Mekong River Commission

MRC Navigation Strategy

Phnom Penh, August 2003

The MRC Navigation Strategy publication consists of two documents:

1) *The MRC Navigation Strategy; and*
2) *A separate Navigation Resource Document containing all the collected facts and information.*

The MRC Navigation Strategy will be presented to the MRC Joint Committee in March 2003; the Navigation Resource Document will be published in April/May 2003.

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PREFACE

The Mekong River Commission is pleased to present the MRC Navigation Strategy in this document.

The countries in the Mekong region have used the extensive natural river networks for transport and trade for centuries. For many years the Lower Mekong Basin hosted traders from near and faraway becoming important trade partners in the Southeast Asia region and beyond. Nowadays, there are only few regional and international traders travelling the Mekong waters meaning that the extensive navigation and trade potential is far from utilized.

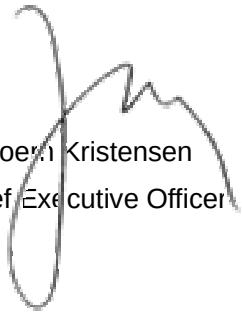
The Mekong River flows through six countries and is an important gateway to trade centres in the Southeast Asia region and beyond. To fully realise the trade and transport potentials a regional development approach is very much needed.

The Mekong River Commission has been implementing important navigation projects but the last Navigation Strategy dates back to 1994. Due to new developments in the region the past decade the 1994 Strategy does not reflect the current state of the regional navigation conditions, neither does it reflect the strategic commitment to and implementation of the 1995 Agreement specifically mandating MRC to promote freedom of Mekong navigation. Rather than following the project-based approach, a new strategy was needed that could materialize a dedicated vision for increased international trade and transport in an environmentally sound manner.

Regional trade does not only bring about income, local employment opportunities, and investments in new technologies. Trade relations will foster better understanding among different cultures, methods and thinking that can lead to innovation in sectors and areas that are not directly related to the actual exchange of goods and services. If the strategic approach as explained in this document is followed well, the regional trade can develop in a sustainable and sound manner.

A review and assessment of the current state of the regional waterborne transport sector was conducted in 2002 and early 2003. The findings of the assessment show that there are many opportunities for socio-economic development to be found in this sector; however, institutional and physical shortcomings prevent the countries from realizing these potentials. Based on the review insights four core roles and five strategic areas of intervention were identified for the Mekong River Commission to involve in navigation development.

The Strategy has been formulated in close cooperation with MRC member countries and regional development partners through a participatory process of national and regional consultation visits and workshops.



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EXECUTIVE SUMMARY

Background

The Mekong 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 investment banks are directing their investments in regional infrastructure towards road and rail transport, the Mekong River Commission continues to stress the importance of investing in the water-borne transport sector. The underlying reason is to attract investments 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 co-operation was signed, the riparian countries have entered into various forms of agreements addressing regional navigation. In the 1995 Agreement the overall role of MRC is defined as assistance in regional co-ordination and policy development. Due to the recent launch of strategic basin-wide sector programmes, major developments on the national political agendas of the four MRC Member Countries and the MRC Strategic Plan (2001-2005), it is time to update the 1994 Navigation Strategy to be fully in line with the 1995 Agreement.

Article 9 of the 1995 Agreement gives MRC a specific mandate to promote and co-ordinate water transportation and to encourage freedom of navigation in the Lower Mekong region. A common interest in increasing international trade was the reason that the MRC signatories opted for a separate article in the 1995 Agreement on Freedom of Navigation.

The updated MRC Navigation Strategy is meant to contribute to regional and national prosperity in each of the countries in the Lower Mekong Basin (LMB). The benefits could be reaped by attracting more trade and creating more environmental awareness and capacity to address this issue in a proper way. Presently, the governments and the private sector are not capable, on a national level, of realising the potential of regional and international waterborne transport. Apart from international trade another important issue is access to waterborne transport for remote areas, thereby offering communication for the rural poor and for transportation of agricultural goods to consumption centres. An improved navigable waterway system will not only provide a new foundation for economic growth and development in the LMB, but could also have a positive impact in terms of contributing to cleaner river transport and poverty alleviation.

The ***development objective*** for MRC navigation development is:

- To promote freedom of navigation in the Lower Mekong River system;
- To assist in co-ordination and co-operation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment; and
- To increase international trade opportunities for the mutual benefit of the Member Countries of the MRC.

The ***8 Guiding Principles*** on which the navigation strategy is formulated:

(i) basin-wide significance; (ii) involve upstream partners; (iii) poverty alleviation and gender issues; (iv) sustainability; (v) participatory approach; (vi) integrated action and avoidance of duplication; (vii) ecological benefits; and (viii) feasibility.

The Formulation Process

The formulation of the new strategy was initiated in August 2002. The Navigation Programme Unit of MRCS, assisted by Statkraft Grøner/Royal Haskoning Consultants has applied the same participatory methodology that was used for the formulation of the Flood Management and Mitigation Strategy. Public participation in all its programme activities is a process to which MRC feels itself committed.

The team started collecting information and discussing the baseline conditions, needs, problems and opportunities of Mekong navigation with the NMC's, national line agencies, regional counterparts and the private sector in all four member countries. Results of the national consultation visits and studies were further discussed during national workshops.

The regional consultation workshop aimed at improving the draft strategy document and receiving the opinion of the MRC countries on the proposed roles for MRC and the proposed strategic objectives. The participants also prioritised activities and considered institutional and co-ordination-related issues.

Geographical Project Area

The main objective of this study is the Lower Mekong Basin area (LMB), and includes the stretch of the river that passes through Thailand, Lao PDR, Cambodia and Viet Nam. Although the Mekong River system from the common border point between Myanmar/Lao PDR and Thailand (the "Golden Triangle") down to the sea is the focal point of the Mekong River Commission, the project area also covers part of the upper Mekong due to regional multi-modal transport situations, opportunities and prospects.

Content of the Strategy Document

MRC has chosen to divide the full version of the strategy document into two separate reports:

1) The MRC Navigation Strategy; and

2) A separate *Navigation Resource Document* containing all the collected facts and information.

On this basis this report, the MRC Navigation Strategy, includes the essential parts of the Navigation Resource Document and elaborates fully on the strategic formulation. The full assessment of the baseline conditions will appear in the Navigation Resource Document, which is expected to be published in April/May 2003. *The MRC Navigation Strategy* is structured in four main parts, plus a number of relevant annexes.

The SWOT Analysis

In order to draft the final navigation strategy and to identify the relevant roles of MRC, the outputs from the consultations, national workshops and desk study findings have been processed in a SWOT analysis. This was used to develop the navigation strategy, taking into consideration many different internal and external factors and maximising the potential of the strengths and opportunities while minimising the impact of the weaknesses and threats. This exercise has been of great help to focus the strategic activities into areas where the largest opportunities for further promotion and development of navigation are to be found.

The most striking navigation characteristics identified in the SWOT can be summarised as:

- Legal framework for cross-border navigation

The present international regime of navigation on the Mekong is not satisfactory and operates more as an impediment than an encouragement to navigation development. The co-existence of more conventions relating to navigation on the Mekong leads to legal uncertainty as to the exact legal status of the river and causes fundamental policy prob-

lems. However, the 1995 Agreement, the recent developments within MRC and the strong Mekong-spirit represent great opportunities. Harmonised rules on technical safety and environmental standards should be formulated.

- Ports and waterways

The Lower Mekong Basin waterway network is currently insufficiently utilised. It has a great reserve navigation capacity which should be used. An inter-modal transport approach integrating waterborne transport with other modes is called for. It is also noted that the multiple functions of inland waterways are insufficiently borne in mind. There are great opportunities to be materialized through River-Sea navigation. It is generally recognised that investment in the waterborne transport in the LMB lags behind.

- Fleet and operations

At present, water transportation competes with other transport modes, mainly road and rail, on unequal terms. Increased participation from the private sector could be encouraged by utilising regional experience. Fleet modernisation, certification, and better safety standards are required for the development of trade amongst other things.

- Safety issues

Allocation of resources to maintain modern standardised and accurate navigation aids should be given high priority. As the navigation aids system is not up to the desirable level of safety it does not contribute to critical environmental protection and regional competitiveness. Navigation safety depends on appropriate channel markings, accurate river maps, real-time information and inland water vessels traffic systems. Safe navigation should be one of the fundamental underpinnings of the strategy.

- Institutional and capacity-related issues

National and regional policymakers give very little consideration to inland waterway transport in the LMB compared to the attention given to other modes of transport. Line agencies and MRC lack expertise on navigation matters – especially maritime law. In addition, planning capacities within line agencies are insufficient. In order to implement a comprehensive Navigation Programme, a full institutional and well-manned structure for the Mekong River Commission should be established, with responsibilities held by the MRC Secretariat, the National Mekong Committees and at the relevant Line Agencies with links to other stakeholders in the region.

- Environmental issues

The 1995 Agreement encourages environmental impact assessments of all investments that could have an impact on the Mekong. The existing legal frameworks for navigation do not hold any provisions for protecting the environment. There is a tendency to judge the environmental consequences of navigation projects severely. Clean navigation depends on legal and operational frameworks.

- Social issues

There is a limited understanding of the role of navigation in the reduction of poverty. For small communities, the Mekong River and its tributaries are a lifeline to the outside world. The knock on effects of increased trade should be recognised. MRC could develop systems to address critical social issues such as navigation in the flood season, how to promote sustainable tourism and how to assess impacts from navigation projects.

The MRC Navigation Strategy

Four distinctive roles were proposed for the Mekong River Commission to assist the member countries in realising the immediate objectives:

1. **Develop and Implement Article 9, Freedom Of Navigation**
   The most important and evident role is the responsibility that the Member States assigned to MRC in the 1995 Agreement: to increase regional trade and commerce by opening up borders for cross-border water transportation, or so-called Navigation without Frontiers.

   The member countries respect MRCS for its neutrality, objectivity and technical excellence. This provides an excellent base for MRC to prepare an operational, legal and technical framework to ensure that the principles of Art. 9. will become reality.

2. **Provide Technical Products and Services**
   Acting as a repository for transportation data and information for the basin, MRC is currently developing an integrated database for the basin as a whole and the provision of technically excellent analytical services in relation to navigation, to the member countries.

   Provision of river level and low water forecasts to the member countries. This activity has already commenced and will be enhanced by the telemeter network of water level (and rainfall) stations and the start of the Flood Management and Mitigation Centre.

3. **Strengthen Institutions and Capacity**
   Facilitating capacity building and technology transfer to the member countries in relation to regional navigation. MRC could develop common standard training programmes to be delivered to line agencies in the member countries, including the transfer of technology/know how.

   Moreover, a highly regarded and stronger institutional structure for the Navigation Programme Unit at the MRC Secretariat, the National Mekong Committees and the Line Agencies will be necessary to implement the Strategy Implementation Programme.

4. **Promote and Co-ordinate**
   There are an increasing number of regional projects on water transportation. As a result this sector is gaining in importance and the impact of external investments should be better guaranteed. Presently there is little overall co-ordination among these different players in the regional infrastructure sector, and duplication has already occurred.

   Therefore a major task for the MRCS regarding navigation will be to change the perceptions of politicians, donors, national planning agencies and administrations, civil society partners working in the social and environmental sectors and of the public in general. Raised awareness and better understanding of the importance of waterborne transport is a prerequisite for regional navigation development.

Five Strategic Objectives – proposed activities[1]

1. Legal Objective

- **Establish an appropriate legal foundation and navigation regime for International Mekong Navigation; and**
- **Ensure its implementation and sustainability.**

Proposed activities according to the roles:

- Conduct a comprehensive legal study of navigational aspects of Mekong regime de lege lata and de lege ferenda, including the Bassac issue;
- Develop Article 9 (1995 MRC Agreement) into a clearer foundation for detailed operational, legal and technical navigation agreements;

[1] It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

- Prepare draft framework agreements for maritime and inland navigation and assist negotiations between Member States: draft frameworks for the stretch between Luang Prabang and the Khone Falls, a maritime framework between the sea and Phnom Penh, and IWT framework between Cambodia and Viet Nam;
- Facilitate negotiations between Member States and actively mediate;
- Supervise harmonisation and enforcement of common rules. Develop a comprehensive legal database (including applicable national and international legislations relating to navigation, tariffs of dues and taxes etc.) and make it accessible. Co-operate with ASEAN in this respect;
- Develop legal expertise within MRC in order to assist Member States;
- Establish permanent regional advisory board or working group on legal matters relating to navigation (similar to the TAB on Fisheries);
- Assist Member Countries in establishing efficient supervision systems; and
- Facilitate and encourage dialogue and co-operation with China and Myanmar on water transport.

2. Trade, Transport and Safety Objective – *non-physical* improvements

- **Develop and improve navigation conditions to increase international trade opportunities for the Countries' mutual benefit;**
- **Provide better operations, facilities and capacity to increase safe and efficient Mekong navigation as a separate mode of transport and as part of the regional multi-modal transport network;**
- **Feasible removal of relevant non-physical barriers to cross-border navigation;**
- **Provide the knowledge base and services to support planning and operations on non-physical aspects; and**
- **Reduce accidents in ports, on vessels, and on waterways.**

Proposed activities according to the roles:

- Improve and finalise the harmonisation of aids to the Navigation System along the mainstream and tributaries used for international transportation (Cambodia-Viet Nam);
- Formulate standard rules and regulations for international navigation in the LMB;
- Formalities and charging systems with regionally/internationally accepted rules and standards;
- Regional harmonisation of systems for data collection, use and dissemination;
- Develop a regional transport planning model, covering domestic and international trade, to identify the optimal use of water transportation within the multi-modal transport system (e.g. BDP);
- Establish a Regional Data Management Centre and River Information System (a RIS is to provide the knowledge base to support planning and policy formulation, and to provide daily services on a regional level for safe and efficient passage by inland and sea-going vessels on the Mekong River System);
- Establish an appropriate organisational and institutional structure within MRC and between the MRC Secretariat, the National Mekong Committees and the related Line Agencies to implement the Navigation Programme; and
- Establish a standardised basis for navigation training among the four MRC Member States.

3. Trade, Transport and Safety Objectives – *physical* improvements

- **Provide better facilities, infrastructure and capacity to increase safe and efficient Mekong navigation as a separate transport mode and as part of the regional multi-modal transport network;**
- **Feasible and environmentally sound removal of relevant physical barriers to cross-border navigation; and**
- **Provide the knowledge base and services to support planning and operations on physical aspects.**

Proposed activities according to the roles:

- Demonstration (pilot) project for gradual introduction of night navigation (for the time being, this will be limited to the stretch of the mainstream from the Mekong Delta up to Phnom-Penh);
- Demonstration (pilot) project: installation of aids to navigation along selected basin-wide stretches:
  a) on the UPPER MEKONG (only for inland water transportation) in the Lao PDR and Thailand between Luang Prabang and Vientiane;

b) In the MEKONG DELTA (for maritime and inland water transportation): Mekong River from Phnom Penh (Cambodia) to the Vam Nao Pass (Viet Nam), (as per adjusted ESCAP/MRC standardisation of navigation aids).

- Digitise the Hydrographic Atlas of the Mekong River;
- Develop contingency plans to deal with emergencies and accidents in waterways and river ports; and
- Develop a knowledge base on river training works issues, including river morphology and riverbank stability, and propose protection measures.

4. Environmental Objective

- **To balance the environmental consequences of projects against their economic and social significance;**
- **To ensure that the ecological health of the river, which is the basis for food security and livelihoods, is not compromised by navigation developments;**
- **To promote sustainable, sound and equitable use of all water and water-related resources in the LMB; and**
- **To promote the concept of "clean" river transportation, focusing on strategic prevention of environmental damage from waterway infrastructures/works or from shipping or port accidents, rather than remedying or combating the impacts.**

Proposed activities according to the roles:

- Regional harmonisation of standards such as: Ship Registration and Inspection, Carriage of Petroleum Products and Dangerous Goods etc. (see also strategic objective 2);
- Support inclusion of important environmental issues in international navigation agreements, particularly with regard to river training works, carriage of dangerous cargo and petroleum products, cross-border pollution, ship construction and ship sewage specifications and requirements - following best practice and international regulations;
- Assess and monitor, together with other relevant and directly related partners, environmental impacts from increased navigation;
- Collect, examine and distribute environmental data relevant for navigation and the potential impact from increased IWT (including river training works);
- Contribute to improved EIA procedures for navigation related developments among the member countries;
- Develop contingency plans to deal with emergencies and accidents on waterways and in river ports;
- Contribute to, and include, relevant environmental issues in navigation training (training of staff in ports, ships or among the relevant authorities);
- Create increased awareness of environmental issues associated with navigation, both negative and positive, amongst decision makers and stakeholders; and
- Make reports, studies and impact assessments available for the public and defined target groups on national and regional levels and present the conclusions.

5. Social Objective

- **To improve access to markets, schools and hospitals through water transportation in remote areas;**
- **Improve water transportation during floods;**
- **Increase river-based employment; and**
- **Reduce negative social effects of cross-border navigation.**

Proposed activities according to the roles:

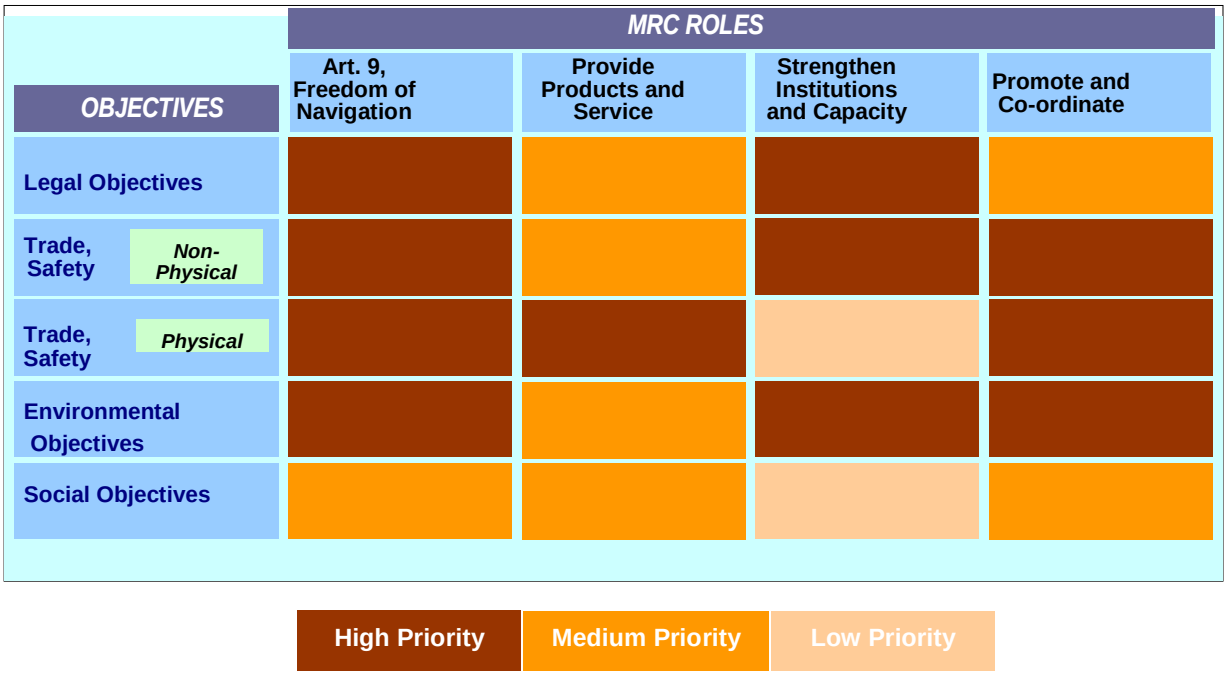
- Support the development of a framework for increased cross-border water-related tourism;
- Implement guidelines for incorporation of social issues in major navigation projects or studies;
- Carry out Social Impact Assessments of major navigation improvement projects;
- Prepare a baseline for social impacts from river-based tourism in the member countries;
- Prepare guidelines for assessment and necessary actions to be taken for increased river-based trade; and
- Prepare a systematic approach for the utilisation of boats and ships during flooding and emergency situations.

Overview of Proposed Activities: the Navigation Strategy Matrix

These five immediate objectives combined with the four overall MRC roles have resulted in twenty possible fields of intervention as shown in the overview table below this section. The total number of activities according to fields of intervention will be taken into consideration for the detailed programme phase.

