepared a draft statute for the establishment of the MNFC and assisted in holding a meeting on 4 August 2011 to finalise and reach agreement on the statute.

Activity 2.1.1 Prepare Overview of Monitoring of the implementation of the Agreement on Waterway Transportation between the Royal Government of Cambodia and the Government of the Socialist Republic of Viet Nam, and list the outstanding tasks to be done by each Signatory to the Agreement, and by the MRC

Activity 2.1.2 Assist two Signatories to the Agreement in establishing the Mekong Navigation Facilitation Committee (MNFC):

- Nomination of the responsible Ministers for the Executive Council of the MNFC;
- Appointment of the members of the Board under the MNFC;
- Assignments of the Working Groups under the MNFC;
- Establishment of the Waterway Transportation Consultative Group in Cambodia;
- Establishment of the Permanent Secretariats of the MNFC; and
- Inauguration of the MNFC and convening of its first meeting.

Activity 2.1.3 Assist two Signatories to the Agreement in initiating to establish or establishing the implementing regulations under the provisions of the Agreement, in particular, those which are stipulated in Article 33(1) and 33(3) of the Agreement, as well as in implementing these implementing regulations.

Activity 2.1.3 Financially assist the Permanent Secretariats of the MNFC during the period of the current and new Navigation Programme, until December 2015

Activity 2.1.4 Facilitate MNFC to formulate a detailed road map and work programme for the implementation of the Agreement

Activity 2.1.5 Assist in drafting and recommending the standards rules, certification, vessel construction, rules for dangerous goods and other safety standards (combined with Output 3.2)

Activity 2.1.6 Assist the two parties in monitoring the implementation of the Agreement as required

Output 2.2: Assistance for the Elaboration of the Agreement on Waterway Transportation between Lao PDR and Thailand provided

Initially there was a successful start-up through a legal study to provide recommendations for establishing a legal framework for cross-border navigation between Lao PDR and Thailand. The recommendation report was formulated and distributed for review by the legal task forces of Lao PDR and Thailand. National consultation meetings were organised on 19 October 2010 in Thailand and on 26 October 2010 in Lao PDR. To further discuss the report, MRC NAP facilitated the first regional meeting to establish a legal framework for cross-border navigation between Lao PDR and Thailand on the stretch downstream of Luang Prabang in Vientiane on 27 October 2010. In 2011, internal consultations among relevant Lao agencies were undertaken. And during the 10th Meeting of the Navigation Advisory Body (NAB) on 10 January 2012, the Lao delegation

advised that the Lao Government agreed to proceed, with MRC assistance, with the drafting of the Navigation Agreement between Lao PDR and Thailand from the Golden Triangle down to the Khone Falls. As the stretch between the Golden Triangle and Luang Prabang already forms part of the 2000 Quadrangle Navigation Agreement, the Bilateral Navigation Agreement therefore needs to be very consistent with the Quadrangle Navigation Agreement. The model of the 2009 Cambodia - Viet Nam Navigation Agreement should be used as reference. At the 11th NAB Meeting, the Lao delegation asked to make reference only to 'a Navigation Agreement between the Lao PDR and Thailand'.

Activity 2.2.1 Undertake a legal study on the existing Navigation Agreements between Lao PDR and Thailand, and other Mekong navigation agreements, and compared with international treaties

Activity 2.2.2 Prepare recommendations for establishing a legal framework for cross-border navigation between Lao PDR and Thailand and further assist as requested

Activity 2.2.3 Assist a legal working group of Lao PDR and Thailand in negotiating/drafting a bilateral Navigation Agreement between the Governments of the Lao PDR and Thailand

Activity 2.2.4 Assist Lao PDR and Thailand in holding national consultations on the draft

Activity 2.2.5 Assist Lao PDR and Thailand in holding a regional workshop on the draft including, if agreed and depending on the progress made, a working visit to either MNFC Secretariat in Cambodia or Vietnam

Output 2.3: Legal Rules and Regulations under Which Freedom of Navigation is exercised, updated and harmonised

Updating standards and harmonising rules and regulations will be among the most important assignments of the Navigation Programme. Without clear standards and harmonised systems, cross-border navigation will always remain troublesome. Updating and harmonising rules and regulations will be done through two different channels.

In Outcome 2, new legal instruments will be established that should serve as a comprehensive basis for the development and liberalisation of international shipping throughout the Lower Mekong Basin, setting out fundamental, binding and clear rules relating to the identification of the beneficiaries of freedom of navigation. In terms of contents of the legal agreements, the following aspects are considered 'legal' and should be harmonised through Outcome 2:

- pilotage regulations safety inspection (hull and engine);
- insurance regulations;
- tariffs of fees, dues and taxes;
- rules on search and rescue and salvage;
- investigation of accidents; and
- any other mainly legal matter.

The 'technical' standards/rules and regulations will be harmonised through Output 3.2 under Outcome 3, such as carriage, handling and storage of dangerous goods, technical regulations on surveys of waterways and vessels, rules of the road, safe navigation, prevention of collisions, and rules on aids to navigation.

Activity 2.3.1 Conduct a comparative study on relevant rules/regulations of Cambodia and Viet Nam, and international organisations relating to navigation

Activity 2.3.2 Conduct a comparative study on relevant rules/regulations of the Lao PDR and Thailand, and international organisations relating to navigation

Activity 2.3.3 Undertake a review of the existing standards/rules/regulations in the Member Countries and international norms for recommending the most suitable as 'foundation/ground' for standardisation and harmonisation

Activity 2.3.4 *Recommend a uniform system of standardised and harmonised rules/regulations*

Activity 2.3.5 *Undertake national and regional consultations on the recommendations of standardised and harmonised rules/regulations*

3.3.3 **OUTCOME 3: Sustainable Development of Navigation is ensured through the Preparation, Application and Monitoring of Traffic Safety and Environmental Management Measures**

3.3.3.1 Justification

Context

This outcome addresses the issues of improving river transport efficiency and increasing safety while ensuring environmental sustainability and also provides planning to manage hazardous cargos, prevent pollution and clean up spills within the river.

This outcome shall ensure that the level of safety and environmental protection corresponds to that applicable at the time on other international waterways. The MRC shall remain closely associated in the regulating process (outcome on legal framework). In order to increase regional and international trade, there is a strong need to propose measures for the progressive improvement of safety, pollution control and environmental sustainability. It is preferable to take action on a regional level due to the trans-boundary issues apparent in Mekong River transportation. These measures should be based on common (preferably international) standards. It is not logical to have different national systems on a river that is shared by two countries (such as many stretches between Lao PDR and Thailand). Different systems not only hinder cross-border trade but also endanger lives of the waterway users through the interpretation of different rules and regulations.

Navigation will develop even if the MRC does not have a programme for this sector. However, doing nothing is the worst scenario: the environment will be much worse off without this programme as there are currently no environmental-protection measures or funding to ensure the safe handling of dangerous goods and the improvement of port facilities. Also, there are no provisions for pollution prevention and there are limited contingency measures to respond to accidents along the waterway. Letting development continue instead of focusing on regulations, monitoring and enforcing appropriate and regional anti-pollution rules is not sustainable and therefore against the provisions in the 1995 Agreement.

Safety and Efficiency

All MRC Member Countries have acknowledged that safe navigation should be one of the fundamental underpinnings of the NAP for regional economic development. It is clear that safety issues have not been high on the agenda when discussing water transportation. Yet improving safety and increasing navigation efficiency go hand in hand. All measures that reduce accidents and collisions enhance safety. Examples, such as correct ship inspection, installation of buoys and beacons, night navigation facilities, appropriate charts, proper training, river policing and dredging works to clear hot spots, would all have positive consequences for the efficiency of water transportation. These would allow rapid increases in trade once these navigation, real-time information and inland water vessels traffic systems and regulations are in place. Allocation of resources to maintain modern standardised and accurate navigation aids should be given high priority. Safe navigation should be one of the fundamental underpinnings of the strategy implementation.

Environmental Sustainability

It has been agreed that the MRC should put a lot of effort into implementing the environmental objectives of the navigation strategy and programme. The 1995 Agreement has strong provisions for sustainable development and environmental protection; it is an essential condition that MRC ensures that the ecological health of the river is not compromised by navigational developments. Through Article 3 of the 1995 Agreement, the MRC Member Countries agree *“to protect the environment, natural resources, aquatic life and*

conditions, and ecological balance of the Mekong River Basin from pollution or other harmful effects resulting from any development plans and uses of water and related resources in the Basin.”

Through Article 7 of the Agreement, the MRC Member Countries agree “to make every effort to avoid, minimise and mitigate the harmful effects that might occur to the environment ...”

Introducing and harmonising rules on carriage, handling and storage of dangerous

International conventions and agreements calling for the construction of ships and inland tank barges carrying liquid cargoes with double hulls are gaining credence and are being implemented on a worldwide basis. If such provisions were recognised and implemented by line agencies in the Lower Mekong Basin, the safety of waterborne transportation of oil and hazardous liquid cargoes would be increased considerably. If further interventions are implemented, such as the introduction of extensive training programs, documentation and licensing for the handling of liquid products, and testing of all people involved, then the safety of barge transport could be further increased as compared to road and rail transportation.

Petroleum products and other dangerous goods are increasingly being transported along the Mekong River. If not managed properly, these cargoes have the potential to cause significant pollution and even major incidents such as fires and explosions impacting on riparian communities. Industrial waste, oil spills and hazardous wastes are emerging threats to water quality from the carriage, handling and storage and of dangerous goods, which need to be addressed through regional and national action plans.

In December 2010, the NAP commenced Phase 1 of its Risk Analysis of the Carriage, Handling and Storage of Dangerous Goods. The project formed part of the MRC Navigation Strategy and Programme Component 3 (Traffic Safety and Environmental Sustainability) of which the development objectives are to improve safety and enhance environmental protection and pollution control. The objective of Phase 1 was to identify and determine the magnitude of risks associated with dangerous goods and determine prevention and mitigation measures required to manage the risks. Phase 1 detailed the baseline conditions and determined the priority areas for improvement in each of the MRC Member Countries

The **Risk Analysis** (Volume I) included assessing the risks and operational impacts of ports, terminals and vessels and also evaluating the waterway, environment and the legal framework governing international, cross-border and domestic transport. It detailed extensively the priority areas in each member country in relation to ports and terminals, vessels, waterways, legal framework and the environment. Although the priority areas varied, priorities were identified in the areas of (i) enforcement and compliance (ii) legal frameworks (iii) emergency response to oil spills and wastes and (iv) public information and awareness.

Recommendations (Volume II) provided strategic recommendations for improving the transport of dangerous goods in relation to the five components of the risk analysis. These were prioritised by working groups at a regional workshop in Bangkok on 12 and 13 January, 2012. Recommendations were considered to be very high and high priority areas in all Member Countries. Some are specific to the five components of the risk analysis, particularly in relation to ports/terminals and vessels. A number of prevention and mitigation measures were recommended for the operators of ports, terminals and vessels. Member Countries must consider how national line agencies responsible for overall port management and inland navigation can ensure that the institutional capacity and technical standards or guidelines can be enhanced to ensure effective monitoring and compliance.

For the first time in the Mekong Basin, an organisation has made a detailed assessment of the situation on waterborne transportation of dangerous goods on a sub-regional level. The results are striking and show that substantial work is required. The recommendations are crucial but not sufficient for the Member Countries to start putting all required measures in place. The MRC will therefore move into the next phase and use the recommendations to make a fully-fledged **Regional Action Plan for Sustainable Management of Dangerous Goods**.



In the meantime, Phase 1 has identified two pilot projects for immediate implementation:

1. Sustainable Management of Dangerous Goods at the Chiang Saen Commercial Port:

Thailand asked the NAP in January 2012 to implement a pilot project for the Sustainable Management of Dangerous Goods at Chiang Saen Commercial Port. Through the Navigation Advisory Board, comprising senior officials of the transport ministries, Member Countries accepted the proposal and asked the MRC to start the project by April. The management plan and training programs developed for dangerous goods at the Chiang Saen Commercial Port will be evaluated and applied to other inland ports in the Mekong Basin.

2. Development of a GPS Vessel Guidance System and Low Water Alert System:

As agreed during the 10th Navigation Advisory Body meeting, the pilot project for Development of a GPS Vessel Guidance System and Low Water Alert System will improve waterway safety in Lao PDR and Thailand. Safety of Upper Mekong navigation remains an issue for efficient navigation. The presence of numerous rocks and dangerous shoals in the channel, combined with very strong currents and high water level differences, which make the channel undetectable, are challenges to river transportation. New low-cost technologies in the form of GPS course guidance and identification of submerged hazards will be introduced. In addition, colour-coded Low Water Alert gauges will be installed and calibrated to chart data to alert vessels of low water conditions. GPS devices will be provided to selected vessels.

Further to these pilot projects, the MRC will continue establishing the Mekong Navigation Facilitation Committee to implement the Navigation Agreement between Cambodia and Viet Nam, and facilitate discussions to establish a Legal Framework for Cross-Border Navigation between Lao PDR and Thailand. Both frameworks will form the legal foundation for standardising and harmonising rules and regulations for the sub-regional transportation of dangerous goods.

3.3.3.2 Challenges

- No harmonised rules and standards. When vessels cross borders, some countries may require higher standards of inspection than others. Harmonisation of these standards is needed and will contribute to reduction of ship casualties.
- Enforcement of rules tends to be lax. It should be compulsory to have all vessels (minimum dimensions) classified, registered and regularly inspected.
- Most of the present certification procedures and registrations of fleets are not adequate. The design of vessels, especially in Cambodia and Lao PDR, is not according to standards. The shape of fleets is not adapted to conditions of the waterway or volume of cargo in relation to the available river depth.
- No common navigation rules and regulations.
- Existing regulations cannot be enforced due to lack of institutional capacity.
- Navigation aids are in place only on a limited scale on some parts of the waterway (some still date from the French colonial period).
- Low budgets for maintenance of waterway signals, buoys, beacons etc.
- Inspections and certifications of fleets are not carried out properly.
- Low or no maintenance of fleets and waterways.
- Poor safety regulations in ports.
- No rules for fire-protection, life-saving or communication equipment on board inland waterway vessels (only for maritime vessels).
- No proper reporting system for accidents along the Mekong River.
- Lags in vessel design or failure to provide sufficient protection for the cargo in case of accidents.
- Passage of vessels constrained by limited depth of water available in the main navigation channels during the dry season, and at the estuaries during low tide. Infrastructure for navigation along the river is otherwise limited to dredging at a few locations, bank protection, the provision of landing and cargo-handling facilities at inland ports, and the installation of navigational aids.
- Risks of carriage of dangerous goods are very high. If not managed properly, increased water transportation on the Mekong River will have a considerable negative environmental impact.
- Opposition to inland waterway projects by environmental activists who, along with public authorities, tend to wrongfully judge environmental consequences of inland waterway projects more severely than projects for other modes (roads, airports and rail). Adverse publicity relating to environmental issues (such as tanker spills, rock blasting) can overshadow the environmental benefits of IWT.
- Impacts on local populations and public participation. Navigation projects have the potential to have a significant impact on local populations. While the aim is to improve the well-being of the population, a lack of understanding of people and their society may result in developments that have considerable negative impacts or are unsustainable in the long term. This is often due to inadequate feelings of ownership or the absence of public participation. It is further argued that concerns of environmentalists should be better incorporated into plans for waterway

improvement. Environmentalists and the inland waterway transport industry should be on the same side in promoting contributions to sustainability, which better use of inland waterway transport can make.

- Lack of capacity and lack of training. Environmental issues are not sufficiently covered in the training of staff in ports, on vessels or among the relevant authorities, especially with respect to prevention of spills and mitigation actions.

3.3.3.3 Outputs and Activities under Outcome 3

Output 3.1: Operational Aids to Navigation and Landing Facilities are Procured and Installed on the Remaining Stretches

Without the need for major infrastructure works, which at times may create irreversible changes with dubious impacts, indicating the deepest channel to the waterway users by beaconing and buoying can be considered as one of the most environmentally friendly exercises in the process of waterborne transport improvement. The lack of proper channel markers is constantly causing traffic accidents. A single traffic accident on the river could have disastrous impacts for drinking water, aquatic lives and irrigation throughout the entire sub-region.