The navigation strategy reflects that MRC is seeking to promote safe and environmentally friendly navigation in the Mekong region. Based on the results of the national and regional workshops, the ranking of importance for MRC involvement was defined as shown in the matrix for the MRC Strategy on Navigation. The relative priority of MRC involvement in Navigation by strategic roles and categories of measures, is given in this table.

All proposed activities have been collected in the matrix to be found in Annex 1 of the MRC Navigation Strategy Document.



From Strategy to Implementation Programme

The MRC Navigation Strategy now provides the basis for the preparation of an MRC Navigation Strategy Implementation Programme, including a detailed Action Plan and bankable programme components. The programme formulation team (MRCS experts and consultants), with active involvement in, and consultation with, the National Mekong Committees, relevant line agencies, and other stakeholders, will define the programme components to implement the strategy.

National and Regional Expert Consultation Meetings with all stakeholders in the member countries will be needed to ensure ownership of programmes locally. The objective of the meetings is to discuss and obtain feedback from national authorities, institutes, donor agencies and the private sector etc. The output of these meetings should elaborate on the plan for investment priorities, training requirements and short and medium to long term development of water transportation. The consultation meetings will allow the collection of information required to finalise the programme and action plan, in which the feedback and opinions of local authorities and institutes etc. will have been duly taken into account.

Due to the complexity of the legal issues found during the formulation of the navigation strategy, it is foreseen that extra effort will be necessary in order to adequately and comprehensively address these issues.

After reviewing the programme of components and activities, the action plan and the bankable programme will be finalised and presented to the MRC Council in September 2003.

CHAPTER 1 - INTRODUCTION

1.1 Background

In addition to it's valuable resources, the Mekong has extensive natural navigation potential. It has served as one of the main routes for transportation between communities in the riparian countries since the first settlements along its embankments many centuries ago. As river traffic is comparatively cheap, reliable and an ideal natural facility, navigation along the Mekong has been significant for travelling, trading and gaining access to natural resources and social facilities such as schooling and health. In addition, river transport is often the only possibility for communication and transport due to serious annual flooding and the fact that other transport modes have not met actual trade requirements.

The governments in the Mekong Basin and investment banks are developing the regional transport network, in particular road transport; however, the Mekong River Commission continues to stress the importance of investing in the water-borne transport sector to create a better livelihood for future generations. This is crucial as the countries in the Lower Mekong Region are among the poorest in the world and there is an urgent call for economic growth in all levels of society.

1.2 MRC and Navigation

Since the first agreement on Mekong co-operation[2] was signed in 1926, the riparian countries have entered into various forms of agreements on the use of regional water resources. Due to their value, navigation provisions have often been an integral part of such agreements. This was also the case for the 1995 MRC Agreement, in which the countries in the Lower Mekong Basin, Cambodia, Lao PDR, Thailand and Viet Nam, committed themselves to co-operate and promote sustainable development, utilisation, management and conservation of the water and related resources of the Mekong River basin, for the economic and social well-being of the people in all the riparian countries.

The overall role of MRC is to assist in regional co-ordination and policy development. During the past few years the MRC Member Countries have intensified their co-operation by launching several strategic basin-wide sector programmes. Taking into account international trade prospects, major developments on the national political agendas of the four MRC Member Countries and the new MRC Strategic Plan (2001-2005), and the fact that the current MRC Navigation Strategy dates back to 1994, it is natural to redefine the strategic framework of the MRC Navigation Programme in order to ensure that future navigation activities are fully in line with the MRC Strategic Plan and 1995 Agreement.

As mentioned above, the current MRC Navigation Strategy was formulated in 1994, thus during the past decade MRC has built up experience and extensive knowledge of navigation. However, the projects have mainly been carried out on an ad hoc basis. Many valuable projects with concrete outputs were produced under the auspices of the predecessor to the MRC Navigation Programme, the River Works and Transport Unit. As a clear vision was missing most projects were formulated as a continuation of previous ones. For some interventions the basin-wide aspect was missing. Activities such as construction of bank protections were national projects and did not contribute to the improvement of regional transport modalities. This kind of activity is more appropriately executed on a bilateral basis, and from an overall perspective the involvement of MRC could neither be considered as a regional facilitator, nor as a regional co-ordinator. One of the consequences of such a national approach to navigation

[2] *Bangkok Convention between France and Siam "Concerning the Special Relations between Siam and Indo-China", 25 August 1926*. This convention is to be considered as the first step in the internationalisation of the Mekong. The Convention also refers to a number of earlier conventions between the parties amongst which are treaties of friendship, commerce and navigation of 14 February 1925.

has been that the capacity of the navigation sector is far from fully utilised although this sector holds great potential for all the countries.

By far the most important development since the last navigation strategy formulation was the common drive by the four Lower Mekong Basin Countries to increase regional trade by opening up the Mekong River for cross-border navigation. This ambition was converted into **Article 9, Freedom of Navigation, in the 1995 MRC Agreement on the Co-operation for the Sustainable Development of the Mekong River Basin.**

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 security."

It is therefore natural for MRC to look more closely into strategies that could strengthen cross-border navigation and assist its member countries in attracting investments and economic growth. However, Article 9 only deals with cross-border navigation despite the fact that there are many other navigational matters and deficiencies.

1.3 The Regional Navigation Potential

Not only does the 1995 Agreement allow MRC to play a more visible role in addressing regional navigation issues, but the Member States have put their confidence in MRC, which has in turn become a central focal point for close collaboration between technical line agencies in the riparian states. MRC has assisted the countries in building up their capacity to administer and manage regional water resources in a more sustainable manner. This experience has been very useful for the formulation of this MRC Navigation Strategy and the identification of the activities that are most needed to realise regional navigation potential.

A 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). Shipping is one way to achieve this. On a commercial level it is the 'servant of trade', and at the national level it is a 'public utility'. It contributes to economic diversification,, provides employment opportunities and can supply a positive balance of payment. Governments and the private sector are presently not capable of realising the advantages of waterborne transport although it is cheap, holds large cargo capacity, relieves road congestion and maintenance, and is attractive to tourists.

The updated MRC Navigation Strategy is intended to contribute to regional and national prosperity in each of the countries in the LMB. Benefits could be reached by a reduction in transportation costs, thereby attracting more trade and creating more environmental awareness and capacity to address this issue in a proper manner. In this context improved navigable channels along the LMB could provide efficient economic corridors for increasing interregional and international trade and exchanges. Increased revenue from international trade would be an important means to gain purchasing power for much needed national investments. Other benefits from international trade include larger markets, which result in economies of scale in production and higher returns; commercial interaction and communication provide learning

synergy and improvement of human resources. On this background navigation development and co-ordination provide an important stimulus to socio-economic growth in the individual countries and the entire region.

Apart from international trade another important issue is access to waterborne transport for remote areas offering communication to the rural poor and transportation of agricultural goods to consumption centres. The access provided by waterborne transport will enable the optimum return on interventions in other sectors. Most interventions targeted directly at poverty affected institutions (schools, health clinics, nutrition programmes, and social services) depend on transport as a complementary input for effective delivery. An improved navigable waterway system will not only provide a new foundation for economic growth and development in the LMB, but could also have a positive impact by contributing to cleaner river transport and poverty alleviation.

1.4 Navigation Strategy Formulation Process

The process that was followed for the formulation of the navigation strategy is shown in Figures 1-1.

During the process, the toolbox used for steering the process in the direction of these goals included:

1. Evaluation and review of baseline navigation conditions and assessment of trends in the transport sector in the Mekong Basin;
2. Determination of the role of the MRC and its' strategic approach towards the regional and sub-regional inland water transport sector; and
3. Formulation of a new MRC Navigation Strategy.

Public Participation and Strategy Formulation

Public participation is considered a process that MRC feels itself committed to in all its' programme activities. The relevance of public participation was also recognised for the Navigation Strategy Formulation process.

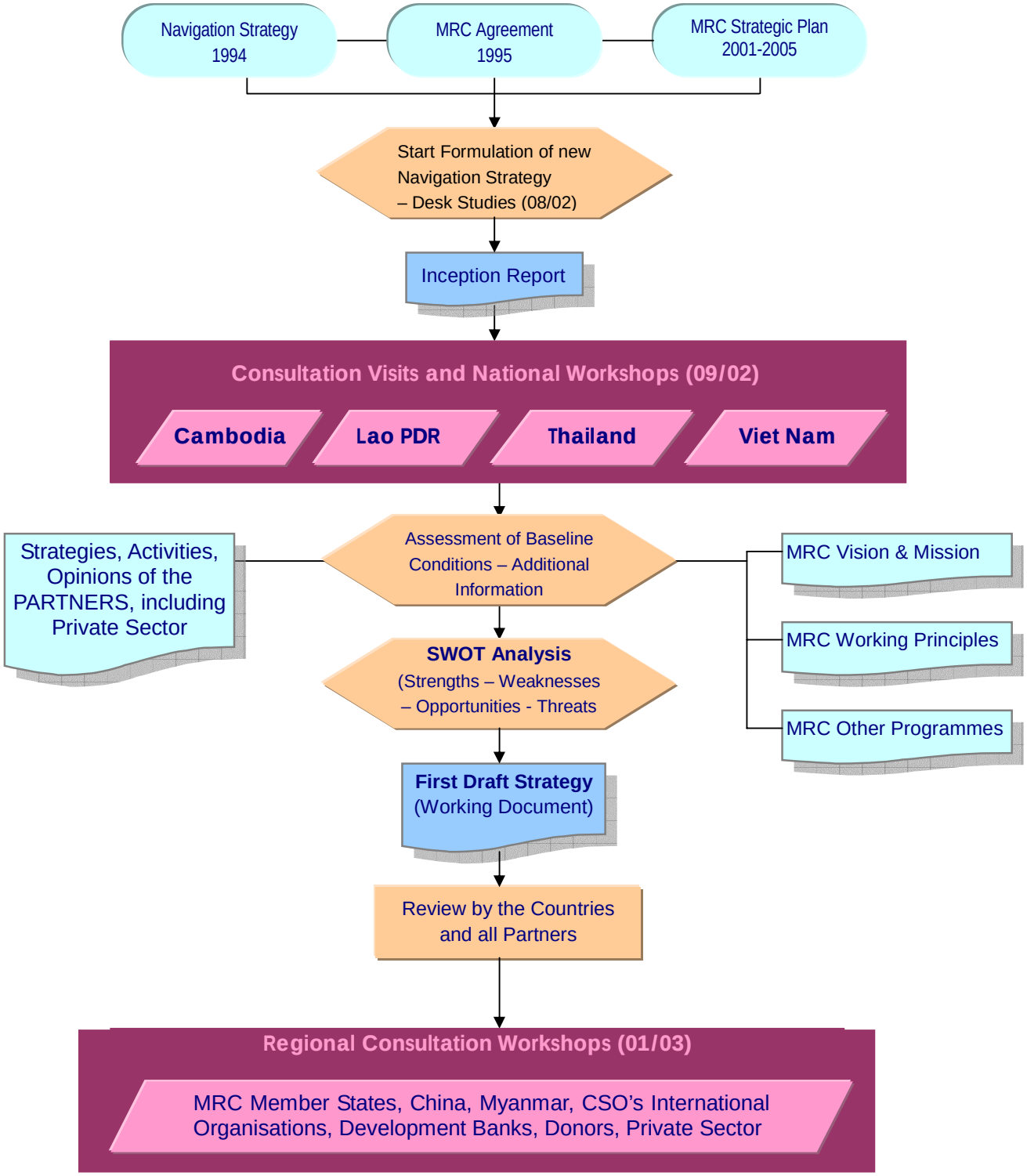
The identification of key stakeholders was commenced at the beginning of the navigation consultation process, and augmented along the way as further information became available. The NMCs were instrumental in identifying government agencies, while Civil Society Organisations, UN agencies, donors and the private sector assisted by either providing direct input, referring the team to other stakeholders, or representing community interests through their work. During consultations in the countries, over 40 line agencies and non-governmental agencies were interviewed. In November 2002 open dialogues [3](question-and-answer sessions) were also held at the MRC Secretariat with Civil Society Organisations.

The needs, opportunities, problems and issues raised by these stakeholders were used in a number of ways. They helped to identify categories of stakeholders, which in turn helped to define the workshop groups. The issues raised, along with accompanying documentation, were used in the SWOT Analysis. Finally, the national and regional workshops themselves constituted a special stakeholder consultation of line agencies and their input was taken into account in the prioritisation of potential MRC roles.

The regional consultation workshop was of paramount importance and was aimed at improving the draft strategy document and receiving the opinion of the MRC countries on the proposed roles for MRC and the proposed strategic objectives. The participants were also asked to prioritise activities and consider institutional and co-ordination-related issues e.g. co-operation with

[3] On the issue of navigation channel improvement works that are going on between Simao and Luang Prabang under the Quadripartite Navigation Agreement (China, Lao PDR, Myanmar and Thailand).

upstream countries and proposals for institutional structures on regional co-operation, co-ordination and joint implementation of the navigation programme.



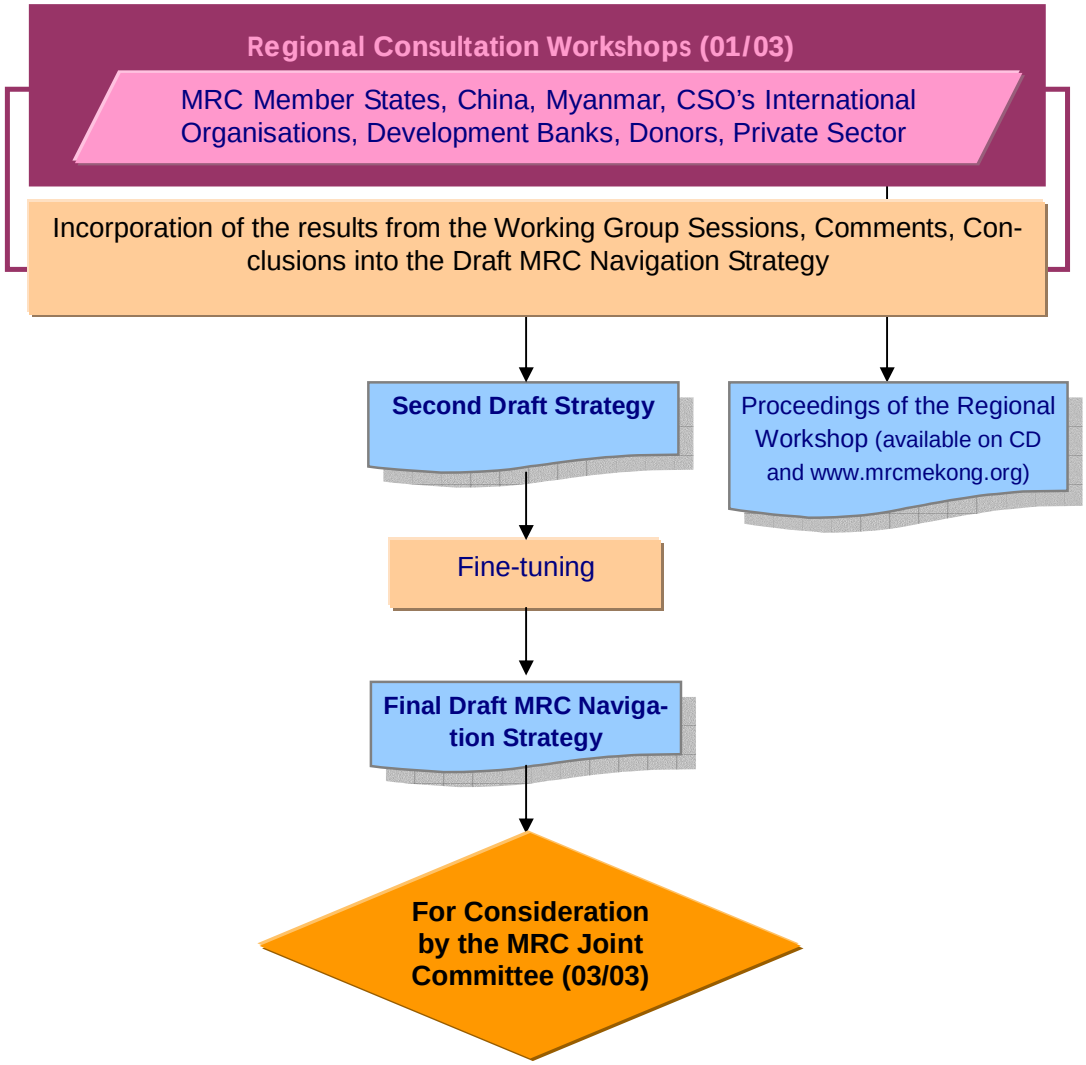


Figure 1-1 Flow Chart of the Strategy Formulation Process

1.5 The Geographical Project Area

The Mekong River is located in South-Eastern Asia and flows through, or along, six different countries: China, Myanmar, Lao PDR, Thailand, Cambodia and Viet Nam. The size of the catchment is about 795,000 km^2, while the total length of the river is about 4,400 km. Out of this total length slightly less than 25% (about 980 km) forms the international border between Thailand and Lao PDR. The entire Mekong Basin is the area is shown on Figure 1-2. The upper catchment is very narrow, on either side being flanked by the basins of other major rivers, notably the Salween to the west and the Yangtze to the east. The Upper Basin comprises China and Myanmar. The Lower Mekong Basin (LMB), is the main objective of this study, and includes the Mekong River stretch that passes through Thailand, Lao PDR, Cambodia and Viet Nam.

Although the Mekong River system from the common border point between Myanmar/Lao PDR and Thailand (the "Golden Triangle") down to the sea is the focal point of interest to the Mekong River Commission, the project area also covers a stretch of the Mekong upstream from that point upwards to Simao in Yunnan where the Mekong is called the 'Lancang'. In view of the multi-modal transport situations, opportunities and prospects, and the importance

of including the whole transport network into the strategy, it is given that the essential transport corridors in the Mekong Region also have to be taken into account, even if they are located outside of the Basin.

The Mekong originates at a level of about 5,000 m, and in the first 1,500 km the river falls over some 4,500 m. When it enters into Thailand its bed level is already less than 400 m above the mean sea level. At this point, about 2,350 km upstream of its mouth, is the beginning of what is usually known as the Lower Mekong.

Three maps showing the navigation conditions in terms of tonnage capacity (the low and high water seasons are differentiated) have been included in Figures 1-3, 1-4 and 1-5. The next map (Figure 1-6) shows the maritime connections and travel times from key Asian ports to the Mekong-Bassac Estuary.

Figure 1-2 Catchment Basin of the Mekong River

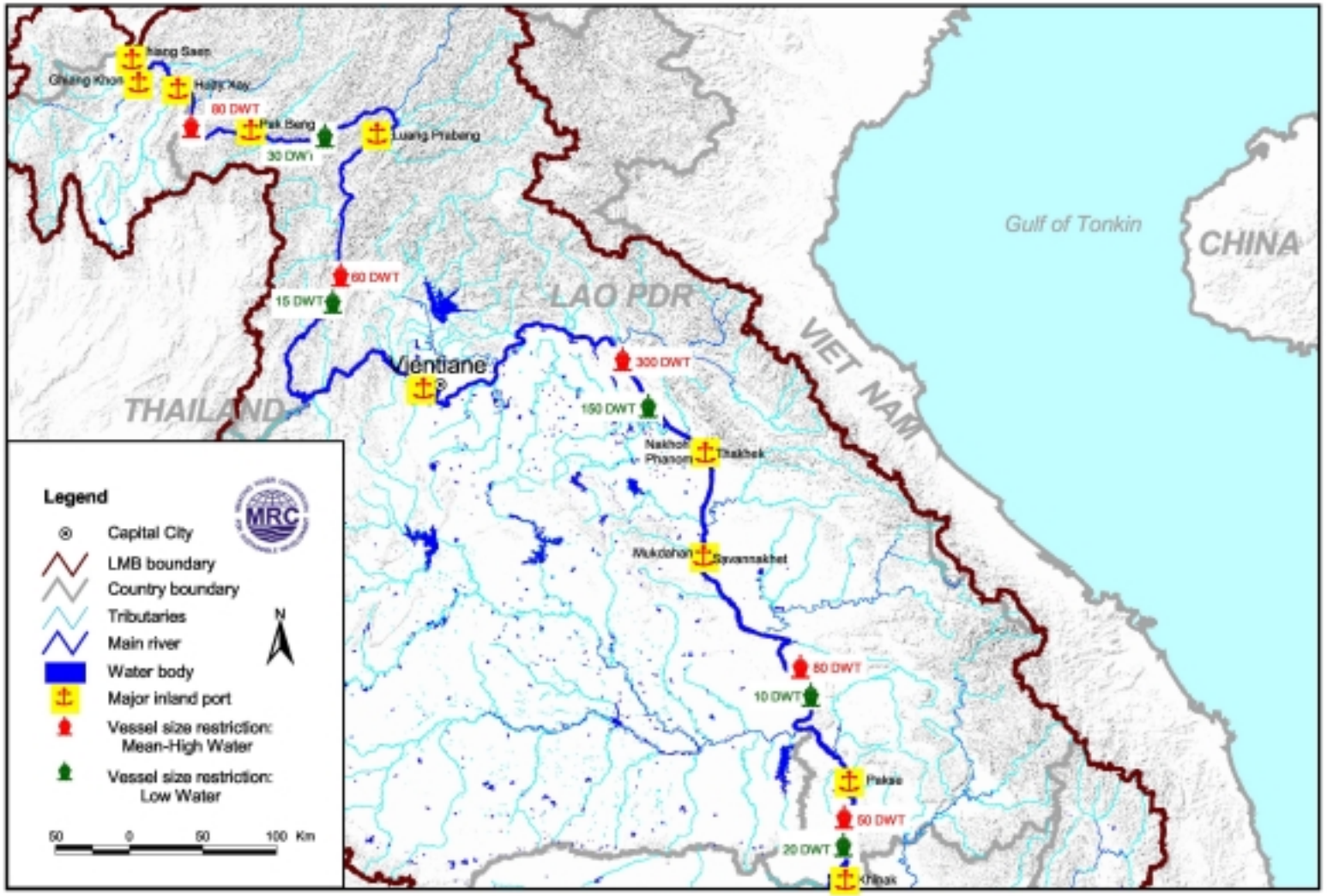


Figure 1-3 Navigation Conditions in Terms of Tonnage Capacity (the low and high water seasons are differentiated) on the Mekong River in the Lao PDR and Thailand

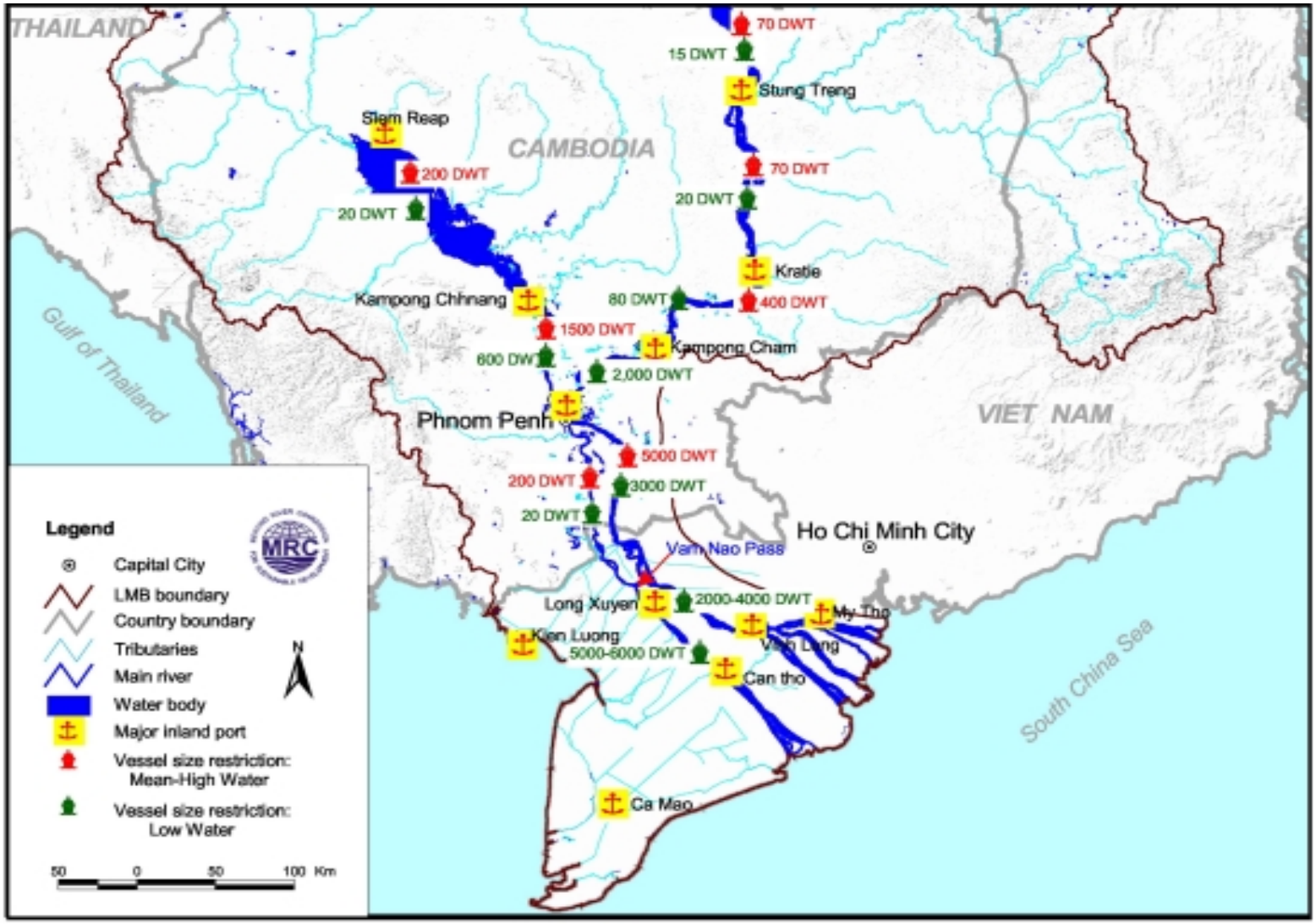


Figure 1-4 Navigation Conditions in Terms of Tonnage Capacity (the low and high water seasons are differentiated) on the Mekong River and tributaries in Cambodia and Viet Nam

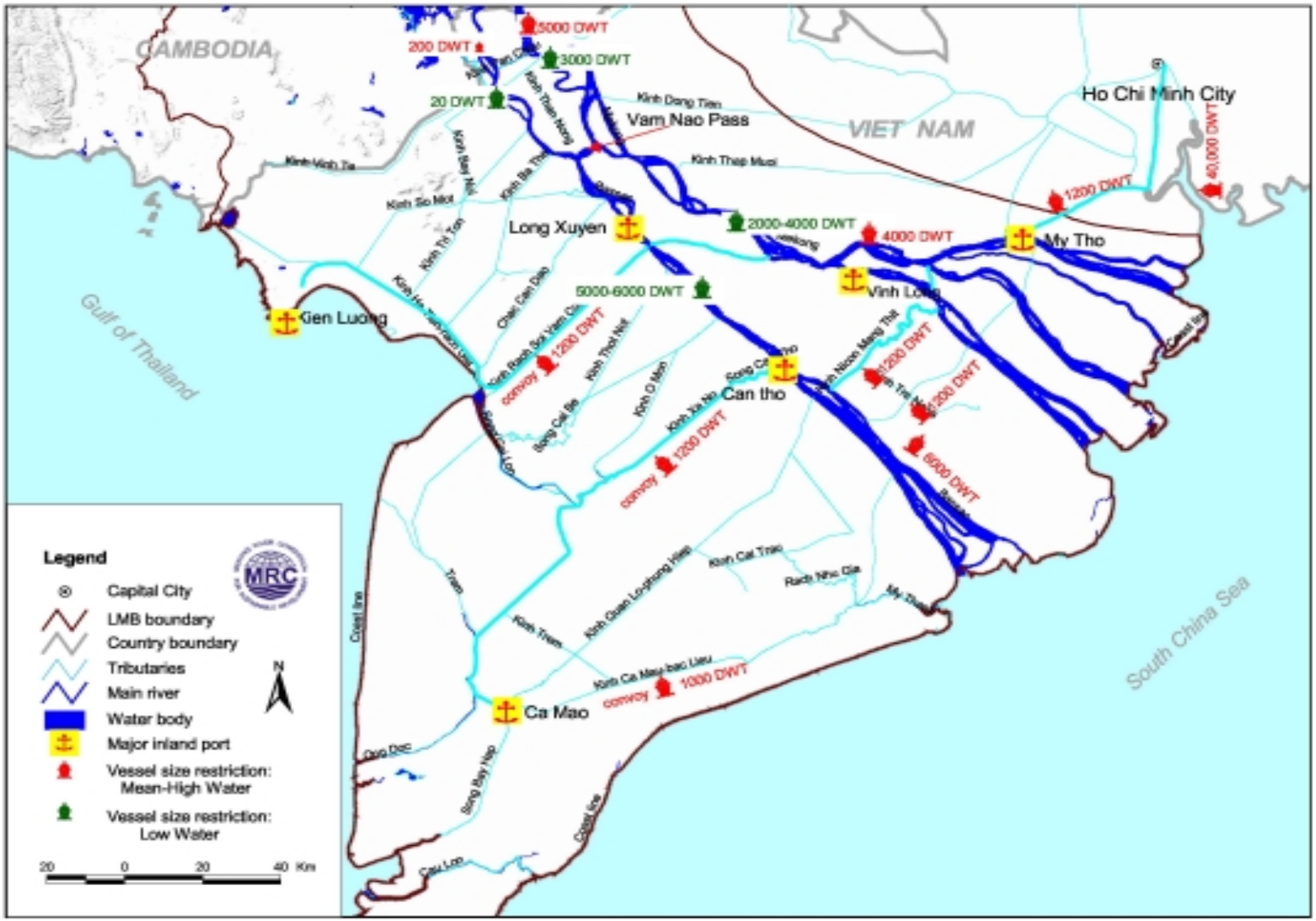


Figure 1-5 Navigation Conditions in Terms of Tonnage Capacity (the low and high water seasons are differentiated) on the Mekong, Bassac and channels in the Mekong delta in Viet Nam

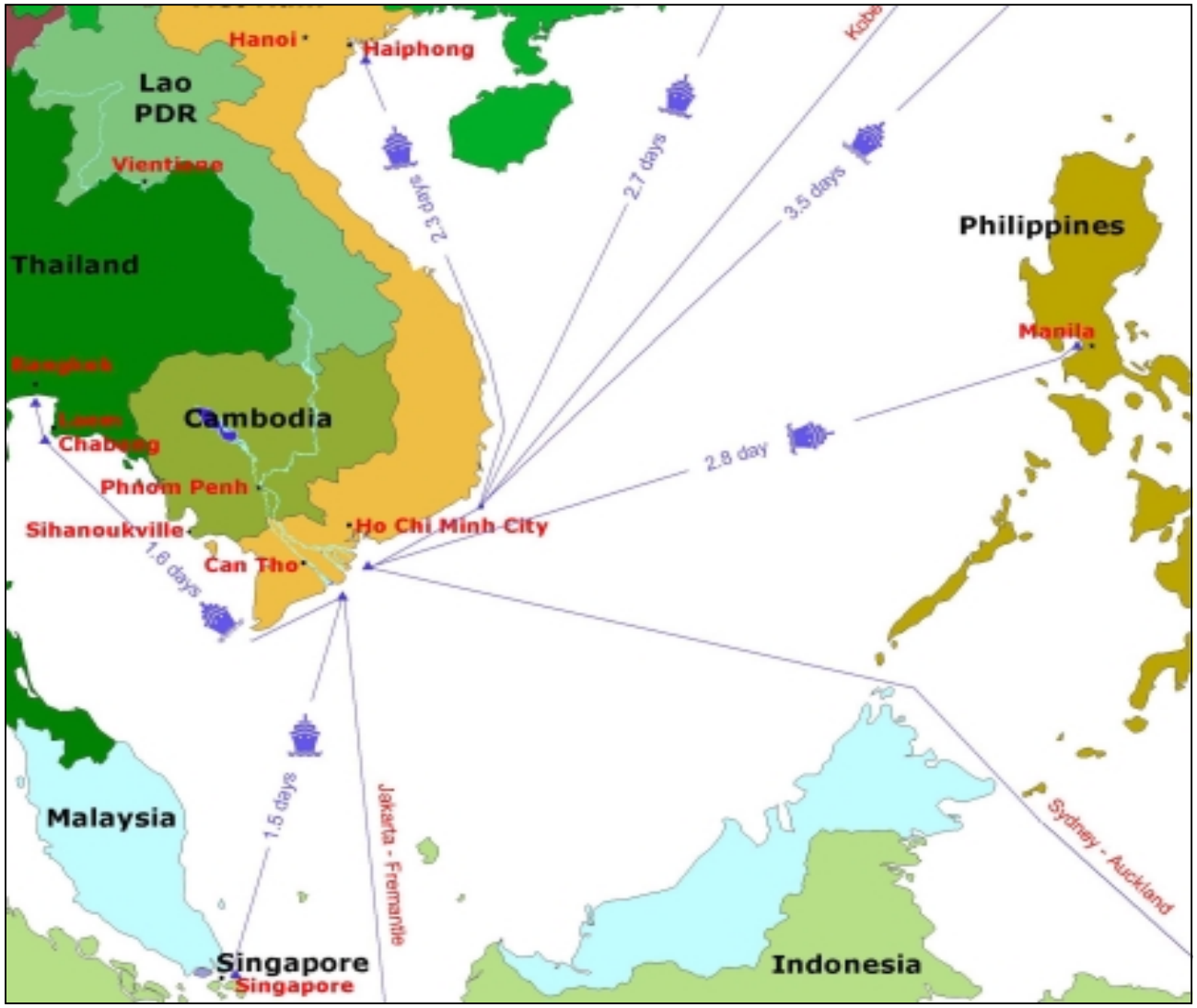


Figure 1-6 Maritime Connections and Travel Times from Key Asian Ports to the Mekong- Bassac Estuary

1.6 Report Outline

As background for the strategy development exercise, extensive desk studies and information gathering on the baseline conditions, including national consultations in MRC Member Countries, have taken place. In order to promote navigation in the LMB, the economic perspectives of inland waterways have been taken into account to assist in overcoming the physical and non-physical barriers to the development of Mekong navigation. The main themes such as domestic and regional trade and commerce, safety, physical and non-physical barriers to navigation, legal aspects, social aspects and poverty alleviation, environmental protection etc. were discussed during the national and regional consultations, reported on and utilised for the formulation of the strategy.

MRC has chosen, however, to divide the full version of the strategy document into two separate reports:

1) The MRC Navigation Strategy; and

2) A separate Navigation Resource Document containing all the collected facts and information.

On that basis this report, the MRC Navigation Strategy, only includes essential parts of the Navigation Resource Document which are required to explain the formulation of the strategy.

The full assessment of the baseline conditions presented to the MRC Member Countries will appear in the Navigation Resource Document, which is expected to be published in April/May 2003.

This document, the MRC Navigation Strategy, is structured in four main parts, plus a number of relevant annexes.

The first chapter serves as an overall introduction to the subject. Chapter 1 deals with the background, the context of regional navigation, the MRC mandate, the project area and the selected approach.

In Chapter 2, the results of the SWOT-analysis are presented. It outlines the Strengths, Weaknesses, Opportunities and Threats (SWOT) to navigation in the Lower Mekong Basin in matrixes and a following section containing the actual findings.

Chapter 3 outlines the actual MRC Navigation Strategy. The introduction clarifies in detail the Relevance of Navigation according to the Mandate of MRC, the identified Roles of MRC in Navigation Development and Co-ordination, the Guiding Principles, the Development and Strategic Objectives, the recommendations from the Regional Consultation Workshop, and the Proposed Activities following the Strategy Matrix related to the legal, physical, non-physical, social and environmental objectives, and MRC roles on navigation.

Lastly, Chapter 4 briefly describes the next steps from the Strategy to the formulation of a comprehensive Navigation Programme and Action Plan.

Annex 1 is the much used fold-out MRC Navigation Strategy Matrix in A3 size. Other annexes include the acronyms, a selected navigation glossary explaining terms used in the report, and reference documents which were used.

CHAPTER 2 - SWOT ANALYSIS

2.1 Background

In order to draft the final navigation strategy and to identify relevant roles of MRC for promoting navigation in the LMB in the context of the 1995 Agreement, and more specifically under Article 9 'Freedom of Navigation', the output from national consultations together with available information describing the baseline condition for navigation in LMB, have been processed in a SWOT analysis.

A SWOT analysis can be used to develop policy strategy by considering the different internal and external factors, and analysing the potential to be reached by taking advantage of strengths and opportunities whilst analysing the underlying reasons for weaknesses and threats. This provides an effective basis from which to select those activities and overall roles where waterborne transport is strong, and where significant opportunities for navigation promotion and development lie.

The "Strengths-Weaknesses-Opportunities-Threats" (SWOT) analysis takes into account the objectives of the NASP and the present issues that relate directly or indirectly to the development of the IWT and maritime accessibility. The analysis has been carried out for inland and River-Sea navigation in the Lower Mekong Basin (LMB).

The issues considered in the SWOT analysis include physical and non-physical aspects related to navigation. It will also address institutional aspects relevant to organisations dealing with the inland navigation transport in the Lower Mekong Basin. The outcome of the SWOT provides the basis for the formulation of the proposed MRC roles and strategy.

The SWOT analysis is presented here in a tabular form followed by a short analysis of the particular situation. The information from the SWOT has been used to develop a draft strategy that uses the strengths and opportunities to reduce the weaknesses and threats, and to achieve the objectives of the NASP. The analysis lists the strengths, weaknesses, opportunities and threats for each of the considered issues that were used for defining the roles of MRC and the navigation strategy. As a SWOT-analysis in some cases could be said to be subjective, the regional workshop for discussion of the draft strategy was conducted and provided very useful comments that have contributed to this final version of the SWOT and the strategy.

In order to promote navigation in the LMB, the socio-economic perspectives of the waterborne transport sector should be taken into account when deciding how to overcome physical and non-physical barriers to the development and promotion of inland waterways. Several themes were identified to span the main topics to be dealt with. These themes were consistently used and discussed during the consultation visits, and during the national and regional workshops. The topics covered in the SWOT are:

- Legal and operational framework for cross-border navigation;
- Ports and Waterways;
- Fleet and Operations;
- Safety;
- Institutional and capacity-related aspects;
- Environmental aspects and issues; and
- Social aspects and issues.

LEGAL AND OPERATIONAL REGIME/ FRAMEWORK FOR CROSS-BORDER NAVIGATION

Strengths	Weaknesses	Opportunities	Threats
'Mekong Spirit' underlying Mekong treaty regime: strong international tradition. Freedom of navigation is the undisputed basis of the 1954 and 1995 Conventions. COLREG the basis for harmonising maritime traffic rules. The 1995 MRC Agreement as it is a modern model convention. Specific article on Freedom of navigation (Art. 9) in 1995 Agreement. Continuing willingness of LMB countries to co-operate and negotiate within regional agreements. MRC is sustaining its regional position and has the potential to have a stronger role in navigation. The Lancang Agreement for the Upper Mekong (April 2000). Bilateral agreement between Viet Nam and Cambodia.	Lack of internationally harmonised rules to promote free trade. Legal uncertainty resulting from a lack of clarity in existing international conventions. Legal uncertainty resulting from the co-existence of subsequent international conventions. Direct impediments to regional navigation due to the existing treaty regime. There is not a regulating body in case of disputes between countries. MRC Member States did not accede to important maritime conventions. Lack of knowledge and understanding of international legal issues and responsibilities of each country. Secondary role of navigational issues in MRC Agreement. Tasks and powers of MRC in the field of navigation not specific and insufficiently defined in MRC Agreement. Bilateral agreements have not been implemented because protocols are not yet signed (i.e., Viet Nam-Cambodia). National laws pertaining to navigation are scattered and inaccessible.	Stronger navigation strategy would conform to 1954 Convention. Sign and implement protocols to promote and facilitate water transportation. Promoting unlimited scope for freedom of maritime navigation can be confirmed in express treaty provisions. Promote the resolution of disputes through an inter-governmental organisation. Non-physical (especially legal) impediments to navigation should be declared to be contrary to Art. 9 of MRC Convention. Develop comprehensive national policy frameworks and legal experience for the promotion of IWT. Development of regionally co-ordinated water resources management strategies, which embrace the development of inland navigation. MRC could develop a strong navigation strategy on the basis of the general provisions of the MRC Agreement. Develop legal expertise within MRC and gain a strong position as centre of legal knowledge and legal service provider. MRC can facilitate and reach solutions that governments cannot achieve through bilateral negotiations. Draft agreements for IWT and maritime navigation. MRC can promote accession to London Facilitation Convention. Develop awareness that freedom of navigation on Mekong lags behind the situation on other comparable international rivers. Win-win-situations to be achieved for Member States if liberalisation of navigation is implemented. Development of legal database by MRC, accessible through the internet. Bring China and Myanmar to co-operate with in the field of navigation.	Treaty regimes are unknown and dead letters. Ineffective 'soft law' treaty provisions may undermine belief in bi- and multilateral co-operation. Impediments to navigation are difficult to remove. MRC Member countries continue to follow short-term national priorities without considering long-term basin wide approach. Private law aspects which should be left to freedom of contract may be regulated by public authorities. MRCS continues to lack legal expertise. Erosion of MRC role as navigation commission if not involved in negotiations between Member States. Prospects for IWT development hampered by progress in other MRC programmes (e.g. BDP, WUP). Continuing political undervaluation of navigational issues. The transport sector programmes for the opening of new road corridors in the GMS attract available funding. Other transport modes will continue to attract more transport. Cambodia cannot realise River-sea potential.