NAP has, together with the line agencies, designed, commissioned and installed aids to navigation systems on selected stretches of the Mekong River in all four countries. Certain important stretches on international routes enhancing cross-border navigation and trade still require navigational aids.

There will also be a need to install landing facilities for tourists and passengers in the difficult areas in the upper reach of the Lower Mekong Basin.

- Activity 3.1.1 Design a fully operational system of and install aids to navigation including landing facilities where needed*
- Activity 3.1.2 Prepare tender documents and undertake bidding for manufacturing aids to navigation*
- Activity 3.1.3 Undertake hand over of the whole aids to navigation system to the countries/authorities*
- Activity 3.1.4 Assist/coordinate the installation of the buoys, beacons and landing facilities undertaken by respective countries*
- Activity 3.1.5 Monitor/follow-up positioning and maintenance plan*

Output 3.2: Rules and Regulations Updated and Harmonised

Reference is made to Output 2.3 *The rules and regulations under which freedom of navigation is exercised, are harmonised* under Outcome 2.

While Output 2.3 will focus on the legal instruments, and rules/standards related hereto, this output will focus on the 'technical' aspects and should be harmonised through this Outcome 3:

- Mekong ferry stations require higher standards that would be introduced for the upper part of Mekong River;
- Carriage, handling and storage of dangerous goods;
- Technical regulations on surveys of waterways and vessels;
- Rules of the road, safe navigation, prevention of collisions;
- Rules on aids to navigation:
 - Anti-collision rules and regulations;
 - Safety inspection (hull and engine);
 - Safety requirements for passenger vessels;

- Safety equipment;
- Coordinated cross-border pollution prevention, response and contingency plans, enforcement;
- Common training and certification standards;
- Port management and safety and quality certification;
- New building and ship repairs;
- Vessel traffic systems;
- Custom procedures;
- Load lines;
- Cargo classification;
- Ship classification and certification;
- Waterway classification, including bridge heights;
- Carriage of dangerous and noxious goods;
- Waste management;
- Cargo, ship and crew insurance;
- Navigation training ; and
- Crew certification.

Activity 3.2.1 Undertake a comparative study on relevant rules/regulations of Member Countries and international organisations relating to navigation safety and environment protection

Activity 3.2.2 Prepare a road map for proposing improvement of the standards/rules/regulations

Activity 3.2.3 Recommend the national standards and rules/regulations in the Member States that would be most suitable as 'foundation' for standardisation and harmonisation

Activity 3.2.4 Undertake national and regional consultations on the selected standards, rules/regulations that should be prioritised for standardisation and harmonisation

Activity 3.2.5 Prepare a draft of standards, rules/regulations based on the selection resulted from the regional consultation workshop

Activity 3.2.6 Recommend a uniform system complying with internationally recognised system and suitable to the conditions of the six Mekong co-basin countries

Activity 3.2.7 Propose concrete measures and a programme for the harmonisation of the systems to be agreed upon by the six countries

Output 3.3: The Regional Action Plan for Sustainable Management of the Transportation of Dangerous Goods (Phase 2 + Implementation) Formulated and Implemented

Following the risk analysis, the Regional Action Plan will provide excellent opportunities for the Member Countries, the MRC, the private sector, and development agencies to execute regional and cross-border projects to reduce the risks of oil spills and pollution and enhance emergency response and regional coordination.

The Regional Action Plan will be an important step to take the information from Volume I (Risk Analysis) and Volume II (Recommendations) and develop feasible and practical action plans that can be implemented effectively by Member Countries at the national level or with assistance from the MRC, bilateral development partners and other implementing agencies such as development banks.

Phase 2 will require the development of national and regional project plans and an implementation strategy to manage and control the risks identified with the transport of dangerous goods.

The implementation strategy will need to determine how the national and regional project plans will be implemented and to take into consideration the current institutional capacity and levels of socio-economic development in each of the MRC Member Countries. The project plans will be developed, detailing the short, medium and long term actions, costs and resources required for implementation by the Member Countries and implementation agencies including MRC.

The implementation strategy will be required to prepare for capacity-building programmes for improving institutional capacity in the MRC Member Countries, and the capability of each country to be able to adopt rules and regulations for emergency response and the prevention and mitigation of risks and impacts.

Activity 3.3.1 Review documents under Phase I including Volume I (Risk Analysis) and Volume II (Recommendations) of two pilot projects i.e. (1) Sustainable Management of Dangerous Goods at Chiang Saen Port, and (2) GPS Vessel Guidance System and Low Water Alert System)

Activity 3.3.2 Consolidate the recommendations through the use of a matrix to determine what action is required for improving and/or developing the legal framework, rules and regulations, technical standards, developing management plans and technical guidelines for operators of ports, terminals, and vessels

Activity 3.3.3 Undertake stakeholder analysis in each of the MRC Member Countries to determine how the implementation of recommendations could impact (both positively and negatively) on the key stakeholders

Activity 3.3.4 Identify the potential for developing regional and national project plans in considering the recommendations for ports/terminals, vessels, waterway, legal framework. The plans will include the outputs, deliverables and activities, an estimate of the budget, costs and resources. Socio-economic issues will need to be considered to ensure that proposed actions plans are feasible in the Member Countries. The institutional capacity of national line agencies will also be considered when developing national and regional PP to ensure that the projects can be successfully implemented and monitored

Activity 3.3.5 Prioritise the proposed regional and national project plans using a social, economic and environmental assessment tool

Activity 3.3.6 Evaluate possible sources of financing for future implementation of the regional and national project plans

Activity 3.3.7 Survey linkages with other MRC programmes, the private sector, investment banks and other development partners

Activity 3.3.8 Prepare National and Regional Project Plan and Implementation Strategy for publishing and distribution to Member Countries and development partners

Facilitate regional workshop to review the regional and national project plans and implementation strategy to finalise the Regional Action Plan; ensure that the strategy and implementation plans are approved by the MRC Member Countries, and that project results are well disseminated

Activity 3.3.9 Hold a regional workshop to review the National and Regional Project Plan and Implementation Strategy

3.3.4 **OUTCOME 4: Active Participation of Stakeholders including Relevant Agencies in Member Countries, Development and Dialogue Partners, MRC Programmes and Regional Entities in the Navigation Sector is Enhanced through Improved Coordination and Information Exchange and Sharing**

3.3.4.1 Justification

Context

Information gathering and dissemination on Mekong resources are significant aspects of all MRC activities. This outcome ensures a direct link between the Navigation Programme and the core mandate of MRC as it addresses the establishment and management of information and data systems to support operation, promotion and coordination of regional navigation activities on the Mekong River.

The MRC acknowledges a lack of information of the benefits and advantages of regional navigation development as a vital issue in overall regional infrastructure planning. The socio-economic development challenges in the Lower Mekong Basin are numerous, meaning that national governments, international organisations and bilateral donors have an obligation to ensure that their investments are well justified. By providing information, promoting well-justified investment plans and establishing efficient regional coordination mechanisms, efficient allocation of resources can be ensured.

Navigation is commonly seen as an activity that is trans-boundary in itself. Although waterborne transport and trade have been important for national economies, navigation on the Mekong has also been a regional and international activity. Trade and development opportunities can be realised by developing navigation in a regional perspective and preparing the national transport sectors for the demands and challenges that international trade and transport engagement imply. An important aspect of any regional or international cooperation is information sharing, coordination and exchange of views. Most international organisations therefore call regular meetings, publish information and create an institutional set-up conducive to information and policy exchange among the members/participants.

Operational information and traffic statistics

Transport statistics are commonly used to analyse national and regional development characteristics and to formulate socio-economic forecasts. All governments in the Lower Mekong Basin have committed themselves to ASEAN integration and are aligning their investment and policies to the visions and policy objectives defined within this cooperation framework. Collection and distribution of accurate operational data for vessel users, skippers and pilots plying the Mekong River are largely missing. Only isolated efforts have been made to provide operational information or to classify the waterways, maintain river surveys and databases. In addition, efforts have been limited to specific national stretches of the river; hence, they are not designed for cross-border navigational purposes.

Operational information is critical for safety on-board and on land. Prevention of accidents is a high priority for the MRC for the simple reason that so many people depend largely on the resources of the Mekong for their daily living. A pollution accident could be a serious threat to the livelihoods of these people who often do not have alternatives for income generation. In addition to this, a comprehensive River Information System will also reduce travel time for vessels, thereby ensuring the comparative advantages of waterborne transport to other modes. Transport statistics are commonly used to analyse national and regional development characteristics and to formulate socio-economic forecasts.

Coordination of regional navigation

No matter how long regional or international cooperation exists, the policies of the Member Countries will always reflect national interests. However, as cooperation matures it often happens that the Member Countries regard well-functioning and efficient cooperation to attain common goals more important than achieving all and every national objective.

Efficient coordination often demands a formal structure and that coordination partners have access to relevant information and are willing to discuss with other stakeholders and partners. Due to political developments in the Mekong region, there has been a certain reluctance to share national information with other countries and international organisations. In addition, some of the Mekong countries have lacked resources and capacities to establish comprehensive nationwide data collection systems for retrieval of socio-economic data.

In overall terms, this outcome strives to contribute to creating regional and national development synergies otherwise difficult for national decision makers and administrators to integrate properly into technical policies and projects – be they social concerns, environmental standards, safety issues or private-public partnership development.

3.3.4.2 Challenges

- Reliable and comparable traffic statistics are not available in the Mekong Basin. Not only is such data important to understand the opportunities for navigation development, it is also needed for the formulation of regional trade and transport scenarios for the waterborne transport sector, which will be conducted in Outcome 1. Traffic data are crucial to preparing realistic socio-economic assessment of the demand for waterborne transport and the direct and indirect investments returns within the sector.
- Widespread misperceptions exist about the benefits and negative impacts of navigation.
- Many decision-makers and administrators lack understanding of the navigation sector and the socio-economic development to which this sector can contribute.
- Information is not always enough to change perceptions and negative images.
- The fact that basin development planning is carried out within a long-term timeframe makes it very difficult for stakeholders and citizens to identify short-term benefits.

3.3.4.3 Outputs and Activities under Outcome 4

Output 4.1: Basic Functions for River Information Services Developed

River Information Services (RIS) are defined as a concept for harmonised information services to support traffic and transport management in inland navigation including interfaces to other transport modes. In transport and definitely in inland shipping worldwide, the use of Information and Communication Technology (ICT) is dramatically increasing. ICT is potentially an important instrument for promoting transport over water. It can provide inland shipping with a competitive edge over road transport. In Europe, a concept for harmonised River Information Services (RIS) has been developed to support traffic and transport management in inland navigation including interfaces to other transport modes. The RIS structure also allows information sharing with transport companies, thus enhancing the efficiency of transport management.

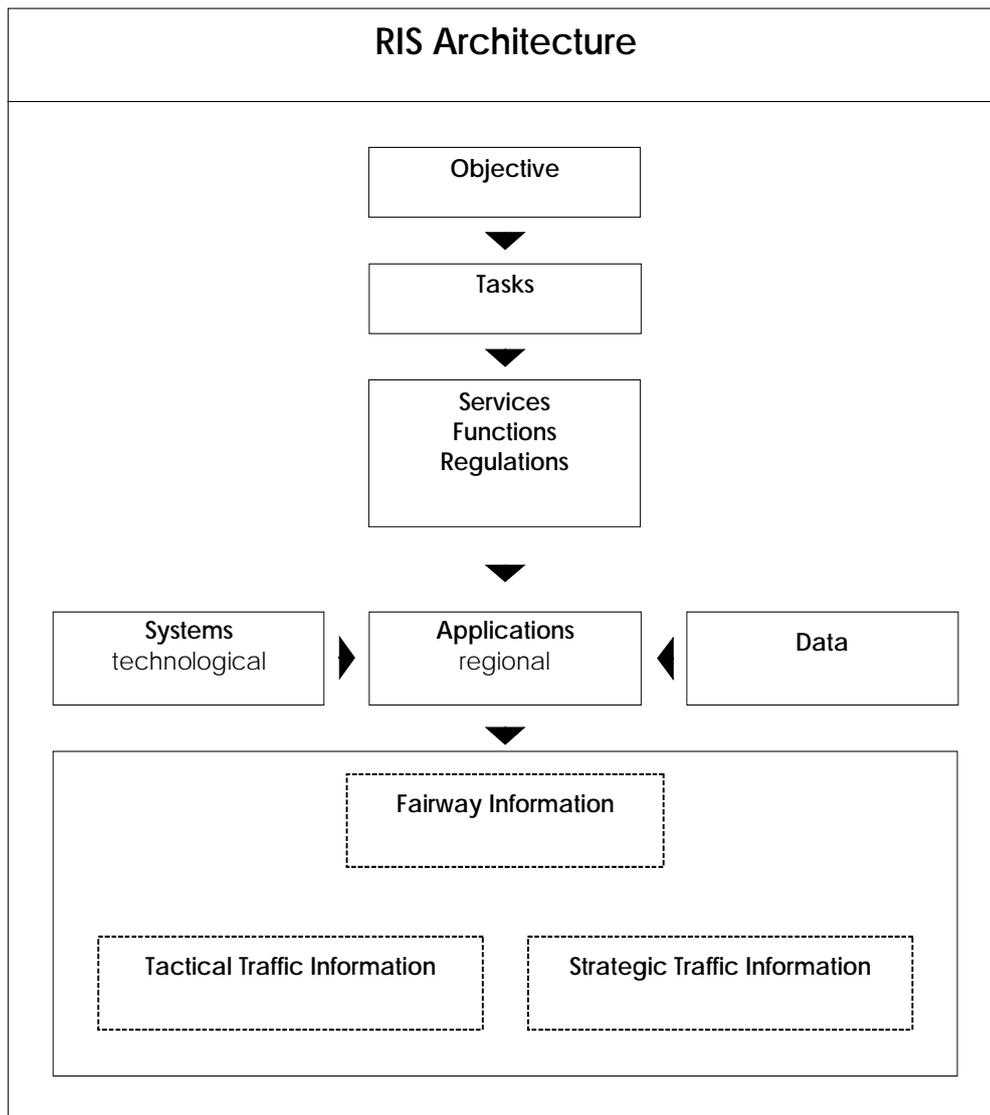
In view of the different levels of navigation development in the riparian countries, an advanced ICT system in the Lower Mekong Basin would only be effective and feasible once the transport infrastructure network and services are in place. To avoid a situation where countries install different systems, the MRC could ensure that the *basic functions* of River Information Services could be in place and based on a standardised system. This means at first there will be a focus data (standardising, harmonising, collecting, analysing and processing) packages such as disseminating the most needed information including water level forecasts and initial steps for voyage planning.