Lack of a regional navigation framework

The most striking weakness in the present Lower Mekong Basin navigation regime is lack of a regional legal framework that could define common standards, procedures and rules for navigation. It will be impossible to improve and encourage cross-border trade and transport if such a framework is not in place as investments are too risky and national governments will have incentives to focus on short-term national priorities instead of taking long-term regional development opportunities properly into account. Clearly, such a situation is not the best platform for signing regional co-operation agreements on free trade, cross-border navigation nor to co-ordinate investments in multi-modal transport systems aimed at creating public goods at low cost.

One of the observations of the national consultation process was that the responsible line agencies lack knowledge on legal aspects of navigation and at the same time navigation does not attract high nor positive political attention. Moreover, the present situation is contrary to the so-called "Mekong spirit" reflecting the decade-long tradition that Lower Mekong basin states have for co-operating on cross-border navigation and which formerly contributed to flourishing regional trade. Another observation was that the countries have limited legal expertise in the field of maritime law. This is an important underlying reason for the lack of awareness that the current legal regime on Mekong navigation is neither in line with previous agreements nor with regional and international navigation agreements beyond Southeast Asia.

During the national consultations attention was drawn to the role the GMS would play in the integration of the inland water transport markets. In only a few years all GMS countries will be part of one single regional market. It was stated as a strength that MRC has the capacity to facilitate regional co-operation and encourage the countries to pay more attention to common goals to be reached within a regional framework. Consequently, MRC and NMCs were to be perceived as important elements in a strategic approach to promote water transportation in line with overall regional political priorities.

Harmonisation as a prerequisite for liberalisation.

As regional co-operation spreads to more sectors there is a greater opportunity to establish a new agreement that could underpin the political commitment and willingness to create a free trade zone. Furthermore, national contract laws and standards on technical modalities, safety and environmental protection are so different that they are a direct threat to regional trade potential as such rules are often used to favour certain parties over others. This is one of the critical issues to which investors would certainly pay attention when placing their money.

The unsigned Protocol between Cambodia and Viet Nam limits market access and transport on the lower part of the Mekong. During the national workshops it was acknowledged that the Protocol between the two countries and private agreements between Cambodian and Vietnamese shipping companies could generate a substantial increase in inland water and River-Sea transport. It is national law and not the 1995 agreement that determines access conditions on the Mekong, so there is clearly a need to look deeper into the possibilities of improving the legal aspects of regional navigation.

Current fragmentation of national laws, in particular navigation rules and procedures applicable to inland water transport, and the absence of internationally harmonised liability rules, constitute major practical barriers to further development and promotion of inland waterway transport. In turn, this deep-seated legal uncertainty could prevent inland waterway carriers from accepting transport jobs offered, and traders from using the shipping services of the inland waterway transport industry, because of uncertainty about their rights and obligations if disputes arise, or if damage occurs.

PORTS AND WATERWAYS

Strengths	Weaknesses	Opportunities	Threats
There is a large IWT capacity in the Mekong River which is under-utilised. The Mekong River has provided an economic method of transport in this region for centuries. There is room for increasing IWT capacity without the need to implement extensive and costly structural interventions or river training works in the waterway. There are no river ports with the adequate infrastructure and logistics required. Fulfils a vital function in moving huge volumes of cargo and passengers. Inland waterways have always played a key role in the development of the region. The Mekong river links vast areas of the four countries in the LMB. The Mekong River also has numerous rivers and connections, which offer transport opportunities to poor communities.	In a primitive state for lack of appropriate improvement and maintenance Lack of ports, equipment and facilities along the river Lack of river maps, those in existence are not available to all users of the waterway. Hampered by physical and non-physical restrictions. Potential not fulfilled low awareness, many stakeholders are not in favour of IWT due to lack of understanding of present and future possibilities. Low standard of fleet and ports. Aids to navigation are not harmonised and are poorly maintained, partly they represent risk to ships during flooding. Poor maintenance. Night navigation is hardly possible and very risky. Poor design of harbours and harbour facilities. Lack of proper plans and planning tools. Lack of maintenance works along the river (dredging and aids to navigation). No waterway classification is in place. Poor communication systems among the skippers (language). Insufficient investment in the IWT sector causes severe deterioration of navigation conditions and thus decline in IWT traffic.	Increased use of water transportation for movement of goods.. As economies develop and international and regional trade increases, there will be greater demand for transportation services. As public sector investment is decreased, public sector investment will come to the fore and capital will seek avenues of least cost investment. Water transportation can represent such an avenue especially with respect to transportation costs.. Focus investment to upgrade outdated equipment and infrastructure. Due to developments in communications, language barriers are being brought down which will benefit international trade and transportation The MRC, being an inter-governmental organisation, is in a position to assist the work of the LMB member countries in efforts to standardise and regulate ports and fleet. Creation of greater awareness among public and potential users of services and benefits of using water transportation. Integrating IWT within the overall transport system. Encouraging increased private sector involvement in water transportation. Exploring the potential for further development of inland water transport. Integration of water transportation within the intermodal transport process.	In recent years the role of the IWT has declined as a result of policies of investment in other, sometimes less efficient, forms of transport. Transport modes compete with each other and the potential for intermodal transport is overlooked. Difficult to control illegal transport and port operators, smuggling might increase by increased transport possibilities and capacity. Lack of awareness of potential. Construction and actions taking place upstream (rock blasting, regulation of flow for hydropower utilisation). Lack of support for industry (ship building, design, planning, investment etc.). Fleets are generally in poor condition and often not adjusted to meet needs or potential. For Thailand the problem is low profits make investment difficult and therefore shipbuilding capacity is low. Existing incentive systems with soft loans do not seem to be sufficient. For Viet Nam lack of investment in the fleet and ports represents the same kind of problem. Poor regulations on the waterways for enforcement of law. Lack of incentives for the private sector. Lack of proper level of investment in the waterway infrastructure.

Infrastructure needs.

In order to make the inland waterway network more accessible to River-Sea traffic, it would be necessary to improve the waterways concerned in such a way that they can be used by inland water vessels with a draught of 2.5~3.0 meters for not less than 300 days/year. Sea-River vessels, because of their dimensions require more depth (4 meter) and therefore can only use a limited portion of the inland waterway network to reach a certain number of river ports. Existing technologies should be adopted in the LMB to increase the geographical scope of River-sea transport, e.g. barge-carrier technologies.

Bottlenecks.

There is an urgent need in the LMB to draw up an up-to-date exhaustive inventory of bottlenecks, specifying the nature of the works to be done to eliminate them and the way these could be financed. The MRC Navigation Programme and Action Plan could formulate activities to draw up an inventory of bottlenecks to be proposed to governments and donors.

Governments and National Mekong Commissions should be encouraged by MRC to prepare their proposals on how to carry out the inventory concerning their respective segments of the Mekong inland waterway. It is recommended that the MRC co-ordinates the activities in this respect.

Restrictions on market access.

During the consultations various possible types of restrictions on market access were brought up: restrictions on transport rights, based on the nationality (however determined) of vessels, their owners and/or their operators; difficulties of operating in certain market sectors due to differences in technical, safety and/or manning regulations; non-legal barriers resulting from private agreements between certain market parties; other legal questions; restrictions on transport rights.

Inland waterway transport as part of a multi-modal transport system.

The Lower Mekong Basin waterway network is at present insufficiently used. It has a great reserve capacity which should be used to ease the increasing pressure on the road network. If we are to develop its potential, inland water transport must be made a part of an integrated transport system, comprising all modes. So, at policy level an inter-modal approach is called for. As the waterway network does not cover all the important economic regions in the LMB and in the GMS, there must be multi-modal terminals, connecting the waterway network to road and rail networks, and where possible goods can efficiently be transferred between modes. Governments and international organisations should foster the establishment of such terminals.

It was suggested that the MRC should assist, together with the ADB, in drawing up a plan for a network of inter-modal terminals (regional transport model). This plan should also provide for MRC to get assistance from donors to help establish such inter-modal platforms where they are needed. Financial aid should also be made available for the development of multi-modal transhipment points, where freight can be exchanged between inland waterways and other modes.

River-Sea and maritime transport.

Another way to exploit the transport potential of inland waterways more fully is to use them for River-Sea traffic between Viet Nam and Cambodia. The mainstream of the Mekong connects the main ports in the Viet Nam Mekong Delta and Phnom Penh. Phnom Penh port and a number of river ports upstream of Phnom Penh are now located as if they were in “isolated” waterways, notably the stretch up to the Khone falls in Lao-PDR.

In several of those river ports, the majority of which are traditionally associated with inland water transport, there is a growing interest in using inland waterways for the purpose of River-Sea traffic, which can also serve as a useful alternative to road transport. It was suggested that Viet Nam and Cambodia, “traditional” inland waterway transport countries, associate themselves

more closely to increase "River-Sea" transport in order to increase the weight given to inland waterways in Article 9 and in international policy-making.

Most of the obstacles[4] to the development of River-Sea transport are neither difficult nor expensive to solve. For example, custom procedures: maritime ships, on entering the inland waterway network on their way to an LMB inland port, have to undergo several customs clearance formalities, even if they have loaded their cargo in another LMB country. This causes increased costs, not only because of the interruption of the voyage, but also because extra fees have to be paid. It also gives River-sea transport a disadvantage when carrying out transport within the LMB (Viet Nam and Cambodia) as compared to the other modes that do not have to bear such extra expenses. It was felt that the system should be changed so as to allow for customs clearance to take place in the (inland) ports of loading and unloading.

Multi-functionality of the Natural Mekong waterway

It was noted that another reason why LMB inland waterway transport projects tend to get low priority, might be that the multiple functions of inland waterways are insufficiently borne in mind. Waterways not only serve transport needs, they also have other water management functions, for instance in the supply of water for many purposes, flood prevention, irrigation and tourism. If waterway projects were designed so that transport benefits were combined with benefits for other functions, they would have a better chance of being promoted.

FLEET AND OPERATIONS

Strengths	Weaknesses	Opportunities	Threats
In the LMB there are a large number of inland waterway vessels (more than 400,000 in Viet Nam). The Mekong River provides an excellent waterway for the present fleet and development of international IWT. Present fleet is in general low capital cost. Operation of fleet including large vessels requires minimum crew. Maintenance of fleet is low technology. IWT has inherent advantages of large capacity, low cost, less pollution, energy efficiency, safety, least land consumption and lower investment requirements.	There are no specialised vessels for different types of cargo, except for fuels. A large number of vessels are old and not safe. Shape of the fleet is not adapted to the conditions of the waterway and volume of cargo in relation to LAD. Most of the present certification procedures and registration of the fleet are not adequate. The design of the ships is, especially for Laos and Cambodia, not according to standards.	Modernisation of the fleet in relation to cargo and LAD for reducing transport cost. Timely maintenance of the waterway. Increase safety through proper certification of the fleet. Reduce travel time between origin and destination by improvement of LAD and implementation of aids to navigation. Introducing night navigation in selected stretches. Develop multi-modal transport links. To sign and implement protocols to promote and facilitate IWT.	Road and rail transport will continue to gain more share of the total national and international transport markets. River fleet will be left to its own destiny. Fleet will not be modernised and it will lose its role in the transport sector as it will be not able to compete.

[4] Cross-border trade from foreign vessels is being hampered by

- *operational and administrative shortcomings* (there is no harmonisation on formalities and procedures for vessel entry and departure, custom clearances, immigration and quarantine, no assignment of responsibilities for maintaining the fairway, no night navigation, sedimentation and shoaling, …),
- *causes for accidents* (no common navigation rules and regulations, no common guidelines on carriage of dangerous and noxious goods, no co-ordination on salvage, …),
- *A lack of co-ordination on safety and environmental matters:* (no search and rescue, no common prevention of oil pollution by ships*).*

Competition

At present, water transportation competes with other transport modes, mainly road and rail transport, on unequal terms. One of the main ideas, with a strategy, should be to utilise the given advantages from inland water transport and to integrate it into a multi-modal transport system. In addition, the countries must develop sufficient regulation for competition and the required monitoring and control should be defined and implemented.

Private sector involvement

The involvement of the private sector varies between the LMB member countries. Depending on overall policies in the different countries, increased participation from the private sector could be encouraged by utilising the regional experience; both Thailand and Viet Nam have involved the private sector for several years in different ways.

The governments of the LMB member countries should encourage the private sector participation in both the transport of commodities and for the development of tourism in the LMB. This could be achieved through prompt removal of non-physical barriers, the introduction of incentive schemes and improvement of the water transport infrastructure. This must be carefully taken into consideration when the benefits of an efficient private sector are to be promoted.

The contribution of the private sector to inland water transport can be seen through improved identification of aims/goals which will lead to improved efficiency, additional services, additional developments, improved diversity in services and quality, and increased safety. This will lead to stronger economic development. Nonetheless, and especially in smaller economies,, there will always be a danger that by strengthening the private sector, private monopolies may become established if proper control is not achieved.

SAFETY

Strengths	Weaknesses	Opportunities	Threats
There are regulations in all countries. There are guidelines prepared by MRC/ESCAP for aids to navigation and regulations. Existing sector programmes that will assist in getting real-time data on water stages in the river. Accessibility of remote sensing data for navigation (Agreement with Canada Space Agency). Navigation sector in MRC member countries recognises the need for training in safety measures.	The regulations cannot be enforced due to lack of institutional capacity. Inspection and certification of the fleet is not carried out properly. There are no plans in case of accidents or emergencies. There is no River Information System in place. Low maintenance activity in comparison to need. This will increase safety risks and reduce the utilisation of the river for transport purposes. Navigation aids in place on a limited scale on some parts of the waterway. Low budget for maintenance of waterway signal, buoys, beacons etc. In Viet Nam alone there are some 400,000 boats with low safety standard, many of which transport passengers. Most accidents are due to overloading of vessels. Low safety situation for passengers (life jackets, rescue systems etc). Poor safety regulations in ports.	To develop standard capacity building programmes for the organisation managing the water transportation. Implementation of navigation aids is a relatively inexpensive and environmentally friendly intervention that can more easily attract support from donors than large-scale infrastructure projects. Implement aids to navigation for promoting navigation at night. Promote the creation of rescue units and police river patrols. Promote eco-tourism by ensuring safety of tourists. Develop standards for safety of the fleet. Enforce regulations for ensuring that the fleet complies with the standards of safety for the LMB. Prepare river maps of the LMB, which can be accessible to all waterway users. Promote the issue of regular navigation bulletins, warnings and notices.	Other modes of transport will continue to play a more important role in the transport sector. Duration of river-sea trips is longer due to stops at night because of lack of navigation aids. Airlines will continue to get the largest share of transport of tourists.

It is clear, safety issues are not that high on the decision maker's agenda when talking about water transportation and safety. And yet, improving safety and increasing navigation efficiency go hand in hand. All measures that reduce accidents/collisions and enhance safety such as proper navigation rules and regulations ("rules of the road"), correct ship inspection, installation of buoys and beacons, night navigation facilities, appropriate charts, proper training, river policing, dredging works to clear the "hot spots" etc., would directly have positive consequences for the efficiency of water transportation, which will rapidly increase once all of these measures have been put in place.

A step further is then to have this on a regional level, meaning all these measures could be achieved based on common, preferably international, standards[5], across all Mekong countries. It does not make sense to have different national systems on a river which is shared by two countries (e.g. the Mekong between Lao PDR and Thailand along many stretches.). To maintain different systems does not only refrain cross-border traffic, but also endangers the lives of the waterway users.

The inland water transportation mode is the most efficient and safe mode for moving large quantities of bulk materials. Highway freight traffic is intermixed with cars and, in urban areas, with pedestrians. Rail cars are susceptible to accidents, often resulting in loss of cargo, because rail shipments typically involve a large number of massive units travelling at high speeds on a single line. River barges however, share their right-of-way mostly with smaller craft and at a much slower speed.

However, accidents to the crew and other waterway users occur, and damage to the environment will increase if no action is taken. It would be preferable if action were taken on a supranational level because of trans-boundary transportation.

Safety of ship

Only in Viet Nam and Lao PDR are there some regulations for the technical condition, registration and maintenance of watercraft. Enforcement of the rules tends to be lax. It should be compulsory to have all vessels (minimum dimensions) classified, registered and regularly inspected. Ships carrying dangerous goods have to be subject to more stringent rules and inspection. Of course, when a ship crosses borders, some countries may require a higher standard of boat inspection than the other country. Again, harmonisation of these standards is needed and will contribute to reduction of ship casualties.

Safety of crew

Appropriate Inland Navigation Laws will specify the requirements for aptitude and qualifications of boat masters and crew members. Only a properly appropriate person, as far as health and nautical skills are concerned, is entitled to steer a vessel. The vessels submitted to registration, except floating installations, can be led only by a qualified person. The qualifications must be proved before a navigation office and is confirmed by a licence issued by that office.

When the boat owners or masters cross borders into another country, amongst other requirements, they should have at least the same competency or standard as the waterway users in that country need to have. It is therefore paramount that training of waterway users in all Mekong countries is based on the same curricula and standards. Optimally, there should be a common regional certificate for masters and engineers on the Mekong akin to the Rhine Certificate. Such a **Mekong Certificate** will greatly reduce accidents on a river which in many stretches, forms the border between two countries, and is currently still used by boatmen (e.g. Laotian and Thai) who have different or no training at all.

A higher level of qualifications is required for the pilots, particularly for pilots who bring in seagoing vessels. Their qualifications should be the same level of international certification (STCW certifications, according to SOLAS conventions).

There are no international rules for fire protection equipment – life saving appliances – or communication equipment on board of inland waterway vessels, only for maritime ships. However, all major rivers have their own specific regulations (Rhine, Mississippi, Danube, etc.) so identifying and adjusting common rules for the Mekong should not be that complicated.

[5] A recommended system for Aids to Navigation System was recently proposed by ESCAP/MRC for two sections: (i) between China, Lao PDR, Myanmar and Thailand, and (ii) between Cambodia and Viet Nam. However, because the system was not comprehensive it only represented some buoys and beacons, whilst Viet Nam has many more. This would cause problems as Cambodian waterway users would be confronted with completely unfamiliar markers and buoys when entering Viet Nam. Discussions will be held between Cambodia and Viet Nam chaired by MRC to find the best and fullest common system. The new recommendations for the common system should be comprehensive, exactly the same for both Cambodia and Viet Nam, and should limit the cost for both countries. Viet Nam already has a system based on international standards IALA/SIGNI which can serve as the basis.

Safety of the waterway environment

In addition to actions to improve navigation safety and efficiency through human factors, river engineering improvements may be possible. A relatively new engineering application of underwater weirs has been found to be very useful in developing river reaches that are stable, relatively easy to maintain, provide good navigation conditions, and can be environmentally compatible or enhancing. When properly designed, bendway weirs have been proven to widen the navigation channel at bends in the river and thereby create a more uniform current pattern for vessels to negotiate the bends.

Reporting of accidents

Knowing the position and time of accidents in a waterway is very important in order to evaluate the safety of both traffic and of structures on the waterway. Accurate data of accidents will enable a technical and economic evaluation or optimalisation of the safety of ship traffic, and valuable lessons can be learned.

Safety of cargo

Navigation technologies change rapidly. Most goods on the Mekong are still carried in sacks and bales, however this is changing. Fuel is no longer transported in barrels but in tankers. Unfortunately, whilst ship design has tried to follow these trends, it has been lagging behind or does not provide sufficient protection for the cargo in case of accidents. Fuel is still transported in single hull boats and vessels; whilst worldwide trends call for compulsory double hull tankers.