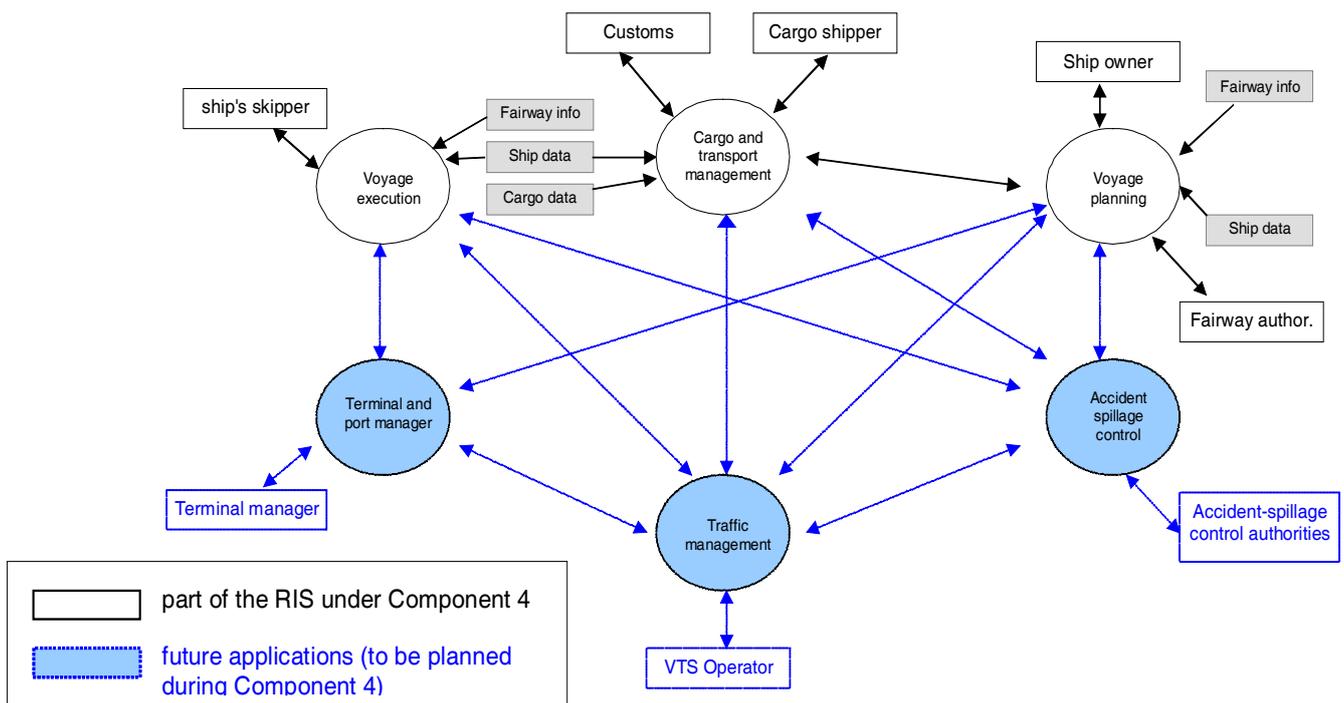
Once the development of regional navigation is well underway, the basic functions of the RIS can be expanded to allow for more advanced technological modules such as electronic charting and traffic management and vessel monitoring systems.

Before any regional services can be carried out, there should be a standardised and harmonised system. To fully benefit from RIS, it is necessary that different information systems are interchangeable and capable of mutual communication. Even if a country chooses to develop its own system with special functions, it is advisable to adhere to a minimum set of basic principles. These basic principles are laid down in the data and communications standards. Once all parties adhere to these standards across the basin, authorities and the industry will be able to exchange data. This will mean substantial cost savings by abandoning the costly development of interfaces for the authorities and the shippers. Without standards, the industry will probably not launch applications on the market when standards are changing. Standardisation of data will allow better resource management, deliver innovative products and services and provide the tools, knowledge, and technological capabilities to take care of business and the environment.

In short, RIS will:

- enhance the safety of inland navigation in ports and rivers in a preventive sense and contribute to any remedial measures deemed necessary by the competent authorities;
- protect the environment by, among others, providing dangerous goods information to the competent authorities assigned to combat pollution within a pre-defined response time;
- expedite inland navigation, optimize inland port resources and manage traffic flows;
- prepare a framework for Mekong Cooperation on navigation data standards and harmonisation for more effective use and easy interchange; and
- build on an infrastructure to exchange information to vessels concerning relevant resources and the state of these resources of the ports.





RIS Applications and data flow diagram

Activity 4.1.1 *Prepare RIS Implementation Plans, needs assessment, preliminary investigations, and planning*

The development of operational information services should be initiated reviewing the existing information systems in each of the Mekong countries and assessing the most efficient system to disseminate operational advice to pilots and vessel users on the Mekong waterway. Such services should take into account the general level of development in the Mekong region, recommendations in existing reports and studies³ and financial constraints. This undertaking shall include identification of resources required for the establishment and operation of integrated Mekong River Information Services for Navigation in each of the four countries and formulation of a detailed implementation plan.

Activity 4.1.2 *Prepare and disseminate to various stakeholders a database of NAP and published products produced under the various Programme Outcomes*

Activity 4.1.3 *Prepare a detailed implementation plan*

Based on the outcome of the above activities formulate a concrete implementation plan for the establishment of the basic functions for an integrated Mekong River Information Services for Navigation that include:

³ PIANC has published a report on "Vessel Traffic and Transport Management in the Inland Waterways and Modern Information Systems" (Working Group 24 - 2002) that could be useful as a reference. So is the Final Report of the Inland Navigation Demonstrator for River Information Services – INDRIS, (July 2002). This project is a joint venture between national public authorities, the transport industry, the ICT industry and research institutes from Austria, Germany, Belgium, France, Italy and the Netherlands through assistance from the European Commission.

1. standardisation and harmonisation of data;
2. fairway information;
3. voyage planning; and
4. Mekong traffic monitoring of cargo and passenger statistics.

For exchange of river information, new communication tools should be used to the extent they are accessible and reliable for the Mekong waterway users. Navigation information will not only be disseminated via newspapers and radio, but also exchanged among different countries.

Activity 4.1.4 Standardise and harmonise the data systems

There is an urgent need to use the same data throughout the entire transport chain. The need for more organised, authentic and uniformly collected data in each of the Member Countries cannot be overemphasised. Standardisation of data will allow better resource management to deliver innovative products and services and provide the tools, knowledge, and technological capabilities to take care of business and the environment.

The standardisation process will be applicable to operational data (water depths, ship's position, voyage planning, and movement of dangerous goods) and economic data (traffic, fleet, port and cargo data).

Activity 4.1.5 Identify data needs for the RIS (including an initial set of data) and data gaps or inadequate data quality; develop the data standardisation process on a national and regional level in accordance with clear deadlines and requirements

Make an overall assessment of NAP management data needs and develop this into a concept paper to guide future data collection. Develop regional guidelines for data collection, source criteria, data and reporting formats.

The capacity building activity on navigation information and promotion training is expected to enhance capacities to implement such a system of overall navigation data. It is absolutely essential that this activity ensures that all the countries transmit meaningful, authentic and uniformly collected data to the MIS centre for its successful future operation.

Activity 4.1.6 Prepare a plan for cargo and passengers monitoring

One of the most important types of information needed to support waterborne trade and traffic scenarios as well as navigation investment plans is reliable data on the actual cargo and passenger traffic on the river. After investment plans have been formulated, monitoring of the river traffic is developed with a twofold purpose:

1. To generate data on traffic that is not presently available and thereby contribute to knowledge building on Mekong navigation and proving the importance of this transport mode for local people and for tourism and trade development; and
2. To collect data that will reflect whether the NAP has actually achieved the overall aim of developing and increasing regional and international trade and transport.

Activity 4.1.7 Introduce a monitoring system

Together with the national focal points and relevant line agencies and institutions a detailed guideline for data collecting staff should be developed. The data to be selected for this monitoring could consist of, but are not limited to:

Cargo

- Goods transported in tonne-kilometres;
- Goods by origin-destination, transit, loaded, unloaded;

- River-sea transport, ferry transport; and
- Freight in costs and revenues for cargo and for passengers.

Ports/terminals

- Cargo throughput;
- Length of quay;
- Towage, pilotage, stevedoring, wharfing;
- Dangerous cargo; and
- Resource deployment.

Fleet

- Fleet characteristics and total fleet;
- Carrying capacity (tonnes and passengers);
- Safety conditions of the vessel; and
- Accidents.

Crew

- Personnel information;
- Manpower planning/manpower of Vessels; and
- Certificates and training.

Waterways

- Classification;
- Riverbanks;
- Height, width bridges; and
- Channel markers.

Activity 4.1.8 Determine baseline conditions for operational services and fairway information system

In order to safely ply the Mekong waters and to bring passengers and cargo to their destinations in the most efficient manner, pilots and vessel operators need a reliable information system.

Activity 4.1.9 Undertake forecasting of water depths at shallow and critical parts

Activity 4.1.10 Provide other Dynamic Nautical Information

Exact location of physical obstructions to navigation, including natural obstructions as well as accidents and wreckages:

Description and indication of the ecologically sensitive areas; and

Movement of dangerous cargo.

Output 4.2: Trade and Tourism Facilitation: The Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam prepared

The development of trade and tourism along the Lower Mekong Basin will generate economic activity in the area and contribute to poverty reduction. Increased trading activity and waterborne tourism using the smaller ports and landings will benefit the local economies in the areas and increase incomes for poor rural people. In order to facilitate this trading and tourism activity, it is proposed to prepare an Atlas of Ports and Landings on the Lower Mekong Basin.

There will be three target audiences for this Atlas:

- commercial users of ports – traders, the transport industry;
- the tourism industry – travel agencies, tour operators; and
- visitors to the region.

It is envisaged that the Atlas will contain:

- an overview description, and country level descriptions, with photographs, of the ports, landing facilities and tourist attractions in the Lower Mekong basin;
- an overview map and more detailed maps for each country showing the locations of the ports, landing facilities and tourist spots along the river;
- mapping and description of the Mekong waters for navigation, dry and wet season;
- notices to 'mariners' describing the obstacles and difficulties to be encountered between the ports;
- classification and description of the different types of boats operating on the Mekong waters;
- a 'catalogue', to a standard format, presenting data on each of the ports and landing facilities. It is envisaged that data presented for each location will include:
 - a plan view diagram of each port or landing facility, plus photographs;
 - coordinated data for each location;
 - contact details of the operator;
 - port capacity, and permissible draught (wet and dry season);
 - handling facilities for cargo and passengers;
 - storage facilities;
 - rail and road connections and services;
 - local water transport services;
 - maintenance facilities and other services available; and
 - other relevant features of the port or landing facility.
- for each location, a 'catalogue' of tourist sites accessible from the location comprising:
 - a local map showing the location of each of the sites and access to them;
 - a description and photograph of each site;
 - local tourist services available – transport, tour companies; and
 - tourist accommodation – hotels and guest houses.
- a directory of relevant organisations with the region supporting trade and tourism facilitation.

Substantial information and data relevant to the atlas already exists within the Mekong River Commission (MRC) within the concerned national governments, and in available documentation. A key part of the work will therefore be to review this available information and process it into an appropriate format. But field survey work and other investigations will also be needed to collect, and prepare additional information as required.

- Activity 4.2.1 *Collect data and information on tourism spots along the Mekong River and existing and future landing sites, ports, and tourist attractions*
- Activity 4.2.2 *Undertake an analysis and provide recommendations of possible landing sites and ports.*
- Activity 4.2.3 *Circulate questionnaires and descriptions cards in the four countries to include an overview description, country level descriptions, ports, terminals and landing facilities layout, and tourist attractions in the Lower Mekong basin*
- Activity 4.2.4 *Preparation of draft atlas including an overview map and more detailed maps for each country showing the locations of the ports, landing facilities and tourist spots along the river*
- Activity 4.2.5 *Circulate the draft atlas to the Member Countries and stakeholders for comments*
- Activity 4.2.7 *Endorse the draft atlas and publish*

Output 4.3: A GPS Vessel Guidance System (including condition survey and feasibility study for AIS) Developed

The Middle/Upper Mekong River is difficult to navigate because of the numerous rocks and rocky outcrops, and because of the changing river levels that submerge the obstacles. These factors all create a challenging environment for maintaining a safe and reliable channel marking system in the Upper Mekong.

An alternative approach to vessel guidance is therefore necessary on these stretches. Navigators should utilise new low-cost technologies in the form of GPS course guidance and identification of submerged hazards. Working with the already skilled navigators of river-faring vessels, the optimal course for wet and dry seasons could be recorded and displayed on a digital chart, providing a visual tool that would allow navigators to ensure they are on course, and alert them of any hazards that might be approaching. By recording an ideal course with outer limits for safety and overtaking, it is possible to provide an accurate level of route guidance, whilst allowing for potential GPS accuracy issues. This system would allow the navigator to keep the vessel on a predetermined track and as such avoid underwater obstacles and rocky outcrops. During heavy rains, which seriously reduce visibility, the navigator could still reach the safety of port by steering with assistance from the digital chart.

An initial project has already been conducted, namely from Huay Xay downstream to Luang Prabang Cargo Port. This stretch of river was an initial opportunity to test the technology and survey methodology to ensure its suitability for use in navigating the river. As this project is successful, the technology is being expanded to cover other stretches downstream of Luang Prabang in Thailand and Lao PDR.

During the regional workshop for the formulation of the Navigation Programme, Thailand raised the need to conduct a condition survey between the Golden Triangle and Huay Xay as this has not been completed yet. The survey should also include a study on aids to navigation, in particular a study should be conducted to assess the technical feasibility for installing Automatic Identification System (AIS).

- Activity 4.3.1 *Assign the traditional (or optimal) route, and analyse the results*

Before the Traditional (or Optimal) Route is found the project needs to monitor the routes taken by the best pilots on the river. The traditional navigation route used by vessels in the project area must be recorded using high accuracy (differential, where possible) GPS receivers with external antennas
- Activity 4.3.2 *Undertake a condition survey between the Golden Triangle and Huay Xay (as this has not been completed yet)*

The survey should also include a study on aids to navigation, in particular a study should be conducted to assess the technical feasibility for installing Automatic Identification System (AIS).
- Activity 4.3.3 *Conduct bathymetric surveys*

The bathymetric survey must use a combination of side-survey sonar technology with single beam echosounding, or multibeam echosounding to verify the safety of the above identified course lines. The proposed survey area should extend to a maximum of 30m either side of the course line identified

Activity 4.3.4 *Identify underwater hazards*

Whilst conducting the transects the imagery should be monitored to identify any potential hazards and areas of river bed/rock that have the potential to be less than 3m below the surface of the water at lowest low water level (chart datum). Soundings should then be taken in high detail to provide sufficient information to identify the object. In these areas, a 1m grid should be used for collecting sounding data

Activity 4.3.5 *Supplement/add navigational features to the information*

The bathymetric survey should also record the position of existing features and aids to navigation that are present on these stretches (both newly installed buoys and beacons, older pendulum beacons, and French markers) including reference waypoints (ports/landings etc.), lateral buoys and beacons, or any other key waypoints that are not already recorded in the hydrographic atlas.

Activity 4.3.6 *Produce GIS format mapping outputs suitable for use in GPS devices including provision of data layers in Vector/Raster format*

The results of above activities should be correctly attributed based on the results of the bathymetric surveys and the recording of waypoints along the river. An advanced GPS mapset should also be produced to create a comprehensive graphical map set of the project area. This information should be integrated with data layers from the existing hydrographic atlas and updated chart datum determination to produce graphical maps

Activity 4.3.7 *Install GPS equipment on vessels and vessel tracking systems and undertake training vessel captains on the use of new GPS maps*

Training must be provided to the users of this equipment, including:

- loading of correct map data;
- loading of correct course line;
- waypoint creation;
- destination setting;
- real-time navigation using GPS devices; and
- appropriateness of use and safety issues regarding use of GPS for commercial vessel navigation.

Output 4.4: Regional Navigation Activities Coordinated

Coordination between Upper and Lower Mekong Navigation

Activity 4.4.1 *Get involvement of China and Myanmar to share expertise as observers in the Navigation Advisory Body Meetings established by the MRC Navigation Programme*

Activity 4.4.2 *Participate as an observer on an annual basis in meetings conducted by the Upper Mekong Agreement in order to improve information sharing*

Activity 4.4.3 *Identify a list of issues for initial cooperation in close cooperation with Thailand and Lao PDR (which are both MRC Member Countries and parties to the navigation agreement on the Upper Mekong)*

During development of this list, Cambodia and Viet Nam as well as China and Myanmar should be kept informed and be able to comment on the draft list.

- Activity 4.4.4 Recommend the MRC Joint Committee during the Dialogue Meetings to prioritise 5 coordination issues and select one pilot project from them*
- Activity 4.4.5 Define action plan and timeline for coordinating between the Lower and Upper Mekong agreements on the selected four issues that are not pilot projects*
- Clearly define responsibilities, type of coordination, national and regional focal points and how to share information.
- Activity 4.4.6 Arrange a regional navigation forum with a particular agenda on coordination and implementation of the Upper and Lower Mekong agreements in light of ASEAN agreements on free trade and developments in the international trade system*

Coordination Frameworks for Public-Private Partnerships

- Activity 4.4.7 Identify and assess interests and needs within private sector operators and representatives that make participation in national and regional coordination activities attractive*
- Activity 4.4.8 Identify and assess interests and needs within the national line agencies, ministries of commerce and trade development, and other public authorities working with navigation sector that make participation in national and regional coordination activities attractive*
- Activity 4.4.9 Call national public and private stakeholders to a meeting to discuss the level and regularity of coordination exercises, and give priority to three navigation issues in each country where private-public partnerships should be developed*
- Activity 4.4.10 Liaise closely with the Mekong Project Development Initiative on how to foster private-public partnerships and identify one pilot project in each MRC Member Country to test the interest and development maturity for such activities*
- Activity 4.4.11 Organise two biannual coordination meetings between public and private stakeholders on national and regional navigation development*
- Activity 4.4.12 Assess the outcomes, interest in and purpose of continuation of arranging such meetings. Redefine coordination framework according to developments, interest and needs with the NMCs as facilitators*

3.3.5 OUTCOME 5: Institutional Arrangement and Capacity Building are Strengthened for the Effective Implementation of the Programme in line with the MRC Decentralisation Process

3.3.5.1 Justification

Introduction

Institutional development addresses the institutional requirements for waterborne transport on a regional level but also those of the National Mekong Committees, line agencies, stakeholders and beneficiaries in the Member Countries, regarding four above-mentioned outcomes.

The proposed institutional management structure does not represent a radical departure from the existing one, but rather an attempt to strengthen it by augmentation, clarification and training. This strengthening will emphasise decision making and coordination on a regional level in order to support the goals of the 1995 MRC Agreement, especially Article 9, as well as other multilateral and bilateral agreements. As further development of the legal framework for cross-border navigation and increasing MRC involvement with navigation issues are expected, the structure will provide the necessary flexibility to adapt to these developments. At present, the MRC is undertaking processes of “riparianisation” at the MRC Secretariat and decentralisation of core functions to the Member Countries. Regarding riparianisation, it is necessary to note that riparian staff attached to the NAP office must be sufficient in quantity and qualified in speciality to

undertake the assigned tasks, specifically coordination of regional and cross-border activities within the MRC countries and with other relevant parties. This is consistent with Organisational Goal 5 of the Strategic Plan 2011-2015. However, while the MRC is as an institution able to provide a natural framework for discussion; the international chief technical advisor is needed for technical advice.

Institutional development is a NAP outcome of extraordinary regional relevance. In general, it defines the programme implementation structure and seeks to build capacity. On the regional level, instruments specifically for cooperation in the field of navigation will be maintained, such as the Navigation Advisory Body. On the national level, the relevant government organisations will receive the necessary assistance to improve their management capacity.

3.3.5.2 Challenges

Navigation interventions typically have definition, development, implementation and monitoring phases. The leadership during the different phases can rest with supranational/regional or national institutions. Additionally, public or private institutions can execute certain phases. Thus, interventions in the waterborne transport sector can be performed in many different ways. However, considering the existing conditions in the region and the objectives of the NAP, certain choices will be more useful than others.

Europe has several river commissions and other international organisations that support the development of waterborne transport. In analysing their institutional structure, one can conclude that organisations that reach decisions that are binding for member states, for instance the EU and the Central Commission for Navigation on the Rhine (CCNR), better support cross-border navigation. Other organisations, namely UN-ECE and the Danube Commission, which issue mostly or solely recommendations as a basis for harmonisation, play a lesser role in developing waterborne transport in Europe and their recommendations are often neglected. Therefore, it seems safe to conclude that the future institutional structure of the MRC should at least ensure regional harmonisation of interventions in the waterborne transport sector.

A comparison of the work of the river commissions in Europe highlights another problem arising with cross-border navigation: the availability of reliable data on activities of governmental organisations in the member states. The CCNR has established a reporting system that accurately shows which of its decisions are transposed into national legislation and when this occurs. The Danube Commission, on the other hand, lacks such a system. As its decisions are, in addition, non-binding recommendations, the Danube Commission knows only in singular cases which administrative decisions were implemented in the individual countries, i.e. which rules and regulations apply in the member states.

When considering the status of (regional) waterborne transport in the Member Countries, there is a need for further strengthening of line agencies, stakeholders and beneficiaries in each of the countries. The MRC may be instrumental in facilitating, coordinating and harmonising these activities where appropriate. This means that the present outcome also attends to the needs for capacity development in Member Countries that will be identified for each of the other outcomes. Moreover, the MRC intends to facilitate coordination, harmonisation and further development of the educational and vocational training institutes and facilities in the Lower Mekong Basin and assess their need for curriculum development, training materials, certification of captains, mechanics and other crew etc.

At the beginning of the decentralisation process, however, some selected responsibilities will be transferred to respective countries for implementation (e.g. operating the critical low-flow alert system, maintenance of aids to navigation in river stretches running through a country, monitoring pollution spills and navigation accidents). The role of the MRCS, and the NAP specifically, is not reduced as regional coordinator. Instead, the NAP office shall maintain its involvement, especially in performance monitoring. When NMCs, relevant line agencies and designated stakeholders later have sufficient capacity to carry out the selected core river-basin management functions within the agreed timeframe of the transition, decentralised activities will be fully carried out by them, in both terms of technical competency and financial capability. The NAP office will then phase out its involvement in the decentralised activities.

The development of navigation is intertwined with all other major issues with which MRC is dealing, such as the environment and the socio-economic development of the basin. The proposed strengthening of

institutional structures will ensure that the NAP will be coordinated with the other programmes of the MRC. Private sector involvement will be indispensable. The outcome aims at giving the private sector better opportunities to organise itself and to provide the necessary input into decision making on a national and regional level.

Development of waterborne transport has taken and is taking place in many parts of the world. The proposed institutional structure will provide the framework to access and transfer knowledge and experiences from other parts of the world for the benefit of the MRC and its member states. For some time to come, the development of waterborne transport in the Mekong Basin will require substantial support from international donors. Therefore, the institutional structure will make developments and processes regarding waterborne transport on the Mekong transparent to donors and will enable the MRC to ask for their advice in a systematic manner.

Regional and international non-governmental organisations can provide valuable inputs into the development of waterborne transport in the Mekong Basin. Equally important, they can powerfully influence public opinion on governmental activities. Therefore, coordination with such organisations is regarded as rather important and they will be given the chance to participate as well. In line with approach for the transition towards decentralisation, MRC core river management functions, ownership and regional coordination among a wider group of stakeholders and the Member Countries will be enhanced.

The MRC will continue to strengthen existing mechanisms for more involvement of members of the public, civil society organisations and local communities in MRC activities. This includes the implementation of the MRC Communication Strategy, Policy on Data Disclosure, the Basin Development Plan, the Stakeholder Participation and Communication Plan, participatory programme planning and other mechanisms for increased involvement of stakeholders in the process of MRC strategy and policy development.

The people in the Mekong Basin are the ultimate stakeholder in the development and functioning of the NAP management structure as in the end all people will be expected to benefit from increased and safe waterborne transport. National line agencies will be the major counterpart in the countries for the regional management structure. Line agencies at central and perhaps also at provincial and/or district level will have to rely on the work performed on a regional level, in particular the development of rules and regulations. Therefore their involvement is crucial to ensure that the NAP meets the countries' needs and is in line with their activities and policies.

The NMCs will be an important focal point for implementing all programme outcomes presented by the NAP; however, this outcome will probably have to liaise even more closely with the NMCs and selected key stakeholders from the line agencies to ensure an efficient and timely implementation of the programme.

Among regional and international partners of relevance to the implementation of this outcome, the international navigation organisations such as IMO, PIANC, the Central Commission for Navigation on the Rhine and the Danube Navigation Commission hold valuable expertise in how to develop the ports and waterborne traffic sector and strengthen management provisions in developing countries. Other regional development partners have already conducted projects intending to strengthen capacities and management within the navigation administration.

3.3.5.3 Outputs and Activities under Outcome 5

Output 5.1: Management Capacities of National Counterparts and MRCS NAP Team Directly Related to the Implementation of the Navigation Programme and its Functioning Strengthened

The national governments need to strengthen management capacities of the National Implementing Partners directly related to the implementation of the Navigation Programme. This was taken into consideration when the outputs for each outcome were defined as capacity building is included under each outcome. Strengthening management capacities on a national level will be the most challenging output that contributes to this Outcome. The training needs assessors and trainers will be confronted with situations that vary substantially from country to country and perhaps from organisation to organisation. Therefore the countries

will have to decide on a case by case basis what strategy to follow and what instruments to apply. This exercise will be conducted in close cooperation with the Integrated Capacity Building Programme (ICBP) of MRC. This output will provide an overarching tool as a basis for the capacity building programmes under each outcome.

Institutional strengthening, capacity building and training cannot be performed for all disciplines and areas under waterborne transportation. It is impossible to have a training programme covering all aspects under vessel operations, port management, waterway engineering, environmental protection, transport planning etc. Rather, the programme needs to focus on how the training packages applied can help the implementation of the Navigation Programme, which is already a major task.

This output will therefore be divided into two parts: the training needs assessment, and the actual training. The activities under this output aim at the following:

Activity 5.1.1 Undertake a full Training Needs Assessment for the Line Agencies, the Private Sector, the NMCs and the MRC Secretariat.

Identification, formulation and implementation of specific activities related to institutional strengthening, capacity building and training directly associated with achieving the relevant outputs of this programme. These activities may include on-the-job-training, specific courses, workshops and seminars or the provision of scholarships for specific training overseas.

(Identification of the activities required under this output will be result of the specific findings, problems and needs encountered while implementing the activities of this programme)

Activity 5.1.2 Identify the needs for institutional strengthening, capacity building and training of the line agencies, stakeholders and beneficiaries in each of the Member Countries

Activity 5.1.3 Develop training materials and guidelines of the various workshops and seminars

Activity 5.1.4 Undertake on-the-job training/workshops of and for the working groups and national experts assigned to and responsible for the implementation of the programme in specific areas such as:

- Regional transport planning;
- Legal navigation frameworks;
- Standard rules and regulations for international and river and sea-river;
- Disaster management and contingency planning;
- Port safety and environmental management;
- Environmental impact assessment procedures and environmental management plans;
- Environmental monitoring and evaluation;
- River Information Services;
- Aids to navigation; and
- Others.

Output 5.2: Gender Issues for the Navigation Sector Mainstreamed

NAP acknowledges that currently the information available on the role of women in inland navigation is limited and further consultation and research is required to determine the impacts and benefits for both men and women. Women in rural areas rely on local trade and river transport to sustain livelihoods and are also an important link between riparian communities and villages for small socio-economic activities.

Globally, the maritime and inland navigation sector is weighted towards men. This is also the case in the Mekong River where the captains and crew onboard medium to large mechanised vessels are predominantly men. In a gender study completed by VIWA, it was found to be unusual for women to work as ship operators

and more unusual to be captain, who needs a license and/or training. Women were much more commonly seen as passengers or, if in control, they were in a non-motorised boats or smaller vessels.

At the regional and national level, the Member Country line agencies will be encouraged to foster greater participation by women in policy and decision making in the inland navigation sector. Gender-mainstreaming in the inland and maritime sector already been successful in Thailand and Viet Nam where women remain employed in senior policy and decision-making roles in the marine departments and inland waterway administrations. NMCs have to look at the possibility of appointing women as National Navigation Coordinators and have women participate with NAP activities through national working groups, workshops and navigation seminars. Through the implementation of NAP 2013-2015 gender mainstreaming will be integrated into project implementation and monitoring. Specific capacity building activities and opportunities to increase participation in the inland navigation sector will be identified.

- Activity 5.2.1: Carry out a study and research on the expected difference of impact of development of navigation on the Mekong for men and women (analysis)*
- Activity 5.2.2: Create understanding among stakeholders for the results of the study/ research and identify how to address issues through NAP activities (targeted activities)*
- Activity 5.2.3: Enhance specific capacity building for women in Member Country line agencies for policy, leadership and decision making*
- Activity 5.2.4: Encourage women to pursue employment opportunities and identify specific skills training for women working in navigation, ports, passenger transport and related industries*
- Activity 5.2.5: Determine further the socio-economic impacts and benefits of increased trade opportunities in the inland navigation sector for riparian communities for both men and women*

Output 5.3: Navigation Programme 2016-2020 Prepared

In early 2015, it will be time to start formulating the NAP 2016-2020 that would take into account the implementation of NAP 2013-2015 so far, the new developments in the region, decentralisation processes, and especially formulation of the MRC Strategic Plan 2016-2020. Approximately one year before the start of NAP 2016-2020, detailed plans have to be prepared. The Navigation Programme office will be responsible for guiding this process, assessing the state of the management structure and preparing the proposal for the JC's decision. At the same time, interested donor agencies will be consulted for their possible support.

- Activity 5.3.1 Undertake detailed analysis at regional and national level on the current situation of the waterborne transportation on the Mekong River*
- Activity 5.3.2 Review the completed and remaining outputs achieved during the 2013-2015 and the proposed Strategic Plan 2016-2020 as well as documents of other relevant MRC programmes linking with NAP*
For instance, the completed outputs and remaining outputs achieved during the 2013-2015 year lifetime of the MRC Navigation Programme; the proposed MRC Strategic Plan 2016-2020; the BDP and IWRM and links with Navigation, and other programmes and their links with navigation such as the CCAI and EP
- Activity 5.3.3 Hold discussions between the NAP team, consultations with other MRC Programmes, with the NMCs and line agencies, and with NGOs, private sector and other stakeholders*
- Activity 5.3.4 Prepare the first draft of the Navigation Programme 2016-2020 in cooperation with the NAP team*
- Activity 5.3.5 Facilitate four national workshops in each of the MRC Member Countries to review the relevance of the previously identified outputs of the Navigation Programme (20013-2015) and discuss the additional priority projects for inclusion in the new MRC Navigation Programme (2016-2020)*

- Activity 5.3.6 Revise draft Navigation Programme 2016-2020 according to the feedback from the countries. Produce the second draft of the MRC Navigation Programme*
- Activity 5.3.7 Prepare the draft Navigation Programme Implementation Plan (PIP) 2016-2020*
- Activity 5.3.8 Facilitate the Regional Planning Workshop to complete the final draft Navigation Programme and the draft Navigation Programme Implementation Plan*
- Activity 5.3.9 Finalise Navigation Programme 2016-2020 and PIP according to the feedback from the countries*
- Activity 5.3.10 Submit the draft to the Member Countries, the Navigation Advisory Body, then to the Joint Committee for their consideration/approval*

SUMMARY TABLE OF OUTCOMES, OUTPUTS AND ACTIVITIES

<p><u>Outcome 1:</u></p> <p><i>Cross-border and international trade opportunities for navigation in the Mekong Basin are increased through the development and promotion of Regional Transport Plans, and Technical Inputs</i></p>	<p><u>Outcome 2:</u></p> <p><i>Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the on-going development and implementation of an appropriate legal framework</i></p>	<p><u>Outcome 3:</u></p> <p><i>Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety, environmental management measures</i></p>	<p><u>Outcome 4:</u></p> <p><i>Active participation of stakeholders including relevant agencies in Member Countries, development and Dialogue Partners, MRC programmes, regional entities is enhanced through improved coordination & information exchange and sharing</i></p>	<p><u>Outcome 5:</u></p> <p><i>Institutional arrangement and capacity building are strengthened for the effective implementation of the Programme in line with the MRC decentralisation process</i></p>
<p>Output 1.1:</p> <p><i>Master Plan for Regional Waterborne Transport developed</i></p> <p>9 activities</p>	<p>Output 2.1:</p> <p><i>Assistance for the Implementation of the Agreement on Waterway Transportation between Cambodia & Viet Nam provided</i></p> <p>8 activities</p>	<p>Output 3.1:</p> <p><i>Operational Aids to Navigation and Landing Facilities are procured and installed on the Remaining Stretches</i></p> <p>9 activities</p>	<p>Output 4.1:</p> <p><i>Basic Functions for River Information Services developed</i></p> <p>10 activities</p>	<p>Output 5.1:</p> <p><i>Management Capacities of National Counterparts and MRCS NAP Team directly related to the Implementation of NAP and its Functioning Strengthened</i></p> <p>4 activities</p>
<p>Output 1.2:</p> <p><i>Technical inputs are provided to the Member Countries and to other MRC Programmes on specific navigation-related matters that need NAP's intervention</i></p> <p>ad hoc activities</p>	<p>Output 2.2:</p> <p><i>Assistance for the Elaboration of the Agreement on Waterway Transportation between Lao PDR and Thailand provided</i></p> <p>7 activities</p>	<p>Output 3.2:</p> <p><i>Rules and Regulations are Updated and Harmonised</i></p> <p>12 activities</p>	<p>Output 4.2:</p> <p><i>Trade and Tourism Facilitation: the Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam prepared</i></p> <p>7 activities</p>	<p>Output 5.2:</p> <p><i>Gender Issues for the Navigation Sector Mainstreamed</i></p> <p>5 activities</p>
	<p>Output 2.3:</p> <p><i>Legal Rules and Regulations Under Which Freedom of Navigation is exercised, updated and harmonised</i></p> <p>9 activities</p>	<p>Output 3.3:</p> <p><i>The Regional Action Plan for the Transportation of Dangerous Goods (Phase 2 + implementation) formulated and implemented</i></p> <p>9 activities</p>	<p>Output 4.3:</p> <p><i>GPS Vessel Guidance System (including condition survey and feasibility study for AIS) developed</i></p> <p>7 activities</p>	<p>Output 5.3:</p> <p><i>Navigation Programme 2016-2020 prepared</i></p> <p>10 activities</p>
			<p>Output 4.4:</p> <p><i>Regional Navigation Activities coordinated</i></p> <p>12 activities</p>	