This has started with maritime transportation and these developments have taken place since the International Maritime Organisation (IMO) came into existence in 1959. One of the IMO's main functions has been to ensure that safety is not impaired by changes that have been introduced for commercial reasons. Since then IMO has introduced, safety regulations for dry cargo and other regulations for carriage of dangerous goods, gases and liquids such as petroleum and chemicals. IMO has prepared this well for maritime traffic but, again, such international rules for inland rivers do not exist. However, the European transportation administrations have issued harmonised rules such as the ADNR (Carriage of Dangerous Goods on the Rhine) which specifies the technical and operational safety requirements for the license and the operation of inland navigation vessels which carry dangerous goods[6].

Other areas of benefit from improving safety:

Safety of passengers

Safety of the environment

Safety of the port and port workers

[6] The dangerous goods are classified as follows:
- explosive substances and articles
- gases
- flammable liquids and solids
- toxic and infectious substances
- radioactive and corrosive substances

INSTITUTIONAL AND CAPACITY-RELATED ASPECTS

Strengths	Weaknesses	Opportunities	Threats
MRC member countries clearly recognise the need for training and capacity building in the navigation sector. MRC is already co-operating closely with NMCs and Line Agencies. MRC has developed capacity to facilitate co-operation and agreements with positive outcome for all for countries. MRC member countries have good experience with training and capacity building through MRCS. MRC is an attractive organisation for donors and international organisations.	Regional prosperity depends on national political willingness. Lack of long-term planning capacity on navigation matters. Lack of data and proper scrutinising data. Countries are not used to openly sharing technical information with each other. Language is a barrier to exchange of knowledge and systems. Time consuming procedures for clearing cargo due to legal constraints, hence trade development is hampered. Focus is on competition among transport systems rather than on co-ordination. Poor institutional insurance system in a low safety area.	Actions taken at national level to address priority issues. At low cost countries can learn from experiences in other member countries regarding education, training, procedures, international agreements, regulation, monitoring, control, implementation, management etc. Increased trade and tourism. Increased trade and growing economies would create incentives to invest in water transportation facilities and realise potential. Increased trade will be an important incentive to introduce regional standards and improve communication systems. Increased IWT and maritime navigation will create jobs. Better use of the fleet during periods of flooding and emergency situations. Increased trade will have a wider and positive socio-economic impact in the member countries. Better use of international funding will also benefit other sectors in need. Effective co-ordination in the use of national water resources for the sustainable development of water transportation.	Transport volumes are too low to attract needed political attention and public investments Continuous lack of technical and general development plans. No common understanding on training needs. Shortage of training facilities. Continuous lack of uniform regulations hampers cross-border transport and trade. Continuous lack of skilled and experienced staff. Continuous lack of coherent contingency planning. Continuous lack of trained inspectors. Continuous lack of navigation aids. Continuous lack of system for certification. Continuous lack of training.

Lack of political attention to inland water transport

At present, it is considered that policymakers, both at the national and the international level, give relatively little attention to water transportation in the Lower Mekong Basin, as compared to that given to the other national modes of transport. It is a situation where the benefits are spread to a very high number of people and the costs (investments) are to be borne by either a few private operators or by the government, as it is more difficult to tax or levy fees (tolls) on a waterway. Due to the lack of funding, a proper legal framework that could ensure future growth and profit is lacking. Furthermore, knowledge and capacity to prioritise investments and develop incentives that would draw attention to navigation are clearly lacking. As a consequence, national and regional policymaking efforts are devoted to other means of transport.

Awareness rising

In many countries the development potential of the navigation sector is not fully recognised. The reasons may be several: navigation and in particular water transportation is not a prestigious policy issue for politicians to engage in or draw attention to, donors might be more favourable to invest their aid and grants in the social sectors (health, education, children) thereby leading national political agendas, as well as overall planning in other directions; and the lack of updated

and detailed data on waterway conditions and resources means no accurate assessment of the value (economic, as infrastructure input and as employment source) of the navigation sector to national developments.

In Thailand and in Lao PDR it was noticed that very few waterway users and operators are aware of the existence of the 1995 Agreement or the 2000 Upper Lancang Agreement. This is proof of very slow and inefficient dissemination of information to the actual users of the waterway. Therefore, it is necessary to develop an action plan for promotion and better understanding of free navigation and existing agreements within the navigation programme. In particular it will be important to identify the consequences, as well as opportunities, of these provisions for local population and waterway users.

Need for capacity building

During national workshops it was the clear impression that the countries are highly aware of their limited capacities and of the pressing need for training and institutional capacity. This is seen as the very first step in starting to integrate navigation issues on national political agendas. This is also an important prerequisite for efficient implementation of existing national as well as regional agreements and provisions. Without intensive training, education and knowledge sharing, it will be difficult for the MRC member states to realise their trade potentials, and implement larger regional agreements such as a free trade zone. Stronger capacities will also be a valuable ingredient for better and more co-ordinated development planning.

Capacities as a prerequisite to competition

The rising concern about increased road congestion and negative environmental impact of road transport may provide an opportunity to renewed political interest in water transportation, which will be even better if an overall regional legal framework is put in place. Possibilities for shifting freight from the road to other modes of transport depends largely on policymakers' perceptions and beliefs, and, to date, most politicians and administrators tend to refer alternative investments to rail rather than to waterborne transportation. Moreover, due to the low capacity and facilities of many regional ports the water transportation sector is not in the best position to attract or handle major freight increases. In the long term such a lack of capacity and facilities could further marginalise the navigation sector in the regional transport network.

ENVIRONMENTAL ASPECTS

Strengths	Weaknesses	Opportunities	Threats
MRC has a proposed EIA/SEA system, which can promote sustainable development of IWT. Water transportation is a low cost and environmentally sound form of transport. MRC can promote waterway improvements to governments especially with regard to the execution of the bilateral navigation protocols. Charging for infrastructure and waterway use may strengthen the competitive position of inland waterway transport vis-à-vis the other modes, because of its relatively low external costs (environmental, accident and congestion costs). Appropriate navigation agreements and regulations impose the obligation to conduct full environmental impact studies, and to balance the environmental consequences of projects against their economic and social significance.	Poor safety and environment standards, awareness and implementation systems. Unclear environmental situation and water quality as little monitoring takes place. Discharges from shipyards, ports and maintenance is not known, same applies to discharges from bilge tanks. Unclear definition of responsibilities and sometimes complicated procedures within the organisations. No developed system for how to take care of dredged materials. Poor existing EIA systems/standards, both for the development and implementation. There is a tendency on the part of environmentalists (and also of public authorities) to judge the environmental consequences of inland waterway projects more severely than those of projects for the other modes (e.g. roads, airports and rail).	IWT is an environmentally sound mode of transport but it must follow strict rules for operations, inspection, monitoring and enforcements. If such regulations are in place and well enforced, less pollution will be caused by transport because IWT, which can take much greater quantities of cargo, has less exhaust emissions than trucks, and needs far less energy. Since safety standards are lacking or not enforced in some member countries, MRC can take this opportunity to facilitate the introduction of unified standards in the LMB countries. The unifying of environmental assessment standards that will be needed for IWT projects in the LMB member countries can be extended also to other MRC sector programmes. MRC has the opportunity to assist in clarifying the roles and responsibilities of the relevant authorities and organisations and to make a design for improved systems and better organised handling of environmental issues. International focus on the environment and sustainable development can be used to emphasise the environmental and socio-economic benefits of water transportation.	Adverse publicity on environmental issues (tanker spills, reef blasting etc.) can overshadow the environmental benefits of IWT. Pollution, erosion, potential hazards, and water quality in certain areas might represent a serious threat to important or sensitive ecosystems. Noise, waste disposal, sewage, oil, suspension from propellers and turbidity represent probably smaller but significant impacts. The topsoil along the riverbanks is often weak and vulnerable to waves and related activities. Impacts of rock-blasting on the Lancing-Mekong. Dangers of not having rules for regulating transport of dangerous goods. Dangers of not limiting the extent of the navigation improvement works. Increased traffic demands more land area for services and connected activities. Deeper channels will give deeper intrusion of saline water that might change the ecosystem. Increased and extensive use of the Mekong might threaten the ecosystem, particularly the fish population. Diseases might increase as a result of more contact between people as part of increased water transportation. As many people at present use IWT out of need and not from choice, lack of improvement may reduce transport options at the benefit of road transport.

A well functioning transport system is a very important requirement for the Mekong countries who wish to expand trade and integration between themselves. Transport is also responsible for an increasing portion of the energy consumption and thereby for harmful effects on the environment. The more the population grows, the more transport will be needed so transport will have an increasing impact overall on the environment.

The considerable environmental benefits which can be gleaned from the use of waterway transportation as opposed to other, more intrusive modes of transportation (e.g. road trans-

port) are often overlooked. In any balanced environmental assessment of a particular development or programme, both sides of the coin must be examined[7].

However, we are all aware of the negative impact of operational pollution, and the risks of carriage of dangerous goods, and impacts of channel improvement works. If not managed properly, increased water transportation on the Mekong River will have a considerable negative environmental impact.

It is therefore obvious that Mekong River Commission should incorporate a strong environmental objective in its navigation strategy and programme. As a matter of fact, the 1995 Agreement has such strong provisions for sustainable development and environmental protection, that it is a condition sine qua non that MRC ensures that the ecological health of the river is not compromised by navigational developments.

Navigation will be developed even if MRC did not have a programme for this sector. However doing nothing is the worst scenario MRC can conceive: the environment will be much worse off without this programme as there are currently no environmental protection measures or funding to ensure 'green handling' of dangerous goods and for improving port facilities; there are no provisions for pollution prevention, nor are there contingency plans in case an accident occurs. Letting the physical development momentum continue instead of focusing on regulations, monitoring and enforcing appropriate and regional anti-pollution rules, is not sustainable at all, and therefore against the provisions in the 1995 Agreement.

This strategy is focused on non-physical measures and improvements. In cases where physical measures are included, it is because these activities will enhance safety and reduce risk of accidents (e.g. installation of buoys and beacons to mark the deepest parts in the river is far more efficient, cheaper and more environmentally friendly than to change and deepen the river bed to accommodate the vessels). Most of the proposals for improving regional navigation, such as legal improvements, capacity building activities, better information systems, improved safety measures, increasing awareness to ensure proper integration of the navigation sector in the regional infrastructure system, aim to arrive at a transport system that will have the least possible social and environmental impact.

Carriage of dangerous and noxious goods

The carriage of dangerous and noxious goods on the Mekong River, although regulated by environmental protection legislation in several of the Riparian States, needs to be dealt with a priori[8]. In the context of the MRC Navigation Strategy, the question is what the role of MRC

[7] Some of the benefits to the environment or to society can be summarised as follows:

- Waterway Transportation utilises sustainable avenues of communication (i.e. the rivers/waterways) as opposed to, for example, road transportation which requires high initial investment of resources as well as continued maintenance;
- As demonstrated, barges have much lower exhaust emissions and use less energy per tonne carried;
- As a result of their much larger cargo carrying capacity, barges require far fewer units than either rail or truck to move an equivalent amount of cargo. Thus they also have proportionately fewer accidents and create less pollution;
- Waterway Transportation operates in a waterway environment that has few crossing junctures and is relatively remote from population centres - all factors that tend to reduce both the number and severity of casualties as a result of incidents;
- Small-scale IWT can also give considerable environmental and social benefits. For example, farmers in remote locations can have access to markets far away for sale of their products by use of non-polluting small boats for the carriage of their produce. The alternative, of extending the road system to such remote areas, is both energy intensive and environmentally damaging.

[8] It must be borne in mind, however, that failings in the implementation and follow-up of regulations governing the carriage of dangerous and noxious goods are also evident in competing modes of transport, for example road transport. In this respect, the dangers and safety aspects with respect to IWT may in fact be considerably lower. This fact is clearly documented in a report prepared by the United States Department of Transportation, Marine Administration: "Environmental Advantages of Inland Barge Transportation", August 1994.

can be in the establishment of more uniform and specific regulations to govern the transportation of dangerous and noxious goods on the Mekong River, and how MRC can facilitate the implementation of existing and future regulations.

Trans-boundary pollution

The development of IWT in the Mekong River basin will inevitably increase the possibility of pollution from vessel operation and from possible accidents. The Mekong being an international river, with stretches where the international border follows the river alignment and stretches where the river crosses international borders, means that such pollution will often become a trans-boundary issue.

It is therefore essential that effective trans-boundary measures for the prevention of pollution and the mitigation of the effects of accidents etc. are developed, agreed upon by the countries, and enforced. In this regard there is today a lack of such agreements between all of the Riparian countries; this would be a natural area in which MRC could play a part by facilitating such agreements and arrangements for pollution prevention and control. None of the existing agreements on commercial navigation, trans-boundary pollution, or spot pollution mentions that matter. However, an oil spill on the Mekong where the river forms the border between the Lao PDR and Thailand is already trans-boundary.

The way in which trans-boundary environmental issues should be dealt with and assessed is covered in the Proposed MRC System for the Development of an EIA/SEA System for the Lower Mekong Basin. This draws upon the findings and recommendations of the 1991 United Nations Economic Commission for Europe (UN/ECE) Convention on Environmental Analysis in a trans-boundary context and its related guidance ("The Espoo Convention"). The convention provides a best practice framework for international co-operation on Environmental Analysis in a trans-boundary context and a number of countries have used this framework as the basis for more detailed bilateral and multilateral agreements.

The first step in this direction could be the implementation of the recommendations of the proposed system for the development of an MRC EIA/SEA system for the Lower Mekong Basin as mentioned above. Efforts should then be made to extend this system to the upper riparian countries in the basin, so that ultimately the same levels of trans-boundary pollution prevention, control and mitigation measures are enforced along the entire Mekong.

Environmental monitoring and pollution control

As is outlined in the previous section, it is recommended that an integrated basinwide approach is taken to the issue of trans-boundary pollution. In order to achieve this, the agreements between the Riparian countries should include elements that define uniform river water quality standards, and hence acceptable pollution levels, along the Mekong. A standard and uniform system of monitoring river water quality would then be necessary with regular measurements of water quality parameters at various points along the river.

Agreements should include specific description of water quality parameters to be measured, the agreed methods of measurement, and the maximum/minimum values for each parameter. Furthermore, the agreements should define measures to be implemented by the riparian countries to control and contain pollution and to prevent it from becoming a trans-boundary problem.

The Mekong River Commission could facilitate the development of these international water quality standards and of the ways and means of carrying out pollution control and relevant mitigation measures.

Development of ports and harbours

There are likely to be a variety of relevant project alternatives to a proposed new port or harbour project, its design and management; and the Environmental Assessment should take these alternatives into consideration. Examples of project alternatives are:

- Improvement of any existing port/harbour facilities;
- Transportation through a different means of transport;
- Use of smaller ships on a more frequent basis; and
- Alternative sites which would lower impact.

Opposition to inland waterway projects by environmental movements

It is observed that there is a tendency on the part of environmentalists (and also of the public authorities) to judge the environmental consequences of inland waterway projects more severely than those of projects for the other modes (e.g. roads, airports and rail).

The criteria used in judging waterway projects should be the same as those used for the other transport modes. In November 2002 open dialogues [9](question-and-answer sessions) were held at the MRC Secretariat with Civil Society Organisations. It was also recognised by the environmental groups and MRC, that certain aspects need better scientific investigation rather than speculation. A comprehensive approach will be required to assist, inform and explain the actual effects of inland waterway transportation, and navigation in general, to the wider audience concerned with MRC navigation activities.

Current human resource capacity

For most of the countries the authorities have unclear and often partly overlapping responsibilities or roles. Mostly the relevant staff is not trained, prepared or aware of how to implement environmental aspects in day to day work or in projects, which then undermines the necessary environmental protection.

When defining roles it will be crucial for MRC to understand how best to carry out their activities and draw lines between what are roles and tasks for national authorities and organisations, what are roles for professional organisations, and where political or legal issues will not be a part of MRC's role. This is a difficult assessment as too low a profile will give MRC little influence, and too high a profile will paralyse MRC as little room for manoeuvre will be given by the owners.

In the strategy several areas common to all member countries have been identified. It is important to underline that this does not indicate that common actions should be taken, or that the needs are the same. In many situations the countries will need improvements within the same area but at different levels. A solution and a role in such situations could be to inspire the least developed countries to implement the most relevant or basic parts of systems in more developed member countries, in addition to also co-operating with the most ambitious countries.

Public participation

There are likely to be a variety of relevant alternatives for a proposed navigation project, although these are more likely to be restricted to the types of measures employed and the sourcing of construction materials, their transportation and disposal. The EA should examine other technological or construction options, alternative sites for the sourcing of construction materials (e.g. for bank protection measures) and alternative sites for the disposal of dredged material.

Navigation projects have the potential to make a significant impact on the local population. Whilst the aim is to improve the wellbeing of the population, a lack of understanding of the people and their society may result in development that has a considerable negative impact or is unsustainable in the long-term. This is often due to inadequate feelings of ownership of the project by the local population. More significantly, there may be a divergence between national or regional interests and the interests or needs of local populations.

[9] On the issue of the navigation channel improvement works that are going on between Simao and Luang Prabang under the Quadripartite Navigation Agreement (China, Lao PDR, Myanmar and Thailand).

There seems to be very high environmental awareness about the Mekong river system within the population. People are, regardless of use of or ambitions for navigation, highly aware of the river as an important element in their lives; as a source of nutrition, for transportation, it's direct and indirect impact on their lives, or just for being a part of the scenery. Hence any major changes will provoke discussions and reactions. Regardless of the scientific reasoning for any attitude towards any proposed project, some observed during the consultation visits that local awareness must be treated with the utmost respect and taken seriously.

It is essential that public participation is included in the planning process.

SOCIAL ASPECTS

Strengths	Weaknesses	Opportunities	Threats
Poverty-targeted interventions directed at schools, health clinics, nutrition programs and social services in LMB often depend on IWT. Waterborne transport used by the riparian people for centuries. Important socio-economic potential to be realised by improving maritime and inland waterway transport. Waterborne transport is already an integral part of many riparians' lives. During the flood season waterborne transport is often the only transport means. Waterborne transport is cheap, fast and has capacity to carry large cargos. Waterborne transport is an important link between remote communities and trade centres and facilities.	Waterborne transport is socially and financially under valued. The navigation sector is dominated by people who are used to working with technical and structural issues where social and environmentally concerns traditionally have been disregarded. Lack of political attention to poor peoples livelihoods. The economic and social importance of navigation led to a belief that navigation enjoyed an inherent priority over other uses of an international watercourse. Lack of good facilities for tourism development. In some LMB countries women do not have full access to income generated in the waterborne transport sector.	The waterborne transport sector holds great potential for regional socio-economic development: Increasing trade and tourism means increased income including opportunities for the poor communities. Public and private investments in water transport will have great over-spill effects on social sectors. Opportunity to collect data on the social aspects and impact of navigation and make them available to relevant national and regional parties. MRC could liaise with other regional partners to create management tools that properly integrate social aspects in all regional transport projects. MRC could be a regional focal point for development of the waterborne transport sector in LMB and for rural development interventions where river transport is an integral component. MRC has capacity to prepare a systematic approach for use of boats and ships in the flood season and in emergency situations. Lao PDR is a land locked country, though the river holds great opportunity for being fully integrated in the regional trade and transport system. Regional baseline study on social impacts coming from river based tourism in the member countries. Navigation is an opportunity for both sexes to increase their participation in economic and social development through increasing job and income- generating activities. Improvements of port facilities and the river fleet will create job opportunities.	National government continues to overrule social considerations when investing and planning in infrastructure. National governments lack capacity and knowledge for long-term development planning which could lead to high-risk interventions. A free trade zone will probably imply more illegal trade such as smuggling and human trafficking. Influx of diseases /contamination, HIV/Aids (for communities along the Mekong River and tributaries especially to the remote areas). Negative social and labour effects of Structural Adjustment in the Port Industry. Health hazards for workers due to lack of safety equipment, procedures and standards, fire fighting equipment and training, manual operations, lack of warehouses etc. Development of a new fleet represents a threat to the smaller boats as the traffic increases in volume and waves become higher.