3.4 SCHEDULE

OUTCOMES	NR.	OUTPUTS	Time Schedule				
			2012	2013	2014	2015	2016
1	1.1:	Master Plan for Regional Waterborne Transport		■			
	1.2:	Technical inputs are provided to the Members States and to other MRC Programmes on specific navigation-related matters that need NAP's intervention					
2	2.1:	Assistance provided towards the implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam	■	■			
	2.2:	Assistance provided to the elaboration of the Agreement on Waterway Transportation between the Lao PDR and Thailand	■	■			
	2.3:	Harmonization of legal Rules and Regulations under which Freedom of Navigation is Exercised		■			
3	3.1:	Procurement and Installation of Aids to Navigation and Landing Facilities	■	■			
	3.2:	Updated and Harmonized Technical Rules and Regulations		■			
	3.3:	Formulation and Implementation of the Regional Action Plan for the Transportation of Dangerous Goods (Phase II)	■	■			
4	4.1:	Foundation for River Information Services Developed		■			
	4.2:	Development of a GPS Vessel Guidance System	■	■			
	4.3:	Trade and Tourism Facilitation: preparation of the Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam		■			
	4.4:	Coordination of Regional Navigation Activities					
5	5.1:	Strengthening of Management Capacity of National Counterparts Directly related to the implementation of NAP and its functioning					
	5.2:	Gender mainstreaming for the inland navigation sector					
	5.3:	Preparing NAP for the MRC Strategic Plan 2015-2020				■	

3.5 BUDGET

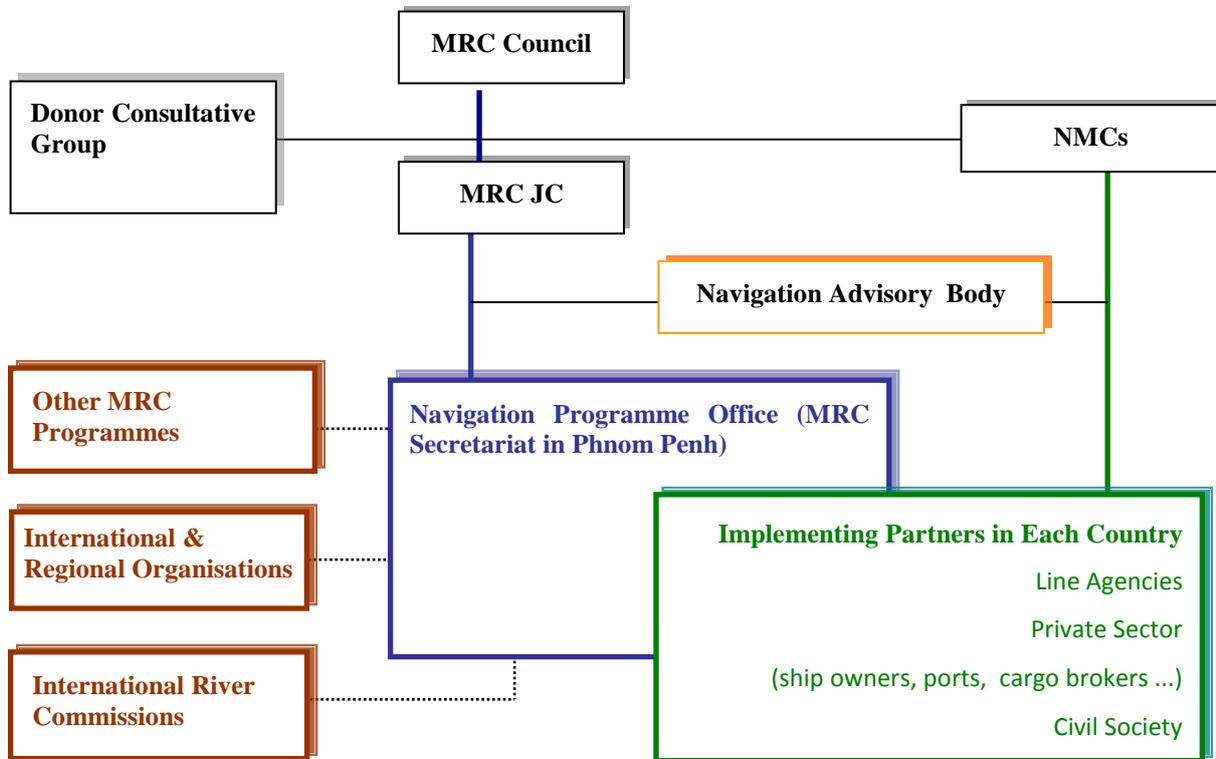
Total estimated budget for NAP 2013-2015 is US\$ 8,700,000.

OUTCOMES	NR.	OUTPUTS	2013	2014	2015	Total per output	TOTAL OUTCOME BUDGET
Outcome 1	1.1:	Master Plan for Regional Waterborne Transport	60,000	300,000	380,000	740,000	1,100,000
	1.2:	Technical inputs are provided to the Members States and MRC Programmes on specific navigation-related matters that need NAP's intervention	60,000	100,000	200,000	360,000	
Outcome 2	2.1:	Assistance provided towards the implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam	100,000	110,000	60,000	270,000	795,000
	2.2:	Assistance provided to the elaboration of the Agreement on Waterway Transportation between the Lao PDR and Thailand	85,000	95,000	90,000	270,000	
	2.3:	Harmonization of Legal Rules and Regulations under which Freedom of Navigation is Exercised	100,000	150,000	5,000	255,000	
Outcome 3	3.1:	Procurement and Installation of Aids to Navigation and Landing Facilities	900,000	200,000	0	1,100,000	2,270,000
	3.2:	Updated and Harmonized Technical Rules and Regulations	100,000	220,000	200,000	520,000	
	3.3:	Formulation and Implementation of the Regional Action Plan for the Transportation of Dangerous Goods (Phase II)	250,000	300,000	100,000	650,000	
Outcome 4	4.1:	Basic Functions for River Information Services developed	150,000	200,000	380,000	730,000	1,880,000
	4.2:	Development of a GPS Vessel Guidance System (including condition survey and feasibility study for AIS)	180,000	250,000	100,000	530,000	
	4.3:	Trade and Tourism Facilitation: preparation of the Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam	0	250,000	70,000	320,000	
	4.4:	Coordination of Regional Navigation Activities	70,000	70,000	160,000	300,000	
Outcome 5	5.1:	Strengthening of Management Capacity of National Counterparts Directly related to the implementation of NAP and its functioning	120,000	130,000	260,000	510,000	670,000
	5.2:	Gender mainstreaming for the inland navigation sector	30,000	15,000	35,000	80,000	
	5.3:	Preparing NAP for the MRC Strategic Plan 2015-2020	0	0	80,000	80,000	
		Programme Management Support	270,000	250,000	230,000	750,000	750,000
		Monitoring and Evaluation	20,000	20,000	25,000	65,000	65,000
		Contingency and miscellaneous	100,000	100,000	107,838	307,838	307,838
SUBTOTAL			2,595,000	2,760,000	2,482,838		7,837,838
MRC Secretariat support = 11 % of total cost			285,450	303,600	273,112		862,162
TOTAL			2,880,450	3,063,600	2,755,950		8,700,000

3.6 MANAGEMENT AND IMPLEMENTATION

3.6.1 Programme Structure

The overview structure on the NAP implementation and management is represented as follows:



(a) Regional Level

The Navigation Advisory Body (NAB)

NAB is the high-level body responsible for stimulating a more detailed input of the Member Countries in the MRC decision-making process vis-à-vis the MRC Secretariat and to free the JC from dealing with these technical issues. This body will report to the Chairman of the Joint Committee. The MRC Secretariat will provide secretarial and administrative services to the NAB as and when required, and technical assistance through the MRC Navigation Programme.

It has been proposed during the regional workshop to extend the functions of the Navigation Advisory Body to include programme steering functions. The members of the NAB are already at the high echelons of the NMCs and line agencies and have been working with the NAP for over five years. However, the modalities and structure of the new or alternate body and/or committee will be discussed during the next NAB meeting. In any case, it will require the approval by the Joint Committee.

(b) MRC Secretariat:

Senior Management Level

As the MRC Secretariat is responsible for rendering the technical and administrative services to the Council and the Joint Committee to support the implementation of “*the Agreement on the Co-operation for the Sustainable Development of the Mekong River Basin*”, 5 April 1995, the Chief Executive Officer has overall responsibility over the NAP.

All NAP activities are the responsibility of the director of the Operations Division. The OPD Director is responsible for the smooth and effective operations of the division and therefore also of the NAP. He reports to the CEO directly and through the weekly senior staff meetings as he is part of the MRCS senior management team. Through these meetings, the other divisions will be kept informed and consulted. The Operations Division is charged with managing the implementation of the Agriculture and Irrigation Programme (AIP), the Drought Management Programme and the Fisheries Programme (FP) as well as the Navigation Programme. These programmes focus on specific sectors and address regional issues that are significant to the management of the entire Mekong River Basin. While the programmes have a regional focus, they also complement and support initiatives at the national and trans-boundary levels.

MRCS Project Management Level

The Navigation Programme Team at the MRC Secretariat is responsible for formulating and supervising all activities necessary to implement the NAP and supporting the Navigation Advisory Body.

Coordination with other MRC programmes and the National Mekong Committees as well as overall planning and supervision of experts is the responsibility of the riparian Navigation Programme Coordinator who is also responsible for coordinating with the private sector, civil society organisations and development banks. The NAP Coordinator is therefore responsible for achieving all outputs/results and is accountable for all activities and routine functions. The NAP Coordinator reports to the OPD Director, and other managerial and professional staff of the NAP, the MRCS, the NMCs, national line agencies and other relevant international/regional institutions. NAP implementation work plans, budget plans, technical studies, training and workshop schedules have to be well coordinated and harmonised.

The NAP Coordinator receives the advice, especially technical advice, from the international Chief Technical Advisor or Technical Advisor. He/she will work in close collaboration with the NAP Coordinator and other managerial and professional staff of the NAP team, the MRCS, the NMCs, national line agencies and relevant international/regional institutions. He/she will implement the Knowledge and Skills Transfer Plan and is expected to maintain a strategic focus for the programme as a whole, assisting the coordinator and Programme Management Unit and other stakeholders to keep the big picture in view but also to guide on very technical points. The chief technical advisor will use his/her knowledge of how other international river navigation commissions in the world work and function, how navigation standards have been developed in other river basins, how these can be applied on the Mekong, and how ports, fleets and waterway development can be managed and coordinated based on experience as international sea captain. He/she must apply the regulations and standards of the IMO, PIANC, MARPOL SOLAS, IALA, and ensure this knowledge is transferred. For example, the manuals that will be developed for Chiang Saen Commercial Port are derived from international experience that is fine-tuned to the local conditions. This will then be transferred to train the stevedores and port managers in applying these manuals.

There are two programme officers to assist in implementing the activities: a Programme Officer for Infrastructure and Surveys, and a Programme Officer for Safety and Regulations. They will implement and coordinate projects specific to their expertise, including technical, administrative and financial responsibilities, organising and facilitating component implementation plans, technical studies, training, etc. They will identify the need for short-term consultancies within the available budget, to plan and steer these consultancies, prepare terms of reference for consultants as and when needed, assist, supervise and evaluate local and international firms and consultants engaged in the implementation of the project activities assigned, organise workshops, seminars and training programmes related to waterway safety, the legal framework and environmental protection for inland navigation. They will be in charge of financial planning and of controlling the use of funds.

The Navigation Programme must respond to the Integrated Water Resources Management principles of the organisation. Furthermore, there is an increasing demand for coordination between the MRC programmes and with China and Myanmar, and exchange of information with other river commissions and navigation organisations. In order to face up to these challenges, there is now a need for a Liaison Officer. Administration and finances will be done by the Programme Administrative Assistant.

In other instances, programme officers will need assistance from technical advisors for specific issues a consultancy or other company which may be contracted through open international competition as per MRC regulations. Individual advisors, consultants or national specialists can be hired and special service agreements drawn up.

(c) National Level

Role of the National Mekong Committees (NMC's)

The NMCs are the national focal points for the NAP implementation. They take the lead in coordinating the NAP activities at national level, and provide the link between the MRC Secretariat with the national ministries, line agencies and local authorities. A close partnership between the NMCs and the Secretariat is required with a view to increasing each country's capability to deliver effectively the outputs and results of the NAP.

The NMCs assist their governments in supporting all cooperative activities with the MRC and submit to their governments for consideration all policies on NAP cooperation with the aim of achieving the development objective. Each NMC cooperates with other Member Countries in elaborating and implementing the Agreement on the Cooperation for Sustainable Development of the Mekong River Basin. Direct implementation of the activities will be delegated to the national line agencies, civil society and the private sector, based on the general principles of delegation. The NMCs will be kept fully informed of all these forms of cooperation between the MRCS (NAP) and the third parties.

A National Navigation Coordinator is selected for each of the NMCs. She/he will not be attached to a specific project but will have the overall liaison of the NAP implementation in her/his country. The main requirements are that she/he not only has very good managerial skills but must have a proficient knowledge of navigation. The National Navigation Coordinator has to rely on his/her broad network of experts in the line agencies and in the private sector.

So the main link between the MRCS and the line agencies goes through the NMC. Many of the activities will be conducted by national working groups or taskforces in the MRC Member Countries. The national taskforces will include three to six national experts from each MRC Member Country. The scope of the national taskforces is to undertake activities and oversee the national component of the project. The national taskforce is not just a coordinating body but is expected to provide technical assistance for each specific aspect of the project to the NAP office and to other specific consultants. Selection of national specialists should have non-objection from the NMC.

The Navigation Programme had already collaborated in the past with task forces for Outcomes 2, 3 and 4: Task Forces for the Risk Analysis of the Carriage, Handling and Storage of Dangerous Goods along the Mekong River, Legal Task Forces for the Establishment of the Navigation Agreements between Cambodia and Viet Nam, and between the Lao PDR and Thailand, and Task Forces for Surveys on the Mekong River System, and Development of Electronic Navigation Charts.

An example of deliverables that were delivered by the National Taskforces for the Risk Analysis of the Carriage, Handling and Storage of Dangerous Goods along the Mekong River:

- Data and information, in a form as requested by the project;
- Fill in questionnaires and project tools;
- Environmental aspects, risk register and/or database for all risks updated and maintained;
- Comprehensive review of national rules and regulations, standards on the carriage, handling and storage of dangerous goods;
- Assessment of compliance and monitoring activities by the relevant authorities;
- Other relevant data provided and translated as required by the NAP office and international experts (e.g. accident data, dangerous goods inventories, safety and emergency equipment, environmental management plans);

- The impacts of shipping accidents, pollution and increased navigation activities in these areas determined;
- Prevention and mitigation measures for the risks and impacts identified;
- Cost for implementing prevention and mitigation measures identified;
- Determine to what extent regional, national and local prevention and mitigation plans are needed; and
- A report of all risks, prevention and mitigation measures that need to be developed and implemented to control risks associated with the carriage, handling and storage of dangerous goods including operational procedures, contingency planning, emergency response, resources and equipment.

3.6.2 Budget and Priority Activities

The budget indicated in Section 3.5 is an initial exercise. The NAP 2013-2105 is currently estimated at approximately US\$ 8.7 million which includes required costs for implementation of activities to achieve outputs described above under five outcomes, costs for operation of NAP office, monitoring and evaluation, contingencies and the secretariat management fee. Annual expenditures and spending by the NAP can be US\$ 3 million maximum.

For the NAP 2006-2012, the total funds required for implementing all activities of the five components was US\$ 22.6 million of which about US\$ 1 million was in-kind contributions from the MRC Member Countries. Total funds secured amounted to EUR 9.8 million (approximately US\$ 13.5 million) from the Government of Belgium and US\$ 1 million from the Government of Australia. The programme is short of US\$ 7.1 million funding for the 2006-2012 period. If the current year 2012 is included, the NAP has spent with the external funds approximately US\$ 14.6 million.

Finance is a critical issue relating to NAP continuity and sustainability. While MRC Member Countries committed to bear all costs of the MRC programmes starting from 2030, external support for these transition periods is very important. The NAP 2013-15 document needs to be submitted in time to the MRC Joint Committee, consequently given to potential development partners for seeking funds. The Government of Belgium has already pledged EUR 4 million, or approximately US\$ 5.2 million for the period 2013-2014. If the budget requirements for NAP 2013-2015 are US\$ 8.7 million, MRC will still require an additional US\$ 3.5 million, excluding national contributions.

More detailed budgeting and activities will be elaborated during the preparation of the PIP.

3.6.3 Monitoring and Evaluation

As part of the MRC Performance Monitoring System, NAP will report on its performance in accordance with the MRC reporting system. Performance reports of NAP will follow the standardised reporting and monitoring mechanism of the MRC in which the relevance, effectiveness, sustainability, management efficiency, and evidence-based results and impacts of NAP activities against its goals, desired outcomes and measurable indicators will be assessed. In necessary cases, independent evaluations of programme implementation will be employed. These reports will be sent to NMCs, the Joint Committee and development partners.

The table below shows the design and monitoring framework of NAP 2013-2015 for both the NAP development objective in line with the MRC long-term goal and the goal of MRC Strategic Plan 2011-2015 and the log frame analysis for each of the outcomes.

Design and Monitoring Framework, NAP 2013-2015:

MRC Goals and NAP Programme Development Objective

Design Summary	Indicator	Source of Data	Assumptions
MRC LONG-TERM GOAL			
Member Countries manage water and related resources of the Mekong River basin in an effective, sustainable and equitable way.	<ul style="list-style-type: none"> ▪ The degree to which IWRM principles (including NAP) are applied in regional/basin management and development planning, and in major Mekong development projects and programmes. ▪ The extent to which decision making on development projects with cross-border or basin-wide implications have effectively and equitable balanced the economic benefits and the environmental and social impacts and costs. 	<ul style="list-style-type: none"> ▪ National policies for inland navigation; ▪ Inland navigation sector reviews; ▪ Reports on portfolio of projects maintained under BDP; ▪ MRC Information System; and ▪ Independent evaluation, mid-term review of SP implementation. 	<ul style="list-style-type: none"> ▪ The momentum of economic development and the prospects of short-term benefits of water resources developments overshadow the longer-term costs of environmental degradation and lost ecosystem productivity.
MRC STRATEGIC PLAN GOAL 2011-2015			
Member Countries implement basinwide IWRM approaches in national water and related sector frameworks and development programmes for sustainable and equitable development.	<ul style="list-style-type: none"> ▪ Improved regulatory framework at all levels for IWRM/NAP implementation and for incorporation of IWRM-based Basin Development Strategy into national planning of water sector and related sectors including inland navigation. 	<ul style="list-style-type: none"> ▪ National policy and planning for the inland navigation sector. 	<ul style="list-style-type: none"> ▪ IWRM principles are integrated into national planning for inland navigation and there is effective coordination inland navigation and other sectors.
NAP PROGRAMME DEVELOPMENT OBJECTIVE			
To promote freedom of navigation and increase the international trade opportunities for the MRC Member Countries' mutual benefit, and to assist in coordination and cooperation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment.	<ul style="list-style-type: none"> ▪ Joint Committee, Council and Member Country line agencies recognise the influence and value of the inland navigation in the LMB. 	<ul style="list-style-type: none"> ▪ JC and Council meeting minutes; ▪ Progress reports; and ▪ Periodic review/evaluation of inland navigation sector. 	<ul style="list-style-type: none"> ▪ Member Countries are committed to achieving the balance between increasing trade and traffic opportunities and environment protection. ▪ The principle of Freedom of Navigation (Art. 9) is upheld and implemented by the four countries
NAP PROGRAMME IMMEDIATE OBJECTIVES			

<p>1. To enhance regional cooperation in the Mekong Basin in the transport sector through formulating a Regional Master Plan and providing technical inputs to the Member Countries and other MRC Programmes.</p>	<ul style="list-style-type: none"> ▪ Number of consultation meetings and joint regional activities completed for improving regional coordination increased. ▪ Regional master plan is formulated and approved by JC. ▪ The level to which NAP provides technical inputs as requested by Member Countries and other MRC programmes. 	<ul style="list-style-type: none"> ▪ National and regional consultation meeting and workshop minutes; ▪ Regional and national initiatives/projects identified; ▪ Trade and traffic statistics; ▪ MRC technical guidance and reports; ▪ JC and Council meeting minutes. 	<ul style="list-style-type: none"> ▪ Member Countries committed to improving regional co-operation in the inland navigation sector to prepare regional master plan.
<p>2. To facilitate Member Countries in cross-border and international shipping through formulating, and assisting in implementing legal instruments on waterborne transportation, and harmonise relevant navigation standards, rules and regulations.</p>	<ul style="list-style-type: none"> ▪ The extent to which legal agreements have been harmonised and implemented ▪ Number of cross-border and regional legal agreements and guidelines has increased. 	<ul style="list-style-type: none"> ▪ CA-VN Legal agreement implementation status; ▪ Minutes of bilateral MNFC; ▪ Regional and national workshop and meeting minutes; ▪ Draft Lao-Thai agreement prepared; and ▪ Legal guidelines developed for harmonisation. 	<ul style="list-style-type: none"> ▪ Member Countries provide resources and allow MRC to provide assistance in formulating and implementing regional and cross-border legal agreements.
<p>3. To facilitate Member Countries in undertaking joint efforts for navigation safety and environmental protection.</p>	<ul style="list-style-type: none"> ▪ Regional projects and initiatives completed to improve traffic safety and environmental protection. ▪ The extent to which Regional Action Plan for Sustainable Management of Dangerous Goods has been implemented, and committed to. 	<ul style="list-style-type: none"> ▪ Regional Action Plan for Sustainable Management of Dangerous Goods as approved and recorded in JC meeting minutes; national and regional project plans prioritised; ▪ National and regional consultation meeting minutes; and ▪ Accident report data. 	<ul style="list-style-type: none"> ▪ Member Countries continue to provide commitment and support to MRC to mitigate and manage the risks to people and the environment associated with inland navigation.
<p>4. To promote coordination, cooperation, and facilitate exchange and sharing of operational information among the relevant stakeholders including the Dialogue Partners.</p>	<ul style="list-style-type: none"> ▪ Extent to which data and information is harmonised ▪ Increased information exchange between Member Countries, Dialogue Partners and key stakeholders for inland navigation. 	<ul style="list-style-type: none"> ▪ Standardised cargo, vessels and passenger reports; ▪ Analysis of cargo, trade and passenger data; ▪ Periodic reporting; ▪ Regional consultations; and ▪ Regional joint initiatives; for information sharing; ▪ Publications. 	<ul style="list-style-type: none"> ▪ Member Countries continue to share information and data to contribute to regional development of the inland navigation sector.

<p>5. To assist Member Countries, their line agencies and relevant stakeholders in strengthening their relevant institutional mechanisms, and building better capacity related to the implementation of the MRC Navigation Programme.</p>	<ul style="list-style-type: none"> ▪ Capacity building programmes and/or training provided for Member Countries and key stakeholders in each of the three critical areas for implementation of NAP 2013-2015; 1. Regional transport planning 2. Legal framework and, 3. Safety and environment. 	<ul style="list-style-type: none"> ▪ Capacity building/training course manuals; ▪ Certification and attendance records; ▪ National and regional consultation meetings proceedings; and ▪ Reports on on-the-job training. 	<ul style="list-style-type: none"> ▪ Member Countries identify the line agencies and key stakeholders for capacity building and training.
OUTCOMES			
<p>1. Cross-Border and international trade opportunities for navigation in the Mekong Basin are increased through the development and promotion of regional transport plans and technical inputs.</p>	<ul style="list-style-type: none"> ▪ Increased trade, cargo and passenger figures at key inland ports in the LMB. 	<ul style="list-style-type: none"> ▪ Periodic review of cargo and trade figures at selected ports; and ▪ Number of ship calls and vessel statistics. 	<ul style="list-style-type: none"> ▪ Member Countries provide sufficient data and information on investment for the development of inland navigation.
<ul style="list-style-type: none"> ▪ The level to which the regional transport plans are accepted by Member Countries, line agencies, key stakeholders and private sector for the development of inland navigation. 	<ul style="list-style-type: none"> ▪ Regional transport plan as approved and recorded in JC meeting minutes. ▪ Jointly acceptance of regional initiatives and projects; ▪ Relevant national policy and planning for inland navigation sector; ▪ National and regional consultations; ▪ Stakeholder analysis; 		
<ul style="list-style-type: none"> ▪ The level of technical outputs provided to Member Countries to achieve the overall goals of the MRC SP 2011-2015. 	<ul style="list-style-type: none"> ▪ NAP technical inputs to MRC publications and reports. 		
<p>2. Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the on-going development and implementation of an appropriate legal</p>	<ul style="list-style-type: none"> ▪ The existing legal framework is enhanced through development and implementation of cross-border legal agreements, rules and regulations. 	<ul style="list-style-type: none"> ▪ Regional and cross-border agreements prepared as recorded in respective meeting minutes; ▪ National rules and regulations database; and ▪ Periodic review of the implementation of regional and cross border legal agreements. 	<ul style="list-style-type: none"> ▪ Member Countries committed to implementation of regional and cross border agreements taking into account the different levels of socio-economic development and existing regulatory framework. ▪ Cambodia and Viet Nam

framework	<ul style="list-style-type: none"> ▪ The extent to which rules and regulations can be harmonised and legal guidance provided to Member Countries. 	<ul style="list-style-type: none"> ▪ Stakeholder discussions; ▪ Bilateral MNFC minutes; ▪ Prepared/agreed framework for harmonising standards; and ▪ Legal guidance. 	<p>support the implementation of the CA-VN Legal Agreement through the bi-lateral MNFC.</p> <ul style="list-style-type: none"> ▪ Lao PDR and Thailand commit to preparing the draft agreement on cross-border navigation.
<p>3. Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety, environmental management measures</p>	<ul style="list-style-type: none"> ▪ The level to which traffic safety is enhanced and maintained through on-going development of waterway safety infrastructure and monitoring. 	<ul style="list-style-type: none"> ▪ Report on Installation of aids to navigation; ▪ River surveys; ▪ Inventory of waterway safety equipment and infrastructure; and ▪ Stakeholder discussion. 	<ul style="list-style-type: none"> ▪ Waterway safety infrastructure is monitored and maintained effectively by Member Countries. ▪ Safety and environmental protection prevention and mitigation measures are implemented and enforced by national line agencies. ▪ Private industry encouraged investing in safety and environmental protection.
	<ul style="list-style-type: none"> ▪ The number of key ports with health, safety and environmental management systems and emergency response plans has increased. 	<ul style="list-style-type: none"> ▪ Regional and national emergency response planning; ▪ National rules and regulations; ▪ Incident data; ▪ Water quality monitoring; ▪ Periodic audits/inspections; and ▪ Private/public sector partnerships. 	
	<ul style="list-style-type: none"> ▪ The reporting of accidents, pollution and emergency response in the inland navigation sector increases for effective incident investigation. 	<ul style="list-style-type: none"> ▪ Standardised incident reporting and recording database; and ▪ Incident information and lessons learned exchanged. 	
<p>4. Active participation of stakeholders including relevant agencies in Member Countries, development and Dialogue Partners, MRC programmes, regional entities in navigation sector is enhanced through improved coordination and information exchange and sharing</p>	<ul style="list-style-type: none"> ▪ Increased operational information is exchanged and available for traffic and transport management in the LMB. 	<ul style="list-style-type: none"> ▪ Agreed framework for River Information Services (RIS); ▪ Periodic review of operational data; and ▪ Annual/quarterly/monthly/ reports. 	<ul style="list-style-type: none"> ▪ Member Countries embrace further trans-boundary cooperation and provision of information in the inland navigation sector. ▪ China and Myanmar are willing to commit to regional cooperation of navigation in the Lancang-Mekong River.
	<ul style="list-style-type: none"> ▪ The extent to which regional coordination has been improved between Member Countries. 	<ul style="list-style-type: none"> ▪ Stakeholder discussion; ▪ JC/Council meeting minutes; and ▪ Joint initiatives between Member Countries including China/Myanmar. 	

<p>5. Institutional arrangements and capacity building are strengthened for the effective implementation of the programme in line with the MRC decentralisation process</p>	<ul style="list-style-type: none"> ▪ Increased capacity building, training and institutional strengthening of Member Country line agencies and key stakeholders for effective implementation of NAP 2013-2015 	<ul style="list-style-type: none"> ▪ Report on training needs assessment; ▪ Report on evaluation of institutional capacity; ▪ Plan for training/capacity building; ▪ Regional and national course inventory; ▪ Perception surveys of Member Country line agencies; and ▪ Stakeholder discussion. 	<ul style="list-style-type: none"> ▪ Member Countries support the MRC decentralisation process for core river basin management functions in the navigation sector.
	<ul style="list-style-type: none"> ▪ The extent to which gender issues have been identified and integrated into NAP outputs and activities. 	<ul style="list-style-type: none"> ▪ Relevant documents relating to gender mainstreaming included in project planning and evaluation; ▪ Report on identification of training and capacity building for women; and ▪ Report on analysis of impacts of navigation (men and women). 	
	<ul style="list-style-type: none"> ▪ The level to which RMB core functions have been developed in- line with MRC decentralisation process 	<ul style="list-style-type: none"> ▪ Proceedings of national and regional consultations; ▪ Decentralisation road map; and ▪ Report on training needs assessment for core functions. 	

3.7 RISKS AND ASSUMPTIONS

There are potential risks in the course of formulating and implementing of NAP 2013-2015. These risks relate mainly to funds availability, and the capacity of the NAP office and NMCs in regard to implementation of regional and decentralised activities. In the Table below, assumptions and measures to respond to the risks are described. The risks and the success of risk management will be evaluated as part of the annual performance reporting on NAP implementation and discussed at the NAB to seek guidance and submission for the Joint Committee’s instruction where needed. Among the potential risks, the following need to be paid due attention. Firstly, it is timing that relates to both approval of NAP 2013-2015 by the MRC and consideration for funding by development partners. In order to be consistent with the five-year planning cycle of the MRC as indicated in its Strategic Plan 2011-2015, the time frame of NAP has to be adjusted accordingly to 2015. The consideration and subsequent endorsement of the NAP document by the Joint Committee would need therefore to take place in time (at the Joint Committee meeting in October 2012). If not, the time for official submission to development partners may be delayed. As experienced with the case of current NAP, it took nearly three years for getting commitment of financial support from development partners. If the same occurs, the NAP timeframe may be affected with the programme not coinciding with the five-year planning cycle. Secondly, in line with the decentralisation process, relevant capacity of NMCs and line agencies in Member Countries needs to be improved in an adequate manner so that, on the one hand, they can be

responsible for those activities that are of a national nature and, on the other hand, they are capable to join in regional, trans-boundary activities of the NAP, especially in complicated issues such as legal framework preparation and implementation. In the table below, assumption and measures to respond to the risks are described.