Importance and awareness of the waterborne transport sector in the LMB

Despite the fact that the Mekong River has provided important transport facilities for centuries in the LMB, and that even today many people depend on waterborne transport to earn their living, the navigation sector have attracted little attention for input into poverty-targeted inter-

ventions. Many riparian people are marginalised due to either their geographical location within countries or their low income levels, and this often has the consequence that they are not able to neither identify nor draw political attention to their own development needs. Various bilateral donors and international organisations are engaged in poverty reduction interventions but only a few projects are fully taking into account the socio-economic values and potential connected to waterborne transport. During the national workshops only a few of the stakeholders brought up the social aspects of navigation, which is a very clear proof of the limited attention given to these issues within the regional transport sector. On this background neither the national workshops nor the regional workshop managed to discuss social issues in great detail.

Among the social issues that were discussed, most attention was given to the negative impact from improved regional navigation, e.g. increased or heavier traffic. Other issues were the impact of dredging, and other river works, on the people living along the river, safety for workers and impacts on fisheries, which is an important nutritional source in the LMB.

Threats to be addressed

If issues like the social and environmental impact of navigation activities are not properly addressed by MRC, and the national line agencies while improving baseline conditions for regional navigation, it could have major consequences for the perception of navigation projects in the general public and among politicians. This has been the case on the upper Mekong agreement, thereby creating unneeded criticism and a negative impression of the overall project. To overcome this threat and ensure that the potential and opportunities that the navigation sector represents for attracting investments and contributing to national development and prospects are maximised, social impact should be carefully analysed in any major navigation study or development plan that MRC is involved with.

Increased regional trade could have negative side-effects. There is a risk that illegal trade could increase proportionately. A comprehensive regional legal framework and close collaboration between regional organisations on how to limit negative side-effects, and increase enforcement and monitoring of such illegal activities, is necessary. MRC should not play a direct role in such matters; rather MRC should encourage national governments and other regional centres of expertise to ensure that free trade does not imply unhindered access to protected and valuable natural resources as well as vulnerable human groups. As indicated in several human development reports, HIV/Aids is a major risk to sustainable development and efficient poverty-reduction in Southeast Asia. The transport sector is an environment in which this disease is likely to be disseminated rapidly due to lack of information and the nature of the work. Obviously this threat should be addressed within the navigation sector as it is in other transport sectors.

MRC and social development

MRC is mainly a platform for technical co-operation; however, in one of the core programmes, the Basin Development Plan, social issues figure as a cluster to be considered in overall regional development planning. In addition, infrastructural development projects, and in particular, navigation improvements, related to the Navigation agreement on the upper Mekong, have been subject to strong criticism for neglecting impacts on peoples' livelihoods. MRC is a regional body that could be a means to ensure that the voices of these people are heard and that their development needs are properly addressed on national political agendas. With this background, MRC is not in a position to promote navigation activities that have far-reaching social impacts. There is a chance that MRC, in close collaboration with national line agencies, the NMC's and other parties, could contribute to increase awareness and put in place relevant measures that ensure a proper assessment of social impacts. First of all, there is an opportunity for MRC to enhance the regional awareness of socio-economic potential and a positive impact to be derived from increased navigation in the LMB.

CHAPTER 3 - THE NAVIGATION STRATEGY

3.1 MRC Mandate and Roles in Navigation

3.1.1 The Mandate of MRC for Navigation

The 'Agreement on the Co-operation for the Sustainable Development of the Mekong River Basin' - or the '1995 Agreement' - reaffirms the determination to co-operate and promote in a constructive and mutually beneficial manner in the sustainable development, utilisation, conservation and management of the Mekong River Basin water and related resources **for navigational and non-navigational purposes**, for social and economic development and the well-being of all riparian States, consistent with the needs to protect, preserve, enhance and manage the environmental and aquatic conditions and maintenance of the ecological balance particular to this river basin.

- In Article 9, the Riparian States pledge to

> *'…co-operate in fields of sustainable development, utilisation, management, and conservation of the water and related resources of the Mekong River Basin, including, 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 security.*

- Article 2 pledges the Member States to

> *'…co-operate and co-ordinate in the* ***development of the full potential*** *of sustainable benefits to all riparian States,…with emphasis and preference on joint and/or basin-wide development projects and basin programmes through the formulation of a basin development plan…to implement at the basin level.'*

The above two Articles indicate that the Mekong River Agreement provides a direct mandate for the MRC not only in relation to cross-border navigation, but also in developing projects to improve the conditions in the countries.

- In Article 3, the **Protection of the Environment and Ecological Balance** is of paramount importance

> *'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'*

Although waterborne transportation is a more environmentally sound means of transport, its' use needs to be regulated, monitored and its' regulations enforced, in particular when dealing with the transport of dangerous goods or petroleum products. Furthermore it is imperative that the navigation infrastructure is subject to adequate SIA and EIA procedures Implementation of Article 3 in this strategy will therefore be through pollution prevention and control, but also through the introduction of contingency plans (see also Article 10. *Emergency Situations*).

- Article 6. Maintenance of Flows on the Mainstream

> '*To co-operate in the maintenance of the flows on the mainstream …*
>
> *A. Of not less than the* ***acceptable minimum monthly natural flow*** *during each month of the dry season;*

In co-operation with the WUP Programme, when the rules for water quantity are to be drafted, the Least Available Depth (LAD) concept has to be taken into due consideration to allow year round shipping.

- Chapter V of the Agreement is on "***Addressing Differences and disputes***" on all aspects of water and related resources, putting the organisation in charge to "*make every effort to resolve the issue*" (Article 34). Only if the Commission with its Joint Committee and Council "*is unable to resolve the difference or dispute in a timely manner, the issue shall be taken to the Governments … for resolution by negotiation through diplomatic channels*". The Governments concerned may then "*request the assistance of mediation through an entity or party mutually agreed upon*" - which again could be MRC. (Article 35)

In the MRC Strategic Plan, the kinds of services to be provided by the organisation are outlined, as well as how these are expected to contribute to development in the Basin. This is summarised in the Mission Statement of the Organisation:
To promote and co-ordinate sustainable management and development of water and related resources

for

the countries' mutual benefit and the people's well being

by

implementing strategic programmes and activities and providing scientific information and policy advice

The kind of activities MRC can get involved in are clearly outlined in this Mission Statement, i.e. the implementation of strategic programmes and provision of scientific information and policy advice.

The Strategic Plan further requires MRC to clearly focus on its role as an international river basin organisation, and to develop a flexible but strategic programme approach to basin-wide issues. Navigation development and co-ordination in this respect form part of strategic sector programmes that are expected to contribute to the Basin Development Plan (BDP). Besides the Water Utilisation Programme and the Environment Programme, this BDP is one of three Core Programmes of the organisation as stipulated in the 1995 Agreement and further outlined in the Strategic Plan.

Within the present organisational hierarchy of the MRC Secretariat, the Navigation Programme is allocated under the Operations Division.

3.1.2 MRC Roles on Navigation Development and Co-ordination

According to the above articles of the 1995 Agreement of 1995, MRC has a relatively broad mandate to participate in navigation development and co-ordination. How is MRC to do this? What roles could and should MRC play in this process?

Mekong water transportation consists of two main types: Inland Waterway Transportation (IWT) and Maritime Transportation. Both types of navigation can be on a national level (domestic

commerce and trade – rural water transportation – or access by sea-going vessels to Can Tho in Viet Nam for example), and on a trans-boundary level, or so-called navigation without frontiers (as a mechanism for regional and international trade – for example boats plying the area between the Lao PDR and Thailand or sea-going vessels between the sea and Phnom Penh port).

In defining possible roles for the MRC, it needs to be recognised that national navigation development remains that country's responsibility. However, there are valid roles – according to the above mandates – for MRC to assist the riparian countries in improving the national water transportation infrastructure and services that will have regional implications[10].

Having regard to the mandate of the organisation, possible roles for MRC can be grouped into four categories and include the following aspects:

1. DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION

This is the most evident and important role because this is the role the Member States assigned to MRC when they drafted the 1995 Agreement: to increase regional trade and commerce by opening up the borders for cross-border navigation.

The member countries respect MRCS for its neutrality, objectivity and technical excellence. This provides an excellent base for MRC to prepare an operational, legal and technical framework to ensure the principle of Art. 9. Freedom of Navigation will become reality.

2. PROVIDE TECHNICAL PRODUCTS AND SERVICES

Acting as a **repository of transportation data and information** for the basin. The MRC is currently developing an integrated database for the basin as a whole. Transportation data and information can be entered into this database for quick retrieval and use by member countries.

Provision of technically excellent analytical services to the member countries in relation to navigation. This activity could include the setting of regulations and standards in relation to water transportation, for domestic and cross-border use, so that all member countries use a common system and thus improve efficiency and reduce accidents.

Provision of river level and flow monitoring and forecasts to the member countries. This activity has already commenced and will be enhanced by the telemeter network of water level (and rainfall) stations and the start of the Flood Management and Mitigation Center. What the flood forecasts can do to warn the people in the flood-prone areas; the MRC system can predict the river level during the low water season. This way the shippers can plan their voyages accurately and load to the maximum depth, depending on the availability of water in the shallow stretches.

3. STRENGTHEN INSTITUTIONS AND CAPACITY

Facilitating **capacity building and technology transfer** to the member countries in relation to regional navigation. MRC could develop common standard training programmes to be delivered to line agencies in the member countries, including the transfer of technology/know how.

It needs to be recognised that MRCS will need capacity building and additional resources to be able to engage in, and prepare implementation of, the proposed serviced and activities described in this strategy document. In fact, internal capacity building and resource issues will have to reflect priority activities defined in the Navigation Strategy and priorities given to the specific programme components. Moreover, a highly regarded and stronger **institutional structure** of the Navigation Programme Unit at the MRC Se-

[10] See Basinwide Significance under 3.2.1 Principles of MRC Involvement in Navigation, page 37

cretariat, the National Mekong Committees and the Line Agencies will be necessary to implement the Strategy Implementation Programme. One of the proposals that were discussed during the regional workshop was how to co-ordinate and co-operate in practice, hence, a solution could be to copy elements of the model used within the MRC Fisheries Programme, with for example, a Technical Advisory Board, a Steering Committee and an Annual Meeting.

4. PROMOTE AND CO-ORDINATE

MRC role co-ordination

Waterborne transport, and in particular cross-border transportation needs to be followed-up and monitored in a more proper manner. There are an increasing number of regional projects on water transportation, due to the fact that this sector is gaining more importance, the impact of external investments should be better guaranteed. The agencies to be involved in such activities are the national line agencies and responsible ministries, the private sector, ASEAN, relevant UN agencies (e.g. through ESCAP), and in particular the development banks such as the Asian Development Bank (ADB), the International Monetary Fund (IMF), the International Bank of Reconstruction and Development (IBRD) and the World Bank (WB). Presently there is little overall co-ordination among these different players in the regional infrastructure sector, and overlaps have already occurred. MRC is in a position where it can take stock of activities that have been planned and are being implemented, and distribute the information to all related agencies on future navigation activities, and how such activities can be integrated in the overall regional infrastructure system. An input that the team working on this strategy have been very much missing is a socio-economic cost-benefit analysis on the regional macro level to guide us in judging the prospects for an integrated multi-modal transport system. As far as we are aware, no other regional organisation is basing their strategy or activities on such a transport economic study. However, it would be an excellent case for doing a regional study shared by more organisations to ensure that investments are directed towards the most feasible and productive interventions.

MRC role promotion

In different parts of the SWOT-analysis it was stressed that one of the major impediments to regional navigation development is lacking awareness and understanding of the socio-economic potential held in this sector. A major task for MRCS regarding navigation will therefore be to change these misguided perceptions of politicians, donors, national planning agencies and administration, civil society parties in the social and environmental sectors and in the general public. Raised awareness and better understanding of the importance of waterborne transport is a prerequisite for national action in this field. Such actions could include allocation of funds, willingness to introduce a regional legal framework, imposing higher safety standards and integrating this transport mode fully into national as well as regional development planning.

Promotional and capacity building related activities, which could be initiated by the MRC Navigation Programme, play an important part in changing established perceptions. The aim will simply be to convince policymakers and relevant national line agencies**,** together with private sector parties, that waterborne transport has a promising future. Part of this would be to ensure that inland waterway transport is properly integrated in rural development projects, and that increased attention is directed towards the actual implementation of major regional agreements. This applies to the agreed free trade zone within the ASEAN framework and the new transport corridors being constructed, in relation to which waterborne transport should be properly integrated due to the comparative advantages held by this sector, particularly during the flood season. Such thinking will be a sound foundation for all LMB countries to gain full access to regional trade potentials and investments.

3.2 Principles and Objectives

3.2.1 Principles of MRC Involvement in Navigation

In formulating the navigation strategy, a number of considerations that are linked to the nature of the organisation will affect the inclusion, ranking and treatment of possible strategy elements and projects.

Basin-wide significance. With a view to the MRC mandate, it is essential that any proposed navigation activity undertaken or facilitated by MRC is of basin-wide (regional) significance (i.e. the activities benefit and have the commitment of at least two member states, preferably all four). National issues, such as the ones discussed above, have to be dealt with nationally. However, the economic status of the riparian countries varies considerably as some countries are better integrated in the international trade network than others. In the long run, the "law of comparative advantage" will benefit all countries, but in the short run, Cambodia and the Lao PDR face difficulties in complying with infrastructural demands. MRC could therefore assist in certain national improvements of present physical and non-physical barriers that impede “navigation without frontiers” for all member countries. Such activities demand that technical feasibility and financial viability exists, and that there is no risk for permanent negative impact to the environment. Engaging MRC in such activities would ensure streamlining of regional baseline conditions.

Participatory approach, co-ordination and partnerships. The importance of public participation, co-ordination and the formation of partnerships is an essential working principle for MRC. Implementation of the strategy and associated activities cannot be done solely by the NMCs and the Secretariat. A strong involvement and commitment from line agencies, from the public, from other national and regional initiatives, and from the commencement of strategy formulation down to the strategy implementation, is paramount. An important aspect of this would be to call upon the private sector to act as both major investor and the driving force behind prioritisation of improvement projects; and to ensure that such anticipated public and private partnerships encourage local and national ownership on lower levels.

Scope of activities to be in line with capacities. Although a substantial amount of work can be distributed among the NMCs and line agencies, the technical, financial and human resources capacity of all these organisations is limited. The scope of activities that can be effectively managed has to be considered carefully. Initially, it may be necessary to concentrate on activities of a somewhat ‘limited scope’ that correspond to the prevailing capacities of MRC, NMCs and the line agencies.

Timing of activities. It is proposed to classify the initiation of activities associated with the strategy as short-term (1-2 years), medium-term (3-5 years) and long-term (longer than 5 years). This will enable best use to be made of the existing limited capacity in the MRC, the NMCs and Line Agencies whilst capacity is built up in these organisations.

Integrated and concerted action and avoidance of duplication. Thorough co-ordination of strategy elements and associated activities with national policies and national and regional initiatives is crucial - including those of Civil Society Organisations, International Organisations, Donor Community and Development Banks. Moreover, a close audit and follow-up of MRC's core support and sector programmes will avoid duplication and will ensure appropriate and effective distribution and use of resources. Integrated and concerted action in the entire catchment area, i.e. in the whole Basin, is a prerequisite for the success of the Basin strategy.

Social, economic, natural resource management and ecological implications. If any activity is to be included in the Navigation Strategy or addressed by MRC as part

of the Strategy, it is essential that social, economic, natural resource management and ecological considerations are fully and effectively taken into account.

Feasibility. Assess viability and cost effectiveness and ensure that the activity is within the mandate and management capability of MRC.

Upstream partners. Seek a continued but elaborated dialogue with PRC and Myanmar where feasible. Not co-operating and co-ordinating will not be an option: Since April 2000, there is a Commercial Navigation Agreement between China, Myanmar, Lao PDR and Thailand on the stretch Simao-Luang Prabang. MRC will prepare a navigation framework agreement for the stretches downstream of Luang Prabang. In order not to have two different agreements with different stipulations, the co-signatories to the 2000 Agreement will have to co-ordinate well with MRC.

International experience. Lessons may be learned from navigation development and co-ordination activities in other international river basins, such as the Rhine, Scheldt, Danube and Mississippi.

New technologies and emerging needs. In formulating a navigation strategy, attention needs to be paid to the potential usefulness of new technologies for better and more effective water transportation in the Mekong Basin.

Global links. MRC has already developed a number of 'global links', e.g. with the Central Commission for Navigation on the Rhine (CCNR), PIANC, and others.

3.2.2 Objectives of the MRC Navigation Strategy

The Objectives of the MRC Navigation Strategy have to be in line with the mandate, the principles, and the roles for navigation development and co-ordinated as described above.

In line with the Logical Framework terminology as applied in MRC, the **Development Objective** for the Strategy, indicating the **benefit for the riparian countries** that is expected to emanate from an MRC involvement in this field, is therefore proposed as follows:

> *To increase the international trade opportunities for the MRC member countries' mutual benefit, and to assist in co-ordination and co-operation in developing effective and safe waterborne transport in a sustainable and protective manner for the waterway environment.*

The Strategic Objectives should be able to materialise the development objective. Building on the above roles, and after analysing the SWOT analysis, the following **strategic objectives** have been selected:

- **Legal Objective:** Establish an appropriate legal foundation and navigation regime for International Mekong Navigation, and ensure its implementation and sustainability;
- **Trade, Transport and Safety Objective (Physical and Non-Physical):** Relevant reduction of non-physical and physical barriers - Integrating navigation in the regional transport network - Reduction of navigation-related accidents;
- **Environmental Objective:** To promote the concept of "Clean" river transportation, focusing on strategic prevention of environmental damage from waterway infrastructures/works or from shipping or port accidents rather than remedying or combating the impacts; and
- **Social Objective:** Distributing benefits from navigation to the riparian people - Improve water transportation during floods - Increase river-based employment;

3.3 Results from the Regional Consultation Workshop on the Formulation of the MRC Navigation Strategy

In December 2002, MRCS submitted the draft strategy for navigation development and co-ordination in the Lower Mekong Basin to the MRC Member Countries for review and comment to aid improvement. This draft Navigation Strategy document also formed the basis for regional discussions that took place at the Regional Formulation Workshop held in Phnom Penh, Cambodia, 22- 23 January 2003. The final conclusions were agreed, summarising the workshop outcome as follows:

Approved conclusions from the Regional Consultation Workshop of the Formulation of the MRC Navigation Strategy, 22-23 January, Phnom Penh:

Delegations represented at the MRC Navigation Strategy Workshop reached a common understanding on the following conclusions whereby they urged MRC to:

1. Adjust the draft MRC Navigation Strategy to incorporate the agreed comments in view of its presentation to the Joint Committee;
2. Prepare institutional and operational measures as well as harmonised rules for the implementation of the principle of freedom of navigation contained in Article 9 of the 1995 MRC Agreement;
3. Draft a comprehensive Navigation Code comprising harmonised rules for the promotion of safe and environmentally and socially sustainable navigation;
4. Propose measures for the progressive removal of non-physical obstacles to navigation and for the liberalisation of international and regional shipping on the waterways of the Mekong basin, in line with customary international river law and the conventional regime of comparable international rivers;
5. Propose measures for the progressive removal of physical obstacles to navigation duly taking into account environmental and social aspects;
6. Carry out a study on the optimum accessibility of MRC Member Countries for regional and international maritime and inland navigation and waterborne trade;
7. Explore the possibilities of the necessary co-operation with the People's Republic of China and the Union of Myanmar in the field of navigation; and
8. Develop promotional activities and close co-operation with potential users, investors and other stakeholders in the field of navigation.

The regional consultation workshop mainly aimed at improving the draft strategy document and receiving the opinion of the MRC countries on the proposed roles for MRC and the proposed strategic objectives. The participants were also asked to prioritise activities and consider institutional and co-ordination-related issues e.g. co-operation with upstream countries and proposals for institutional structures on regional co-operation, co-ordination and joint implementation of the navigation programme. Throughout the workshop there was a common understanding that the navigation sector holds great potential for socio-economic development in the Mekong basin. All participants recognised that, in order to realise such potential, it will be crucial to reduce the non-physical barriers to cross-border navigation. There was widespread consensus that part of this could be achieved by introducing a common but detailed framework for regional navigation drawing on Article 9 of the 1995 Agreement and on comprehensive preparations to define the sustainable legal, technical, financial responsibilities and operations by the member States.

3.4 Proposed Activities

Throughout the strategy formulation process the results of the national consultations, national workshops, and results from the analytical SWOT study have been gathered into a **matrix system** that clarified the needs, problems, opportunities and solutions. The summarised Strategy Matrix illustrates the overall priorities of MRC member countries vis-à-vis the role of MRC and the strategic objectives there are to be realised.