RISKS	RISK MANAGEMENT AND MITIGATION	RISK LEVEL
Approval of NAP 2013-15 document takes longer than planned	Accelerating preparation process, finalising final draft document for timely submission for JC approval	M
Financial support from donors is not timely secured	Actively approach potential donors during the formulation process for possible pledges both by the ICCS and by the programme	H
Legal framework on navigation between Lao PDR and Thailand is moving slowly	Enhancing consultation process with line agencies, authorities for consensus on the process	M
Regional master plan on navigation is not formulated	Approaching relevant line agencies for accepting concept note of plan preparation	L
Functioning of MFNC and working groups between Viet Nam and Cambodia is delayed	Promoting and logistically facilitating MFNC operation by NAP office	H

Note: **L** = Low, **M** = Medium, **H** = High

ANNEX 1: LINKS BETWEEN NAP AND THE MRC PROGRAMMES UNDER THE STRATEGIC PLAN 2011-2015

Ref.	SP milestones	Timeframe	NAP supported by	SP milestone code (NEW)	Linked to NAP Prog Doc.
NAP LEAD ROLE					
NAP01	Regional Master Plan for overall navigation development in the LMB prepared	By 2013	And other programmes	111NAP01; 121NAP01; 147NAP01	
NAP02	Overall strategy for incorporation of ship locks in planned mainstream dams , including standards for lock design and operations formulated	By 2012	ISH	121NAP02	
NAP03	Regional Feasibility Study for Mekong Waterway Improvement prepared	By 2014	All other programmes	121NAP03; 147NAP03; 234NAP03	
NAP04	Operational rules, regulations, institutional and engineering standards (including waterway and vessel classification, safety construction, training syllabi etc.) pertaining to navigation formulated, standardised and harmonised among all the Member States	By 2013		125NAP04; 235NAP04	
NAP05	Significance of the tributaries of the LMB for navigation identified	By 2014		125NAP05	
NAP06	Cross-border navigation legal regime established and a mechanism for the effective implementation and monitoring of the legal framework is established	By 2014		125NAP06; 361NAP06	
NAP07	Specific strategy designed to support small-scale activities related to the development of rural waterborne transport specifically targeting vulnerable groups	By 2015	BDP, FP, EP	143NAP07	
NAP08	Trans-boundary environmental impact assessment of physical navigation improvement conducted	By 2014		147NAP08	
NAP09	Risk analysis prepared leading to a scope for prevention and contingency of spills and navigation disasters, and management strategy for prevention, management and combating	to be updated	EP, IKMP, ISH	147NAP09; 234NAP09	

	pollution from navigation developed				
NAP10	Operational Automatic Identification System for the Mekong Delta in Viet Nam and Cambodia established and a communication system for navigation in Lao PDR and Thailand developed	By 2014		212NAP10	
NAP11	Navigation-related database (River Information System, fairway information, voyage planning, cargo and passenger statistics, record of accidents, and proposed economic developments) established, and forecasting system of Low Water Alerts for navigation developed	By 2014	IKMP	212NAP11	
NAP12	Recommendations provided for coordinated frameworks for public-private partnerships in Mekong waterborne transportation and tourism	to be updated	EP, ISH	214NAP12; 235NAP12	
NAP13	Aids to navigation as per priority needs, including landing facilities for tourists installed	By 2014		235NAP13	
NAP14	River survey: comprehensive analysis of the river by multi-beam echosounding conducted	By 2015		235NAP14	
NAP15	Information on navigation accidents published and disseminated to regional, dialogue and development partners	By 2014 and continuously later		361NAP15	
NAP16	Standards for waterway classifications developed	By 2013		211NAP16	
ALL01	Sector reviews updated by sector programmes	By 2014	BDP (All other programmes)	112ALL01	
ALL02	Stakeholder Participation and Communication Plans prepared, reviewed and updated by individual MRC programmes	By 2012	ICCS (All other programmes)	114ALL02; 321ALL02; 333ALL02; 352ALL02	
ALL03	Programme transition plans prepared for decentralised core functions in line with the overall MRC Transition Roadmap	By 2013	TCU, ICCS (All other programmes)	512ALL03	
NAP SUPPORTING ROLE					
			NAP supporting for		

BDP01	Basin action plans approved for implementation	By 2011	BDP (All other programmes)	111BDP01	
BDP02	Basin-wide objectives or “baseline indicators” covering economic, environmental and social factors developed	By 2013	BDP (EP, and other programmes)	112BDP02; 212BDP02	
BDP03	Basin development strategy updated every 5 years to also include sub-basin water management issues	By 2015	BDP (All other programmes)	113BDP03	
BDP04	A basin-wide management plan/strategy prepared	By 2015	BDP (All other programmes)	113BDP04	
BDP06	Basin-wide and sector water resources management guidelines	By 2015	BDP (ISH, AIP, FP, EP and other programmes)	121BDP06	
BDP07	Study report on management of risks of on-going and committed water resources development projects	By 2011	BDP (EP, ISH, IKMP)	122BDP07; 124BDP07; 142BDP07; 146BDP07; 147BDP07; 242BDP07; 325BDP07; 332BDP07; 341BDP07; 342BDP07	
BDP09	Options identified for sharing the potential benefits and costs of identified development opportunities and facilitation of negotiated solutions	By 2014	BDP (All other programmes)	144BDP09; 341BDP09	
CCAI02	Study report on the utilisation of inland transport toward a low-carbon and low-pollution future for transportation including options for improved fuel/energy efficiency of inland barges vessels	By 2015	CCAI	133CCAI02	
CCAI03	Study report on the impacts of climate change on navigation and existing infrastructure	By 2015	CCAI	133CCAI03	
CCAI05	A Climate Change Adaptation Strategy for the LMB prepared and	By 2013	CCAI (EP, FP, AIP,	135CCAI05;	

	approved		DMP, FMMP, ISH, WMP)	254CCAI05; 351CCAI05	
EP04	Environmental impact assessments undertaken for proposed regional navigation developments	Continuously	EP	126EP04	
EP12	Strengthened State of the Basin monitoring and reporting	Continuously	EP (BDP, ICBP, MIWRMP, and other programmes)	212EP12; 213EP12; 216EP12; 355EP12	
EP15	Monitoring and assessment programme developed to analyse implications of climate change on basin's long-term hydrology, agriculture, food security, ecological conditions and bio-diversity	By 2015	EP (CCAI, IKMP, and other programmes)	245EP15	
FMMP04	A detailed analysis of flow and flood changes along the mainstream from northern Thailand to the Delta	By 2014	FMMP (BDP, EP, FP, AIP, IKMP and other programmes)	121FMMP04; 131FMMP04; 231FMMP04; 233FMMP04	
FMMP05	Study report on basin-wide and multi-sector study of long-term flood management options for the Mekong Delta to respond to growing pressures from land development, sea level rise, climate change, and upstream development plans	By 2015	FMMP (BDP, EP, FP, AIP, IKMP and other programmes)	122FMMP05; 131FMMP05; 133FMMP05; 142FMMP05; 143FMMP05; 215FMMP05; 242FMMP05; 244FMMP05	
ICBP15	Riparianisation plan updated	By 2011	ICBP (TCU and all programmes)	531ICBP15	
ICBP16	The implementation of MRCS riparianisation roadmap reviewed	By 2011	ICBP (ICCS, and all programmes)	534ICBP16	
ICCS02	MRC-wide stakeholder analysis and structured engagement process developed	By 2013	ICCS (All programmes)	114ICCS02; 321ICCS02;	

				333ICCS02; 352ICCS02	
ICCS04	Overall MRC Action Plan to implement the MRC Transition Roadmap	By 2012	ICCS (TCU, all programmes)	513ICCS04	
IKMP02	Methods, tools and quality assurance systems relating to water resources management strengthened and harmonised	Continuously	IKMP (ICBP, MIWRMP)	146IKMP02; 221IKMP02; 222IKMP02; 223IKMP02; 224IKMP02; 231IKMP02; 232IKMP02; 234IKMP02; 235IKMP02; 241IKMP02; 251IKMP02; 252IKMP02; 253IKMP02; 254IKMP02; 255IKMP02; 353IKMP02	
IKMP05	Tools developed to analyse and assess impacts of water use in different sectors	Continuously	IKMP (AIP, BDP, DMP, EP, FP, ISH)	221IKMP05	
MIWRM04	A targeted IWRM capacity building programme linked to the MRC's overall initiatives and complementary to national capacity building activities developed and implemented	Continuously	MIWRMP (ICBP and other programmes)	413MIWRM04; 421MIWRM04; 422MIWRM04; 433MIWRM04; 436MIWRM04; 437MIWRM04; 441MIWRM04;	

				442MIWRM04; 554MIWRM04	
TCU03	PMS design completed and start testing	By 2012	TCU (All programmes)	522TCU03	
TCU04	A system designed for programme progress reports and MRC annual performance reports	By 2012	TCU (All programmes)	524TCU04	
TCU06	Task groups on cross-cutting outcomes established, and recommendations for improved coordination mechanism between MRC programmes on shared outcomes	By 2012	TCU (All programmes)	544TCU06	
TCU07	Existing coordination mechanisms assessed	By 2012	TCU (All programmes)	545TCU07	

ANNEX 2: DESIGN AND MONITORING FRAMEWORK, NAP 2013-2015: OUTPUTS AND ACTIVITIES

Design Summary	Indicator	Source of Data
<p>Outcome 1: <i>Cross-border and international trade opportunities for navigation in the Mekong basin are increased through the development and promotion of regional transport plans.</i></p>		
<p>Output 1.1: <i>Master plan for Regional Waterborne Transport developed</i></p>	<ul style="list-style-type: none"> ▪ The level to which Member Countries, line agencies and private sector participated in preparing the Regional Master Plan. ▪ The level to which the MRC promoted the development and outcomes of Regional Master Plan and trade/traffic scenarios. 	<ul style="list-style-type: none"> ▪ Periodic review of trade and cargo figures; ▪ National and Regional consultation; ▪ Passenger and waterborne tourism figures; ▪ Trade and traffic scenarios; ▪ Regional Master Plan approved by JC/Council; ▪ MRC Website/publications; ▪ Cross-border and regional initiatives/projects identified.
<p>Activities:</p> <p>1.1.1 Formulate the Strategy to stimulate the growth of the cross-border waterborne transportation based on the scenarios ;</p> <p>1.1.2 Identify qualification and quantification physical requirements;</p> <p>1.1.3 Analyse different modes and the multimodal options for the development of strategic regional intermodal transport scheme;</p> <p>1.1.4 Determine optimal Mekong Navigation Scenario and Least Required Depth (LRD);</p> <p>1.1.5 Carry out environmental and social impact assessments for regional waterborne transport;</p> <p>1.1.6 Carry out economic and financial evaluation of scenarios;</p> <p>1.1.7 Prepare recommendations for prioritised investments in inland waterway infrastructure and sources of finance for the recommended investments identified and Identify investment opportunities in regional waterborne transport (cargo) and for regional passenger transport, tourism and rural waterborne transport, and sources of finance including potential international finance institutions and bilateral donors for the recommended investments;</p> <p>1.1.8 Investigate setting up public-private partnerships and</p> <p>1.1.9 Organise national consultations and a regional workshop for discussion on the Master Plan</p>		

<p>Output 1.2:</p> <p><i>Technical inputs are provided to the Member Countries to other MRC programmes on specific navigation-related matters that need NAP's intervention.</i></p>	<ul style="list-style-type: none"> ▪ The level to which technical inputs for navigation are provided to Member Countries and other MRC Programmes as required responding to socio-economic developments and priorities in the LMB. 	<ul style="list-style-type: none"> ▪ JC/Council Meeting Minutes; ▪ PNPCA process; ▪ MRC Publications and preliminary design guidance; ▪ State of the Basin and Annual reports; and ▪ NAB meeting minutes.
<p>Activities:</p> <p>The activities involving the technical inputs by the Navigation Programme cannot be fixed at this stage as they will depend on the situation but NAP will see it as a priority to assist whenever needed.</p>		
<p>Outcome 2: Freedom of regional and cross-border navigation on the Mekong is effectively facilitated, maintained and promoted through the on-going development and implementation of an appropriate legal framework.</p>		
<p>Output 2.1:</p> <p><i>Assistance for the Implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam provided</i></p>	<ul style="list-style-type: none"> ▪ The NAP has facilitated at least one Bilateral Mekong Navigation Facilitation Committee (MNFC) annually and can demonstrate evidence of implementation of the Agreement on Waterway Transportation between Cambodia and Viet Nam. 	<ul style="list-style-type: none"> ▪ Bilateral Mekong Navigation Facilitation Agreement Meeting Minutes; ▪ National and Regional consultation meetings; ▪ Legal guidance notes; ▪ Periodic review of CA-VN Legal Agreement implementation.
<p>Activities:</p> <p>2.1.1 Prepare overview of Monitoring of the implementation of the Agreement on Waterway Transportation between the Royal Government of Cambodia and the Government of the Socialist Republic of Viet Nam, and list the outstanding tasks to be done by each Signatory to the Agreement, and by the MRC ;</p> <p>2.1.2 Assist the two parties in establishing the Bilateral Mekong Navigation Facilitation Committee (MNFC);</p> <p>2.1.3 The MRC will financially assist the Permanent Secretariats of the MNFC during the period of the current and new Navigation Programme until December 2015;</p> <p>2.1.4 Facilitate MNFC to formulate a detailed road map and work programme for the implementation of the Agreement;</p> <p>2.1.5 Assist in drafting and recommending harmonisation of the standards rules, certification, vessel construction, rules for dangerous goods and other safety standards (combined with Output 3.2);</p> <p>2.1.6 Assist the two parties in monitoring the implementation of the Navigation Agreement as required</p>		
<p>Output 2.2:</p> <p><i>Assistance for the Elaboration of the Agreement on Waterway Transportation between the Lao PDR and Thailand provided</i></p>	<ul style="list-style-type: none"> ▪ The level to which NAP has provided consultation and legal guidance for development of the draft Agreement on Waterway Transportation between Lao PDR and Thailand. 	<ul style="list-style-type: none"> ▪ Draft Legal Agreement prepared and reviewed; and ▪ National and regional consultation meetings.

<p>Activities:</p> <p>2.2.1 Undertake a legal study on the existing Navigation Agreements between Lao PDR and Thailand, and other Mekong Navigation Agreements, and compared with international Treaties;</p> <p>2.2.2 Prepare recommendations for establishing a legal framework for cross-border navigation between Lao PDR and Thailand and further assist as requested;</p> <p>2.2.3 Assist Legal Working Groups of the Lao PDR and Thailand in negotiating/drafting a bilateral navigation agreement between the Governments of Lao PDR and Thailand for the Middle part of the Mekong River;</p> <p>2.2.4 Assist Lao PDR and Thailand in holding national consultations on the draft; and</p> <p>2.2.5 Assist Lao PDR and Thailand in holding a regional workshop on the draft including a working visit, if so agreed, to either MNFC's Secretariat of Cambodia or Vietnam</p>		
<p>Output 2.3:</p> <p><i>Legal Rules and Regulations Under Which Freedom of Navigation is exercised, updated and harmonised</i></p>	<ul style="list-style-type: none"> ▪ The rules and regulations that can be harmonised between the Member Countries (at least Cambodia/Viet Nam and Lao PDR and Thailand) have been identified and recorded in a legal database. 	<ul style="list-style-type: none"> ▪ MRC Legal Database (national and regional) ; ▪ Technical standards; ▪ Legal guidance notes; and ▪ Framework established for harmonisation or rules and regulations.
	<ul style="list-style-type: none"> ▪ More than two technical standards and/or legal guidance notes and recommendations developed for Member Countries. 	
<p>Activities:</p> <p>2.3.1 Conduct a comparative study on relevant rules/regulations of Cambodia and Viet Nam and international organisations relating to navigation;</p> <p>2.3.2 Conduct a comparative study on relevant rules/regulations of the Lao PDR and Thailand and international organisations relating to navigation;</p> <p>2.3.3 Undertake a review of the existing standards/rules/regulations in the Member Countries and international norms for recommending the most suitable standards/rules/regulations to be used as 'foundation/ground' for standardisation and harmonisation;</p> <p>2.3.4 Recommend a uniform system of standardised and harmonised rules/regulations; and</p> <p>2.3.5 Undertake national and regional consultations on the recommendations of standardised and harmonised rules/regulations</p>		
<p>Outcome 3: <i>Sustainable development of navigation is ensured through the preparation, application and monitoring of traffic safety and environmental management measures.</i></p>		

<p>Output 3.1: <i>Operational aids to navigation and landing facilities are procured and installed on the remaining stretches.</i></p>	<ul style="list-style-type: none"> ▪ The level, to which operational aids to navigation (ATON) system are effectively procured, installed, monitored and maintained. 	<ul style="list-style-type: none"> ▪ Inventory of buoys, beacons, landing facilities; ▪ Period inspection and survey of equipment; ▪ Stakeholder discussion; and ▪ River surveys.
<p>Activities:</p> <p>3.1.1 Design a fully operational system of and install aids to navigation, including landing facilities where needed;</p> <p>3.1.2 Prepare tender documents and undertake bidding for manufacturing of aids to navigation;</p> <p>3.1.3 Undertake handover of aids to navigation to the countries/authorities;</p> <p>3.1.4 Assist/coordinate the installation of the buoys, beacons and landing facilities undertaken by respective country;</p> <p>3.1.5 Monitor/follow-up positioning and maintenance plan</p>		
<p>Output 3.2: <i>Rules and Regulations Updated and Harmonised</i></p>	<ul style="list-style-type: none"> ▪ The rules and regulations that can be harmonised for safety, transport of dangerous goods, waste and pollution prevention have been identified. ▪ Technical standards and legal guidance notes prepared for Member Countries in relation to harmonising standards, rules and regulations. ▪ New rules and regulations have been drafted by Member Countries with assistance provided by MRC. 	<ul style="list-style-type: none"> ▪ MRC Legal database; ▪ National rules and regulations drafted; ▪ Regional and cross-border agreements; ▪ Technical standards and legal guidance notes prepared; and ▪ Implementation Committee and/or National working groups established.
<p>Activities:</p> <p>3.2.1 Undertake a comparative study on relevant rules/regulations of Member Countries and international organisations relating to navigation safety and environment protection;</p> <p>3.2.2 Prepare a road map for proposing improvement of the standards/rules/regulations ;</p> <p>3.2.3 Recommend national standards and rules/regulations in the Member Countries that would be most suitable as 'foundation' for standardisation and harmonisation;</p> <p>3.2.4 Undertake national and regional consultations on the selected standards, rules/regulations that should be prioritised for standardisation and harmonisation;</p> <p>3.2.5 Prepare a draft of standards, rules/regulations based on the selection from the Regional Workshop;</p> <p>3.2.6 Recommend a unified system complying with internationally recognized system and suitable to the conditions of the six Mekong co-basin countries; and</p> <p>3.2.7 Propose concrete measures and a programme for the harmonisation of the systems to be agreed upon by the six countries.</p>		

<p>Output 3.3: <i>The Regional Action Plan for Sustainable Management of Transporting Dangerous Goods (Phase 2 + Implementation) formulated and implemented</i></p>	<ul style="list-style-type: none"> ▪ Level to which the Regional Action Plan for Sustainable Management of Transporting DG has been implemented in Member Countries. 	<ul style="list-style-type: none"> ▪ Regional Action Plan for DG approved by JC/Council; ▪ National and regional project plans prepared; and ▪ Periodic monitoring of transport of DG.
<p>Activities:</p> <p>3.3.1 Review documents under Phase I including Volume I (Risk Analysis) and Volume II (Recommendations) and two pilot projects i.e. (1) Sustainable Management of Dangerous Goods at Chiang Saen Port and (2) the GPS Vessel Guidance System and Low Water Alert System);</p> <p>3.3.2 Consolidate the recommendations through use of a matrix to determine what action is required for improving and/or developing legal framework, rules and regulations, technical standards, developing management plans and technical guidelines for operators of ports, terminals and vessels;</p> <p>3.3.3 Undertake a stakeholder analysis in each of the Member Countries to determine how the implementation of the recommendations for ports/terminals, vessels, waterway, legal framework could impact (both positive and negative) on key stakeholders;</p> <p>3.3.4 Identify potential for developing regional and national Project Plans (PP) in considering the recommendations for ports/terminals, vessels, waterway, legal framework;</p> <p>3.3.5 Prioritise the proposed Regional and National PP using a social, economic and environmental assessment tool;</p> <p>3.3.6 Evaluate possible sources of financing for future implementation of the Regional and National PP;</p> <p>3.3.7 Survey linkages with other MRC Programmes, private sector, investment banks and other development partners;</p> <p>3.3.8 Prepare national and Regional Action Plan and Implementation Strategy for publishing and distribution to Member Countries and development partners; and</p> <p>3.3.9 Hold a Regional Workshop to review the Regional and National PP and Implementation strategy.</p>		
<p>Outcome 4: Active participation of stakeholders including relevant agencies in Member Countries, Development and Dialogue Partners, MRC Programmes regional entities in navigation sector is enhanced through Improved Coordination and Information Exchange and Sharing</p>		
<p>Output 4.1: <i>The basic functions for River Information Services Developed</i></p>	<ul style="list-style-type: none"> ▪ Guidelines for MRC and Member Countries for harmonising data and reporting requirements for inland navigation established. ▪ The level to which NAP facilitated the development of RIS with Member Countries and key stakeholders. 	<ul style="list-style-type: none"> ▪ Analysis of existing data; ▪ Stakeholder discussion; ▪ NAB Meeting; ▪ RIS Guidelines developed; ▪ National and regional consultations.
<p>Activities:</p> <p>4.1.1 Prepare RIS Implementation Plans, preliminary investigations, needs assessment and planning;</p>		

<p>4.1.2 Prepare and disseminate to various stakeholders a database of NAP, and published products produced under the various Programme;</p> <p>4.1.3 Prepare a detailed implementation planning;</p> <p>4.1.4 Standardise and harmonise the data systems;</p> <p>4.1.5 Identify data needs for the RIS identified including initial set of data and identify data gaps or inadequate data quality; develop the data standardisation process on a national and regional level in accordance with clear deadlines and requirements;</p> <p>4.1.6 Prepare a plan for cargo and passengers statistics monitoring;</p> <p>4.1.7 Introduce a monitoring system;</p> <p>4.1.8 Determine baseline conditions for operational services and fairway information system;</p> <p>4.1.9 Undertake forecasting of water depths at shallow and critical parts; and</p> <p>4.1.10 Provide other Dynamic Nautical Information.</p>		
<p>Output 4.2: <i>Trade and Tourism Facilitation: The Atlas of the Mekong Ports and Landings in Cambodia, Lao PDR, Thailand, Viet Nam prepared</i></p>	<ul style="list-style-type: none"> ▪ The extent to which the Atlas of the Mekong Ports and landing is promoted by MRC. 	<ul style="list-style-type: none"> ▪ Regional and national consultations; ▪ Stakeholder discussions; ▪ Promotion and awareness campaign; ▪ Dialogue meetings with waterborne tourism sector; and ▪ Atlas approved by Member Countries.
<p>Activities:</p> <p>4.2.1 Collect data and information on tourism spots along the Mekong River and existing and future landing sites, ports, and tourist attractions;</p> <p>4.2.2 Undertake analysis and provide recommendations for possible landing sites and ports;</p> <p>4.2.3 Circulate questionnaires and descriptions cards in the four countries to include an overview description, country level descriptions, ports, terminals and landing facilities layout, and tourist attractions in the Lower Mekong basin;</p> <p>4.2.4 Prepare the draft Atlas including an overview map and more detailed maps for each country showing the locations of the ports, landing facilities and tourist spots along the river.</p> <p>4.2.5 Circulate the draft Atlas to the Member Countries and stakeholders for comments; and</p> <p>4.2.6 Endorse the draft Atlas and publish.</p>		
<p>Output 4.3: <i>A GPS Vessel Guidance System Developed (including condition survey and feasibility study for AIS)</i></p>	<ul style="list-style-type: none"> ▪ Extent to which the GPS Vessel Guidance system is utilised by waterway users and improved safety. 	<ul style="list-style-type: none"> ▪ Stakeholder discussions; and ▪ Accident report data.

<p>Activities:</p> <p>4.3.1 Assign the traditional (or Optimal) Route and analyse the results;</p> <p>4.3.2 Undertake condition Survey between the Golden Triangle and Houy Xay;</p> <p>4.3.3 Conduct bathymetric surveys ;</p> <p>4.3.4 Identify underwater hazards;</p> <p>4.3.5 Supplement/add navigational features to the information;</p> <p>4.3.6 Produce GIS format mapping outputs suitable for use in GPS devices including provision of data layers in Vector/Raster format; and</p> <p>4.3.7 Install GPS equipment and vessel tracking systems installed and undertake training vessel captains on the use of new GPS maps.</p>		
<p>Output 4.4: <i>Regional Navigation Activities coordinated</i></p>	<ul style="list-style-type: none"> ▪ More than two regional meetings, workshops and initiatives completed with PR China and Myanmar. ▪ Increased dialogue with private sector, GMS, ASEAN, ADB, World Bank and other development partners to facilitate regional coordination. ▪ Database of NAP developed publications and products produced under the various Programme Outcomes disseminated to various stakeholders for discussion. 	<ul style="list-style-type: none"> ▪ Regional meetings and workshop minutes; ▪ JCCCN Minutes; ▪ Progress Reports; and ▪ Joint initiatives and pilot projects identified; ▪ Dialogue meetings; and ▪ Database of NAP publications and products; ▪ Stakeholder discussions.
<p>Activities:</p> <p>4.4.1 Get involvement of PR China and Myanmar to share expertise as observers in the Navigation Advisory Body Meetings established by the MRC Navigation Programme;</p> <p>4.4.2 Participate as an observer on an annual basis in meetings conducted by the Upper Mekong Agreement determined in order to improve information sharing;</p> <p>4.4.3 Identify, in close cooperation with Thailand and Lao PDR (which are both MRC Member Countries of and parties to the navigation agreement on the Upper Mekong) a list of issues for initial cooperation;</p> <p>4.4.4 Recommend the MRC Joint Committee during the Dialogue meetings to prioritise 5 coordination issues and select one pilot project from them;</p> <p>4.4.5 Define action plan and timeline for coordinating between the Lower and Upper Mekong agreements on the selected 4 issues that are not pilot projects;</p> <p>4.4.6 Arrange a Regional Navigation Forum with a particular agenda on coordination and implementation of the Upper and Lower Mekong agreements in light of ASEAN agreements on free trade and developments in the international trading system;</p>		

- 4.4.7 Identify and assess interests and needs within private sector operators and representatives that make participation in national and regional coordination activities attractive;
- 4.4.8 Identify and assess interests and needs within the national line agencies, ministries of commerce and trade development, and other public authorities working with navigation that make participation in national and regional coordination activities attractive;
- 4.4.9 Call national public and private stakeholders to a meeting to discuss the level and regularity of coordination exercises, and give priority to 3 navigation issues in each country where private-public partnerships should be developed;
- 4.4.10 Liaise closely with the Mekong Project Development Initiative on how to foster private-public partnerships and identify 1 pilot project in each MRC Member Country to test the interest and development maturity for such activities;
- 4.4.11 Organise two biannual coordination meetings between public and private stakeholders on national and regional navigation development; and
- 4.4.12 Assess the outcomes, interest in and purpose of continuation of arranging such meetings. Redefine coordination framework according to developments, interest and needs with the NMCs as facilitators.

Outcome 5: Institutional arrangement and Capacity Building are strengthened for the Effective Implementation of the Programme in line with the MRC decentralisation process

<p>Output 5.1:</p> <p><i>Management Capacities of National Counterparts and MRCS NAP Team directly related to the Implementation of the Navigation Programme and its Functioning Strengthened</i></p>	<ul style="list-style-type: none"> ▪ The level to which MRCS NAP Team, Member Country line agencies have improved capacity to effectively implement the Navigation Programme. 	<ul style="list-style-type: none"> ▪ Training needs assessment; ▪ Capacity building and training plan; ▪ On the job training; ▪ National Working Groups established; ▪ Performance Appraisal Review (PAR); ▪ Evaluation of capacity building/training; and ▪ Decentralisation road map.
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- Activities:**
- 5.1.1 Undertake a full Training Needs Assessment for the Line Agencies, the Private Sector, the NMCs and the MRC Secretariat conducted. Additional activities included on-the-job-training, specific courses, workshops and seminars or the provision of scholarships for specific training overseas.
 - 5.1.2 Identify the needs for institutional strengthening, capacity building and training of the line agencies, stakeholders and beneficiaries in each of the Member Countries;
 - 5.1.3 Develop training materials and guidelines of the various workshops and seminars;
 - 5.1.4 Undertake on-the-job training/workshops of and for the working groups and national experts assigned to and responsible for the implementation of the Programme in specific areas such as:
 - Regional Transport Planning;
 - Legal Navigation Frameworks;
 - Standard rules and regulations for international and river and sea-river;

<ul style="list-style-type: none"> ▪ Disaster management and contingency planning; ▪ Port safety and environmental management; ▪ Environmental impact assessment procedures and environmental management plans; ▪ Environmental monitoring and evaluation; ▪ River Information Services; and ▪ Aids to Navigation. 		
Output 5.2: <i>Gender issues for the inland navigation sector mainstreamed</i>	<ul style="list-style-type: none"> ▪ Extent to which gender mainstreaming is integrated into implementation of NAP outcomes and outputs 	<ul style="list-style-type: none"> ▪ Stakeholder discussion; ▪ Review my ICBP; ▪ Analysis of impact of development in navigation (men and women); and ▪ Specific capacity building for women developed.
	<ul style="list-style-type: none"> ▪ Level to which new opportunities have been identified for women in the inland navigation sector. 	
Activities: 5.2.1 Carry out a study and research on the expected difference of impact of development of navigation on the Mekong for men and women (analysis) 5.2.2 Create understanding among stakeholders for the results of the study/ research and identify how to address issues through NAP activities (targeted) 5.2.3 Enhance specific capacity building for women in Member Country line agencies for policy, leadership and decision making; 5.2.4 Encourage women to pursue employment opportunities and specific skills training for women working in navigation, ports, passenger transport and related industries identified; and 5.2.5 Determine further the socio-economic impacts and benefits of increased trade opportunities in the inland navigation sector for riparian communities for both men and women.		
Output 5.3: <i>Navigation Programme for the MRC Strategic Plan 2016-2020 prepared.</i>	<ul style="list-style-type: none"> ▪ The level in which Member Countries, key stakeholders and other MRC Programmes contributed to prioritising the outcomes and outputs of NAP 2016-2020. 	<ul style="list-style-type: none"> ▪ MRC Evaluation of NAP 2013-2015; ▪ Donor review; ▪ MRC Strategic Plan 2016-2020; ▪ Regional and national consultations.
	Activities: 5.3.1 Undertake detailed analysis at the regional and national level on the current situation of the waterborne transportation on the Mekong River; 5.3.2 Review completed outputs and remaining outputs achieved during NAP 2013-2015, proposed MRC Strategic Plan 2016-2020 and links to other MRC programmes; 5.3.3 Hold discussions between the NAP Team, consultations with other MRC Programmes, with the NMCs and line agencies, and with NGOs, private sector and other stakeholders; 5.3.4 Prepare the first draft of the Navigation Programme 2016-2020 in cooperation with the NAP Team; 5.3.5 Facilitate four national workshops in each of the MRC Member States to review the relevance of the previously identified outputs of the Navigation Programme (20013-2015) and discuss the	

additional priority projects for inclusion in the new MRC Navigation Programme (2016-2020;

5.3.6 Revise draft Navigation Programme 2016-2020 according to the feedback from the countries;

5.3.7 Prepare draft Navigation Programme Implementation Plan (PIP) 2016-2020;

5.3.8 Facilitate Regional Planning Workshop to complete the final draft Navigation Programme and the draft Navigation Programme Implementation Plan;

5.3.9 Finalize Navigation Programme 2016-2020 and PIP according to the feedback from the countries; and

Submit the draft submitted to the Member Countries, the Navigation Advisory Body, then to the Joint Committee for their consideration/approval.



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For more information on the **Navigation Programme**, visit
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