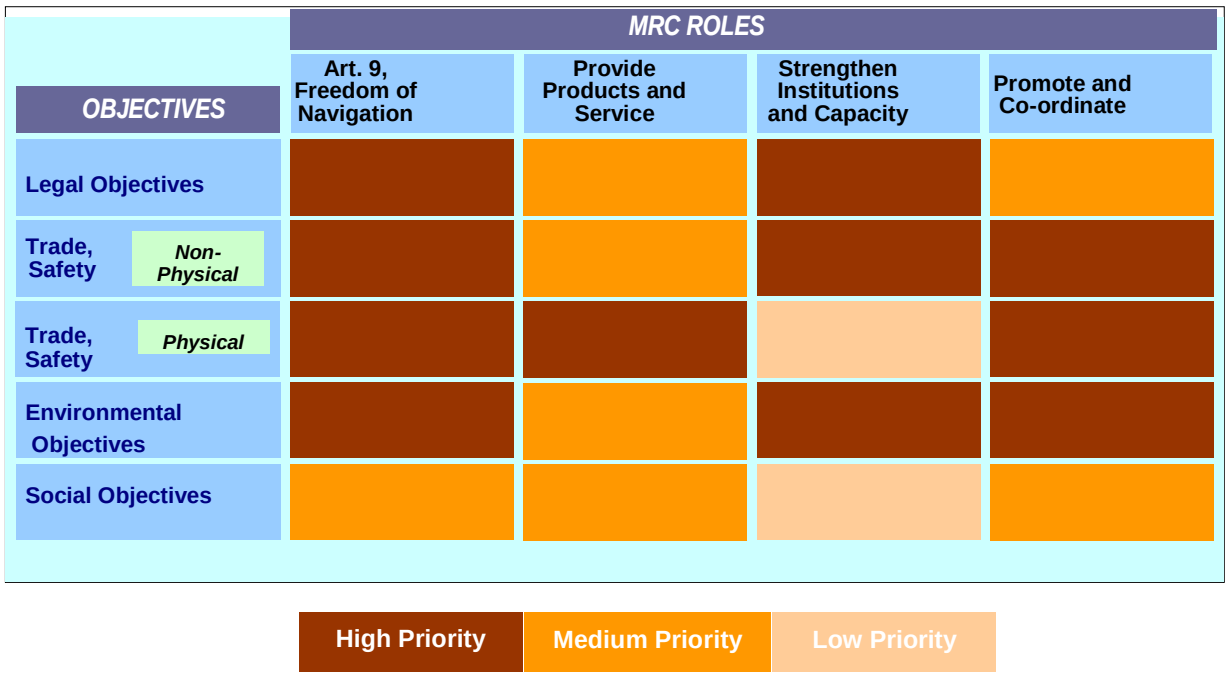


Table 3-1: Relative Priority of MRC Involvement in Navigation, by its Roles and Strategic Objectives

The proposed (possible) activities which are necessary to achieve the Strategic Objectives are described below including their justification. These activities are described according to the four roles that MRC could occupy with respect to navigation.

3.4.1 Strategic Objective 1: LEGAL

It is beyond any doubt that the MRC Agreement of 1995 is a model Agreement. In itself, it is an excellent example of a modern international river regime. Furthermore, Article 18 of the MRC Agreement gives power to the Ministerial MRC Council: "To make policies and decisions and provide other necessary guidance concerning the promotion, support, co-operation and co-ordination in joint activities and projects in a constructive and mutually beneficial manner for the sustainable development, utilization, conservation and management of the Mekong River Basin waters and related resources, and protection of the environment and aquatic conditions in the Basin as provided for under this Agreement". Pursuant to Article 24, the functions of the Joint Committee are to implement the policies and decisions of the Council. Article 9 of the MRC Agreement on Freedom of Navigation gives MRC a powerful mandate to promote and co-ordinate cross-border waterborne Mekong traffic but its contents are not enough to provide a comprehensive operational framework. The specific objectives are to:

Establish an appropriate legal foundation and navigation regime for International Mekong Navigation; and

Ensure its implementation and sustainability.

NEEDS AND JUSTIFICATION

- A thorough completion and implementation of Article 9 of the 1995 MRC Agreement

As far as international navigation is concerned, Article 9 of the MRC Agreement on Freedom of Navigation gives MRC a powerful mandate to promote and co-ordinate cross-border waterborne Mekong traffic. However, the article is not comprehensive enough and even marks a step backwards compared to the 1954 Paris Convention, which at the time could be considered to be a model Agreement on river navigation as well and still may be considered to contain (almost) all the essential ingredients for the development of international shipping. It is difficult to develop a co-ordinated international navigation strategy for the Lower Mekong basin as long as MRC is not *expressly and specifically* empowered to take concrete action in the field of navigation - in other words to take the lead in the development of a common strategy.

Already in 1969, a seminar on "Legal and Administrative Aspects of Lower Mekong Development with Special Reference to Initial Mainstream Projects" held in Bangkok under the auspices of the Mekong Committee, recommended that the existing treaty regime of the basin should be studied with a view to selecting those treaty provisions which have continuing validity, identifying areas of uncertainty or differences, eliminating unnecessary or no longer applicable provisions and suggesting areas in which new agreement may be necessary[11]. This recommendation has not been sufficiently acted upon. The draughtsmen of the MRC Agreement have certainly added to the legal uncertainty by preparing a much too concise and unclear Article 9 on navigation and by not co-ordinating the Agreement with the pre-existing conventions pertaining to navigation.

In order for MRC to be able to develop a new navigation strategy, the existing Article 9 of the 1995 MRC Agreement should be completed and strengthened. While the aim should not be to (re)introduce any prioritisation of navigational uses over other uses, or to amend the existing MRC Agreement, the present Article 9 on freedom of navigation should be elaborated to form an additional legal instrument dealing with freedom of navigation and its practical conse-

[11] Morsey Wheeler, V., "Co-operation for Development in the Lower Mekong Basin", *American Journal of International Law*, 1970, Vol. 64, No. 3, (594), 603, footnote 33.

quences[12] and defining the exact roles MRC has to play in this field. This additional implementation instrument should clearly state the objective of MRC and its Member States to promote and develop free navigation without frontiers (within the general framework of sustainable basin development).

The additional legal instrument 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 beneficiaries of freedom of navigation, charging for certain individual services, abolition of unnecessary en route controls and formalities, organisation of pilotage services etc. The new instrument should ensure that these fundamental principles take priority over national laws. Some of the rules contained in the 1954 Paris Convention could be transcribed into the new regime.

The additional instrument could also take the form of separate agreements for the relevant stretches of the Mekong River. To be more specific, a draft agreement or navigation code for IWT between Cambodia and Viet Nam and a separate agreement or code for maritime navigation could be drawn up with the technical and legal assistance of MRC. Such agreements containing common rules on navigation should replace the Hanoi Agreement of 1998 and the related Protocol, which was not enforced, and would in some respects even have added to the prevailing legal uncertainty. Another agreement could be drafted by MRC for IWT between Luang Prabang and the Khone Falls (inland waterway transportation), partly based on the Quadripartite Agreement of 2000 for the upstream river.

Finally, in order to restore legal certainty, the 1995 MRC Agreement together with the additional implementation instrument should replace and supersede all the other existing Agreements dealing with navigation in the Lower Mekong Basin.

- A strengthened role for MRC

In 1970, V. Morsey Wheeler expressed the following view on the development of the navigation-related activities of the Mekong Committee:

> "In the field of navigation, which is still the principal use of the Mekong main stream, the need for international co-ordination or regulation is apparent. In the Lower Mekong region, commissions have functioned in the past, and existing treaties provide for such a commission, but in fact none exists.
>
> There is also a need for a body with investigative and administrative functions, to supervise activities such as surveillance of the state of the waterway, removal of obstacles to navigation and maintenance of the river channel, either directly or indirectly through co-ordination of national services. The Mekong Committee has in progress a number of programs for improvement of navigation, so that it performs a catalytic or co-ordinating role in certain reaches of the river; however, additional actions and co-ordination are required"[13].

Given the adoption in 1995 of the MRC Agreement with its unsatisfactory article on navigation, the need for an international commission with specific and clear-cut responsibilities in the field of navigation is even greater today.

It is strongly recommended that MRC together with MRC Member States investigate the best-suited legal model. The powers of international river commissions in the field of navigation vary to a large extent. In theory, it would be possible, and from a certain point of view desirable, to establish a central supranational authority with the power to override existing national and local agencies in matters of policy and administration relating to navigation. Of course,

[12] Also stating the minimum available draught for vessels and covering the execution and the financing of maintenance and improvement works.

[13] Morsey Wheeler, V., *o.c.*, 605.

this would only be possible with the consent of the basin states. Whether or not the aim should be to establish MRC as a river commission with autonomous regulatory and/or judicial powers and powers to plan, construct and operate navigation projects, should be considered further based on thorough legal advice and taking into account the experience of other river commissions and basin states.

A more modest, but minimum, approach would first of all consist of allowing MRC to take up the responsibilities theoretically assigned to its predecessors under the 1926 and 1954 Conventions. Although the 1954 Paris Convention is still binding, its provisions fell into oblivion and the commission established by it never really took up its important responsibilities with respect to navigation. One could say that for the last 50 years the riparian states' demands for a strong common navigation strategy have been in vain..

In other words, the institutional equipment of MRC in the field of navigation should be restated and reinforced.

Some of the tasks an implementation instrument could expressly assign to MRC are:

- to ensure that bilateral treaties signed by riparian states conform to the basic MRC Agreement;
- to assist negotiations on new bilateral rules pertaining to navigation;
- to propose draft multi- and bilateral agreements on public and private law aspects of navigation;
- in general, to facilitate negotiations between Member States and to actively mediate whenever difficulties arise;
- to elaborate rules on environmental issues and risks linked to the expansion of navigational activities in the lower Mekong basin;
- to assist riparian states in assessing the compatibility of existing procedures, formalities and charging systems with internationally accepted rules and standards;
- to give guidance as to the need or desirability for riparian states to accede to certain international Agreements; and
- to fulfil a supervising role as to the compliance with, and the enforcement of, harmonised rules by national governments.

A number of these activities could be developed by MRC without any additional legal instrument and may be based on the existing MRC Agreement; others could be based on provisions in specific additional agreements on navigation.

Finally, a permanent regional advisory board or working group on legal matters relating to navigation could be established (similar to the TAB on Fisheries).

- Involvement of China and Myanmar

It is generally accepted that optimum co-operation with regard to international drainage basin management is achieved only when all basin States effectively participate in the corresponding administrative institution. In practice, however, this is not always possible because, unless otherwise agreed, States are under no obligation to enter into international agreements of this kind. The International Law Association cited the Mekong Committee as an example of such an unsatisfactory situation[14]. Therefore, it should be considered how China and Myanmar could be involved in the work of MRC.

[14] Bogdanovic, S., *International Law of Water Resources*, London/The Hague/Boston, Kluwer Law International, 2001, 253.

- Removal of non-physical impediments to navigation

The removal of non-physical impediments to navigation should be initiated by MRC.

In our view, MRC should be actively striving for a situation in which navigation does not encounter any obstacle related to national borders in the Mekong basin. The maintenance of such non-physical obstructions can be considered contrary to Article 9 of the MRC Agreement. The same Article 9 states that freedom of navigation shall be accorded throughout the mainstream of the Mekong River "without regard to the territorial boundaries". **"Navigation without frontiers" should thus become the cornerstone and the motto of any ambitious navigation strategy. This would be the logical consequence of an established common regional interest in a properly navigable river and the exclusion of any preferential privilege of any one Riparian State in relation to the others, principles which underpin both international river law in general[15] and the existing MRC Agreement in particular.**

While the reservation of national sovereign rights in the provisions on navigation contained in the 1954 Paris Convention may have been justified by the then only recent acquisition of national independence by the riparian states[16], half a century later a further step in the internationalisation process of the Mekong River would be quite normal.

As explained above, MRC could work out recommendations in order to harmonise several rules and procedures, from aids to navigation to private law issues relating to the shipping trade. As explained above, the separate implementation instrument(s) especially, should contain harmonised rules for the implementation of the principle of freedom of navigation contained in Article 9 of the MRC Agreement. This would bring the Mekong regime in line with customary international river law and with the conventional regime of comparable international rivers. MRC could also integrate its activities on liberalisation of sea and river traffic with ADB's project on the facilitation of cross-border movement of people and goods by road and rail. Finally, MRC could promote accession of Member States to important multilateral legal instruments such as the London Facilitation Convention.

- Legal preparation and follow-up

The national workshops held by the consultants made clear that in some countries there is an urgent need for more legal expertise and know-how at national level.

However, the development of legal expertise within MRC would not only be useful in order to assist (some of the riparian) national administrations in drafting state-of-the-art regulations.

Also needed is a comprehensive database and a publication (if possible on the internet) of applicable national legislation relating to navigation, including tariffs of dues and taxes. This would enhance transparency, legal certainty and therefore the commercial attraction of the Mekong for foreign parties. It would also enable national legislators to enact rules that are better co-ordinated. Article 24.C already assigns to the MRC Joint Committee the function "[t]o regularly obtain, update and exchange information and data necessary to implement this Agreement", which may be held to apply to legal data and information as well. MRC could probably co-operate with ASEAN in this respect[17].

[15] Tanzi, A. and Arcari, M., *The United Nations Convention on the Law of International Watercourses*, London/The Hague/Boston, Kluwer Law International, 2001, 50.

[16] *Cf.* Nguyen Quoc Dinh, Nguyen Quoc Dinh, "L'internationalisation du Mékong", *Annuaire français de droit international*, 1962, VIII, (91), 106.

[17] According to the ASEAN Framework Agreement of transit, the Contracting Parties shall ensure transparency of its respective laws, regulations and administrative procedures which affect the facilitation of transit transport of goods under the Agreement and its Protocols (Art. 27.1). For this purpose, all Contracting Parties shall deposit with the ASEAN Secretariat, not later than six months after the Agreement has entered into force, their aforementioned laws, regulations and administrative procedures (Art. 27.2). If the aforementioned documents are not in the English language, their English translation shall also be deposited within one year after this Agreement has entered into force (Art. 27.3).

Further, it is of paramount importance for MRC to have a comprehensive legal analysis of the regime of the Mekong River carried out. Fragmented legal aspects have been covered in a number of studies conducted for MRC and in a number of scientific contributions. A full and detailed legal study should focus on the international legal status of the Mekong, describing the existing regime and its historical context and providing a proposal for a comprehensive separate instrument on basic principles of free navigation to be added to the MRC Agreement.

Further, MRC could perform very useful work in disseminating and promoting the international regime of the river (and especially navigation) throughout the whole basin. It appears that users and inhabitants are insufficiently aware of the existing legal regime and even of the 1995 MRC Agreement. The provisions of the 1954 Paris Convention even seem to have sunk into complete oblivion. MRC could develop the awareness that the prevailing non-physical impediments to navigation are not in line with the MRC Agreement customary international river law and the regime of comparable international rivers.

With the assistance of third parties, MRC could also assist national administrations in developing specialised legal know-how through training and education. This will be necessary in order to achieve enforcement of future harmonised rules on navigation.

The following activities are identified as proposed tools to address the above-mentioned needs and opportunities related to regional navigation development. For reasons of clarity the proposed activities are presented due to their strategic relation to the role of MRC.

It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

The full matrix of activities, now presented according to the priorities given at the Regional Consultation Workshop, is included in Annex 1.

ROLE 1: DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION.

- Conduct a comprehensive legal study of navigational aspects of Mekong regime de lege lata and de lege ferenda, including the Bassac issue;
- Assist negotiations on new bilateral rules pertaining to navigation;
- Develop Article 9 (1995 MRC Agreement) into a clearer foundation for detailed operational, legal and technical navigation agreements;
- Prepare draft framework agreements for maritime and inland navigation and assist negotiations between Member States: Draft frameworks for the stretch between Luang Prabang and the Khone Falls, a maritime framework between the Sea and Phnom Penh, and IWT framework between Cambodia and Viet Nam;
- Integrate MRC Navigation activities with ADB's "Facilitation of Cross-border Movement of People and Goods by Road and Rail";
- Facility negotiations between Member States and to actively mediate;
- Supervise harmonisation and enforcement of common rules;
- Co-operate with China and Myanmar (also a promotion and co-operation issue).

ROLE 2: PROVIDE TECHNICAL PRODUCTS AND SERVICES

- Develop a comprehensive legal database (including applicable national and international legislation relating to navigation, tariffs of dues and taxes etc.) and make it accessible. Co-operate with ASEAN in this respect;
- Development of IWT Code (training of lawyers to be part of the action plan);
- Initiate regional harmonisation of standards (stated separately under the trade, safety and environment objectives);

ROLE 3: STRENGTHEN INSTITUTIONS AND CAPACITY

- Develop legal expertise within MRC in order to assist Member States;
- With the assistance of partners, assist national administrations in developing specialised legal know-how through training and education;
- Training of maritime and IWT lawyers and development of international regulations for inland water transport;
- Establish permanent regional advisory board or working group on legal matters relating to navigation (similar to the TAB on Fisheries);
- Assist Member Countries in establishing efficient supervision systems.

ROLE 4: PROMOTE AND CO-ORDINATE

(Incl. Public Participation - Co-ordination with other Partners and MRC programmes)

- Indicate and develop awareness that non-physical impediments are not in line with MRC Agreement, customary law and regime of comparable international rivers;
- Support accession of MRC Member States to international agreements (for example London Facilitation Convention);
- Facilitate and encourage dialogue and co-operation with China and Myanmar on water transport;
- Promote and disseminate information (database) about the legal regime on navigation within the Mekong Basin.; and
- Ensure that water transportation is properly included in regional infrastructure planning.

3.4.2 Strategic Objective 2: TRADE, TRANSPORT AND SAFETY (NON-PHYSICAL IMPROVEMENTS)

Strategic Objectives 2 and 3 are to prepare a development perspective for the navigation sector and for the main trade and traffic flows relating to the LMB part of the Mekong River waterway system, with emphasis on improving safety, and reducing the physical and non-physical impediments for cross-border navigation. The specific objectives are:

- **Develop and improve navigation conditions to increase international trade opportunities for the Countries' mutual benefit;**
- **Provide better facilities and capacity to increase safe and efficient Mekong navigation as a separate transport mode and as part of the regional multi-modal transport network;**
- **Feasible and environmentally sound removal of relevant physical and non-physical barriers to cross-border navigation;**
- **Provide the knowledge base and services to support planning and operations; and**
- **Reduce accidents in ports, on vessels, and on waterways.**

Strategic objective 2 relates only to the non-physical improvements

NEEDS AND JUSTIFICATION

- Safety and harmonised navigation rules

Improving safety and increasing navigation efficiency go hand in hand. All measures that reduce accidents/collisions and enhance safety such as proper navigation rules and regulations ("rules of the road"), correct ship inspection, installation of buoys and beacons, night navigation facilities, appropriate charts, proper training, river policing, dredging works to clear the "hot spots" etc. will have direct positive consequences for the efficiency of water transportation, which will rapidly increase once all of these measures have been put in place.

A step further is then to have this on a regional level, meaning, all these measures could be done based on common, preferably international standards[18], the same for all Mekong countries. It does not make sense to have different national systems on a river which is shared by two countries (e.g. the Mekong between the Lao PDR and Thailand along many stretches). To maintain different systems does not only refrain cross-border traffic, but also endangers the lives of the waterway users.

National inland waterway organisations alone cannot meet the growing need for safety in the navigation sector. MRC can play an important role in fulfilling the services and, if authorised through legislation, Act for the NAP to specify, standardise and regionally manage navigation safety services and safety tools. Port agencies or administrations advocate funding of the installation and ongoing operation of facilities to help to prevent vessels grounding, collisions and to improve safety standards.

[18] A recommended system for Aids to Navigation Systems was recently proposed by ESCAP/MRC for two sections: (i) between China, Lao PDR, Myanmar and Thailand and (ii) between Cambodia and Viet Nam. However, because the system was not comprehensive it only represented some buoys and beacons where Viet Nam has many more. This would cause problems when Cambodian waterway users were confronted with completely unfamiliar marks and buoys when entering Viet Nam. Discussions will be held between Cambodia and Viet Nam chaired by MRC to find the best and fullest common system. The new recommendations for the common system should be comprehensive, exactly the same for both Cambodia and Viet Nam, and should limit the costs for both countries. Viet Nam already has a system based on international standards IALA/SIGNI which can serve as the basis.

MRC is the right inter-governmental consultative organisation to develop standardised inland navigation rules for the Mekong. At present the existing rules of all four countries in the LMB could become confusing; therefore there is a common understanding for their revision, simplification and unification. Inland navigation rules shall be part of the strategy to improve navigation safety in the LMB. They will be integrated with the standardisation of navigation aids recently prepared by ESCAP-MRC. Navigation rules should be enacted by all LMB countries and made effective for the Mekong.

MRC as an inter-Governmental organisation can be the base for an Inland Navigation Safety Advisory Council (INSAC).

- Establish a regional statistical data management centre

Lack of data with respect to trade and traffic production and attraction, intra- and inter-regional trade and traffic flows and modal split is an area of concern. Any physical improvements on the Mekong River (whether it is deepening or other physical improvements) will require an appraisal of the costs and benefits. Without vital time-series of trade, port and transport statistics, O/D Structures and modal split, master planning and cost-benefit analyses of proposed infrastructure developments is, to say the least, an ineffective exercise. Although MRC does not have a comprehensive overview of all studies and projects carried out by agencies such as World Bank, ADB, ESCAP, ASEAN etc., the impression nevertheless emerges that transport sector data is fragmented and far from complete.

Promoting transport on the Mekong River will require detailed knowledge of existing trade and traffic patterns, and having insight into the potential of diverting trade for example from road to IWT (identification of favourable projects).

Data collection and dissemination is an area of general interest and data should be published on a regular basis through MRC. It is nevertheless important to stress that the responsibility will remain with the national organisations given authority, to gather and disseminate the different kinds of information. The tasks of MRC would focus on:

- Harmonising guidelines for data collection, type of data, storage, use and dissemination;
- Ensuring timely acquisition of data, consistency, processing and quality;
- Processing data and publishing documentation on a regional basis in addition to using the information in the database to point out opportunities for the benefit of the member countries; and
- Further developing hydrographic stations (in co-operation with the Flood Management and Mitigation Programme) and increasing awareness of this tool as an aid to navigation.

Much of the information is collected at present but awareness could have been better and the countries should be inspired to utilise the data better for navigation purposes.

- Cross-border navigation

It is generally felt by the line agencies concerned that the LAD (Least Available Depth) on the various stretches of the Mekong River seriously hampers further development of waterborne transport. Naturally this issue also affects port design/development and the inland waterway fleets. The question of optimum LAD (and consequently ship size) is basically a trade-off between the benefits of economies of scale of ship size and density of trade versus capital and maintenance dredging costs.

The issue of ship size (without explicitly mentioning the draft however) is actively present in the discussion between Cambodia and Viet Nam with respect to the navigability of the Bassac (between the sea and Vam Nao Pass) and/or Mekong River for seagoing vessels up to Phnom Penh port . The optimum (=least cost) strategy for Viet Nam and Cambodia individually might differ, but the overall strategy for the two countries combined, could be a more fruitful exercise.

The future planning (in terms of ship sizes and minimum water depth) of the upper Mekong river between Simao port in P.R. China and Luang Prabang in Laos is explicitly dealt with in the Commercial Navigation on Lancang-Mekong River Agreement. To which extent the agreed minimum water depth for at least 95% of the time will influence the Laotian (Ban Sai, Xiengkok, Muongmom, Ban Khouane, Houaysai, Luang Prabang) and Thai (Chiang Saen and Chiang Khong) ports is not yet known, but given the current ship sizes employed, it may well influence port structures, designs and other infrastructure facilities.

Lack of funds to carry out capital and maintenance dredging works, or to install aids to navigation is also a pressing issue but this could be taken up with the Development banks, once the Intermodal Transport Modelling is completed and the results known.

- Regional inter-modal transport model

It was found that, in order to assess where exactly the regional river transportation is to be improved and to what level, and thus to feed into the feasibility assessment, a strategic intermodal transport model should be developed. The model will cover domestic and international trade. The data from the Regional Statistical Data Management Centre will be used for this purpose. The objective of the modelling will be to describe the impact of transport investments and policies on the regional transport sector (e.g. changes in modal choice, route assignment etc.). The requirement for a strategic transport model from a LMB of even GMS perspective could be summarised as follows:

Criteria for passenger model	Criteria for freight model
Multi-modal	Multi-modal
All modes	All modes
Covering the TAN and major national links	Covering the TAN and major national links
Using zonal data	Using zonal data
From trip generation to route assignment	Assignment on corridor-level

The model should be able to represent more than one modal alternative at the same time and should allow for competition of different modes on the same transport network, making it possible to simulate trips using different transport networks which are properly connected (e.g. road+IWT+road or road+IWT+rail). For passenger transport car, train, IWT and air (tourists) should be modelled. For freight the relevant modes are truck, rail, IWT, short sea (and deep sea) shipping.

The network coverage should include not only the four LMB countries, but also Myanmar and China (Yunnan Province).

For research, modelling and planning purposes within the LMB an appropriate zoning system and uniform data format should be established.

A strategic transport model should include all traditional modelling stages of generation, distribution, modal split and assignment in order to model different type of impacts ranging from for example the introduction of night navigation; deepening certain stretches of the Mekong River (e.g. the Bassac, or the stretch between China and Vientiane, or even Savannakhet); upgrading the rail connection between Bangkok and HCMC; upgrading the TAN Routed A-2 between Bangkok –Vientiane-Viet Nam, to long term effects of changes in the economic gravity of provinces/regions.).

As observed earlier, the lack of proper, detailed transport data makes any exercise somewhat ambiguous.

Discussions with the ADB have been held on this topic. It will be decided later who will be in charge of this exercise, or if it can be a joint MRC/ADB activity.

- Port development and port management

Port development is often carried out on a rather ad-hoc basis without proper overall planning and co-ordination. As a consequence, the layouts, capacity and locations of ports do not always appear rational. This is partly caused by the fact that the responsibilities of the organisations involved (port authorities, provincial governments etc.) with respect to port planning are not clearly defined. It also has the substantial risk of over-investment. Also, as already outlined above, the absence of key planning data prevents proper planning of the demand for port services.

The general perception of stakeholders in various countries is that port management is not efficient. This is not only caused by the shortage of skilled and educated personnel but equally by bureaucratic procedures and absence of clear lines of responsibility and accountability.

- Infrastructure works on a demonstration basis

MRC could carry out demonstration (pilot) projects of both a physical and an administrative character. Building and operation of aids to navigation or multi-function survey boats (hydrographic surveys, placing and maintenance of buoys, training etc) could be an example of such a project. There is a general agreement among the countries to formulate a plan for completing implementation of aids to navigation in the LMB. MRC can identify and raise funding for initiating this activity by establishing pilot projects to further improve navigation safety and to assist in promoting investment in the IWT Sector, including tourism.

- Capacity building

Based on the general roles for MRC, the navigation programme for the LMB should look at capacity building, institutional strengthening and initiate or assist the countries in fund-raising for the most relevant navigation projects. In the short-term, this should be given the highest priority; in the longer term, physical improvement projects could be more relevant.

The MRC and the navigation programme could play vital roles in transferring harmonised ideas, technology or systems among the member countries.

As the situation varies a lot among the member countries, both with regard to situation, priorities and ambition levels and concerns; MRC could also work with single countries and bilaterally. Using systems or technology from more advanced member countries could serve as an example and inspiration for the least developed ones.

- Co-ordination between the agencies and between the MRC programmes

Although the World Bank, ADB, ESCAP, ASEAN and possibly other funding agencies have carried out various transport sector studies in the past, there seems a lack of overall co-ordination and focus. Promotion of waterborne transport should be embedded in the regional and national policy framework of the whole transport sector. MRC must hold a high international profile, hence the secretariat must be able to establish and maintain links to important organisations (ADB, WB, UN-organisations etc). MRC already has the council meeting as a tool for these kinds of activities. This must be used in order to utilise the potential of co-ordinating projects and to raise the profile of waterborne transport in infrastructure development. Several programmes and projects are identified where the IWT role should be highlighted and integrated. It will be the role of MRC and the navigation programme to raise these issues among the relevant international donors and actors.

The improvement of conditions for promotion of navigation must be co-ordinated and integrated with other areas and programmes (in particular with the EP, WUP and BDP). Internal competition between programmes and activities could generate conflicts of interest and hamper the sound development of the river among the stakeholders affected.

- Promotion

Promotion of water transportation must be used to co-ordinate and make donor countries and international banks aware of the role IWT can play in the development of the member countries or a region and the major role it plays in some areas and sub-regions. MRC could also document the importance of IWT in special types of areas or situations. Hence MRC must identify new options, train the relevant people and organisations to implement and follow up on problems, challenges and potential.

The following activities are identified as proposed tools to address the above-mentioned needs and opportunities related to regional navigation development. For reasons of clarity the proposed activities are presented due to their strategic relation to the role of MRC.

It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

The full matrix of activities, now presented according to the priorities given at the Regional Consultation Workshop, is included in Annex 1.

ROLE 1: DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION.

- Encourage MRC member countries to harmonise standards such as: Skipper and Crew Certificates, Safety Standards for Cargo and Passenger Traffic, water transport documentation, customs procedures, etc.;
- Improve and finalise the harmonisation of the Aids to Navigation System along the mainstream and tributaries used for international transportation;
- Formulate standard rules and regulation for international navigation in the LMB; and
- Assist riparian states in assessing the compatibility of existing procedures, formalities and charging systems with regionally/internationally accepted rules and standards.

ROLE 2: PROVIDE TECHNICAL PRODUCTS AND SERVICES.

- Regional harmonisation of systems for data collection, use and dissemination;
- Develop a regional transport planning model, covering domestic and international trade to identify the optimal use of water transportation within the multi-modal transport system (e.g. BDP); and
- Establish a Regional Data Management Centre and River Information System. (A RIS is to provide the knowledge base to support planning and policy formulation, and to provide daily services on a regional level for safe and efficient passage by inland and sea-going vessels on the Mekong River System. The RIS includes a fairway information service, regional transport initiatives, calamity abatement support – location of obstacles to navigation, low water level monitoring and forecasting,

weather information and “notices to skippers”, movement of dangerous goods cargo and an environment management system).

ROLE 3: STRENGTHEN INSTITUTIONS AND CAPACITY

- Establish an appropriate organisational structure (working group/task force/co-ordinating mechanism) within the MRC and between the MRC Secretariat, the National Mekong Committees and the related Line Agencies;
- Prepare an objective and detailed analysis of existing organisations dealing with navigation. Recommend optimal and harmonised organogram of organisations including MRCS, National Mekong Committees and Line Agencies;
- Establish a standardised basis for navigation training among the four MRC Member States;
- Training of maritime and IWT lawyers and introduction of international regulations for inland water transport. (Consider re-establishing the navigation training centre that once existed in Vientiane in the 1970s);
- Co-ordinate with national and regional initiatives for the establishment of a regional navigation centre; and
- Facilitate training of skippers, technicians, ship designers etc.

ROLE 4: PROMOTE AND CO-ORDINATE

(Incl. Public Participation - Co-ordination with other Partners and MRC programmes)

- Accumulate and publish information and results related to navigation. (Internet - publications - MRC State of the Basin Report);
- Develop guidelines and procedures for data dissemination (from the Regional Data Management Centre and RI);
- Create mechanisms for operators (e.g. vessel operators, shippers) to address problems, comments, suggestions and issues directly to the MRC; and
- Define and develop tools to ensure and maintain strategic relationship with MRC key programmes such as Water Utilisation Programme, Basin Development Planning and the Environment Programme, and with other MRC Programmes (e.g. tourism) and other initiatives by other agencies.

3.4.3 Strategic Objective 3: TRADE, TRANSPORT AND SAFETY (PHYSICAL IMPROVEMENTS)

Strategic Objectives 2 and 3 are to prepare a development perspective for the navigation sector and for the main trade and traffic flows relating to the LMB part of the Mekong River waterway system, with emphasis on improving safety, and reducing the physical and non-physical impediments for cross-border navigation. The specific objectives are:

- **Develop and improve navigation conditions to increase international trade opportunities for the Countries' mutual benefit;**
- **Provide better facilities and capacity to increase safe and efficient Mekong navigation as a separate transport mode and as part of the regional multi-modal transport network;**
- **Feasible and environmentally sound removal of relevant physical and non-physical barriers to cross-border navigation;**
- **Provide the knowledge base and services to support planning and operations; and**
- **Reduce accidents in ports, on vessels, and on waterways.**

Strategic objective 3 relates only to the physical improvements.

NEEDS AND JUSTIFICATION

Reference is made to the needs and justification described in Strategic Objective 2, Trade, Transport and Safety – (Non-physical improvements).

The following activities are identified as proposed tools to address the above-mentioned needs and opportunities related to regional navigation development. For reasons of clarity the proposed activities are presented due to their strategic relation to the role of MRC.

It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

The full matrix of activities, now presented according to the priorities given at the Regional Consultation Workshop, is included in Annex 1.

ROLE 1: DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION.

- Improvement and optimisation of the inland waterway and River-sea fleet in LMB;
- Demonstration (pilot) project for gradual introduction of night navigation (for the time being, this will be limited to the stretch of the mainstream from the Mekong Delta up to Phnom-Penh);
- Demonstration (pilot) project: installation aids to navigation along selected basin-wide stretches:
  a) on the UPPER MEKONG (only for inland water transportation) in the Lao PDR and Thailand between Luang Prabang and Vientiane; and

b) In the MEKONG DELTA (for maritime and inland water transportation): Mekong River from Phnom Penh (Cambodia) to the Vam Nao Pass (Viet Nam), (as per adjusted ESCAP/MRC standardization of navigation aids).

ROLE 2: PROVIDE TECHNICAL PRODUCTS AND SERVICES.

- Advise on waterways improvement works (dredging, river training works, access channels etc) and maintenance in relation to fleet and transport cost;
- Digitize the Hydrographic Atlas of the Mekong River;
- Develop contingency plans to deal with emergencies and accidents in the waterway and river ports;
- Prepare guidelines and standards for river-port design;
- Prepare harmonised guidelines and standards for improvement of safety of the existing fleet and next generation fleet;
- Develop a knowledge base on river training works issues, including river morphology and riverbank stability, and propose protection measures; and
- Prepare basic electronic charts under the River Information System.

ROLE 3: STRENGTHEN INSTITUTIONS AND CAPACITY

- Awareness-building/ training vis-à-vis safety, environmental protection in national line agencies.

ROLE 4: PROMOTE AND CO-ORDINATE

(Incl. Public Participation - Co-ordination with other Partners and MRC programmes)

- Ensure that National Mekong Committees, Line Agencies and transport sector stakeholders give priority to inland navigation and water transport development;
- Strengthen the line agencies and private sector to focus on and give attention to safe navigation;
- Carrying out timely update of the Navigation Programme in the light of transport sector developments and other MRC programmes and priorities; and
- Determine the appropriate quality and frequency of data publishing (from the Regional Data Management Centre and River Information System).

3.4.4 Strategic Objective 4: ENVIRONMENTAL

MRC should ensure that the ecological health of the river is not compromised by navigational developments. MRC holds an important advantage, as an inter-governmental organisation, to bridge the gap between member countries on environmental issues. Therefore, MRC involvement in this objective can be grouped into the following categories:

- **To balance the environmental consequences of projects against their economic and social significance;**
- **To ensure that the ecological health of the river, which is the basis for food security and livelihoods, is not compromised by navigation developments;**
- **To promote sustainable, sound and equitable use of all water and water-related resources in the LMB;**
- **To promote the concept of "clean" river transportation, focusing on strategic prevention of environmental damage from waterway infrastructures/works or from shipping or port accidents, rather than remedying or combating the impacts; and**
- **To study the Mekong River bank erosion caused by morphological changes and increased navigation.**

NEEDS AND JUSTIFICATION

When recommending intervention under the navigation programme, it is important to keep in mind other programmes and activities MRC runs, such as the environmental programme (EP),. Some of the recommendations must be incorporated in other activities, or be initiatives that could be taken over later by other more suitable areas within MRC.

The involvement by MRC in addressing ecology-related matters in Mekong navigation should be seen in the following light: water transportation on the Mekong will be developed even if MRC did not have a navigation programme. However, doing nothing is the worst scenario MRC can occupy: the environment will be much worse off without such a programme, as there are currently no environmental protection measures or funding to ensure 'clean river navigation' and correct handling of dangerous goods. There are no provisions for pollution prevention, nor are there contingency plans in case an accident occurs. Letting the physical development momentum continue instead of focusing on regulations, monitoring and enforcing appropriate and regional anti-pollution rules, is not sustainable at all, and therefore against the provisions in the 1995 Agreement.

Moreover, it is acknowledged that the current navigation agreements hardly mention protection of ecology and have no provisions to deal with water transportation accidents, carriage of fuels or hazardous goods, adequate inspection of boats and ships, collection of waste, nor do they follow acceptable EIA's for river training works. Balanced development of navigation is only possible when carefully formulated legal and operational frameworks are in place to guarantee a sound foundation. This framework will enable the water transport sector to grow in a healthy way allowing an equitable use of all water and water-related resources in the Mekong Basin (WUP). There are enough international standards available to propose such a framework and Mekong River Commission should be allowed and encouraged to take the initiative in this matter.

This strategy is focused on non-physical measures and improvements. In this case physical measures are included; it is because these activities will enhance safety and reduce risks of accidents[19]. Most of the proposals for improving regional navigation, such as legal improvements, capacity building activities, better information systems, improved safety measures, increasing awareness to ensure proper integration of the navigation sector in the regional infrastructure system, aim at arriving at a transport system that will have the least possible negative social and environmental impact..

- Some rules of thumb which will be applied in the navigation programme:

- Whenever possible, adapt vessels and operations to the waterway rather than the waterway to vessels and operations;
- Among alternatives, the one with the least net impact is generally the most sustainable;
- Aids to navigation (buoys, beacons, channel markers, communication systems, real-time data etc.) are often the most cost-effective and environmentally sustainable navigation improvements;
- Utilise, as much as possible, existing infrastructure and design the waterway transport system to be integral with other land-based transport modes;
- Maintain floodplains to serve a variety of ecological functions;
- Limit the armouring of the river beds and banks to high-energy locations – use bioengineering techniques to stabilise other areas as much as possible; and
- Seek to minimise maintenance requirements; low maintenance projects are generally more sustainable.

- Strategic environmental assessment for the Lower Mekong Basin

In order to achieve a basin wide trans-boundary approach to the formulation of the Navigation Strategy that is sustainable, gender-responsive, and environmentally and socially sound, it is necessary to apply much of the same type of considerations that are used in Integrated Water Resources Management for river basins. This implies that all relevant users of the river basin are taken into account in the planning of the use of the water resource. This translates into a strategic environmental assessment (SEA)[20] of the Lower Mekong Basin. The Mekong River Commission's Report "Development of an EIA/SEA System for the Lower Mekong Basin", Final Report, April 2002, gives valuable guidelines in this respect which could be followed under the implementation of the Navigation Programme.

- Mitigating the environmental impacts of Mekong navigation

In order to ensure that environmental impacts and risks from waterborne transport on the Mekong are assessed and managed in the best possible way, it is necessary to establish an adequate system for Environmental Impact Analysis and for the development and implementation of relevant mitigation and monitoring measures. This system should be unified across borders so that consistent measures are taken which give the required level of protection to the Mekong River environment.

[19] E.g. installation of buoys and beacons to mark the deepest parts in the river is far more efficient, cheaper and more environmentally friendly than to change and deepen the river bed to accommodate the vessels).

[20] As defined in the report, Strategic Environmental Assessment (SEA) is a tool that enables the environmental effects of policies, plans, or programmes to be examined and taken into consideration during decision-making. SEA is one of a family of Environmental Assessment (EA) tools used to examine, evaluate and document potential environmental and socio-economic effects of proposed developments. SEA supports the management of environmental resources at regional and sectoral levels regardless of political boundaries. This is particularly important in river basins where developments in one part of the basin can accumulate and result in impact being felt in other, more distant parts.

Such a system has been proposed in the MRC EIA/SIA System for the Lower Mekong Basin. The proposed system also gives a detailed listing of conceivable environmental and social impacts from navigation development projects and ports and harbour development projects, along with examples of possible mitigation measures.

In certain stretches of the Mekong River the bank structure is sensible to erosion and changes in the water levels, flow and uses of the waterway and the hinterland. Increased navigation and increased pressure on the hinterland could contribute to damaging erosion of such river bends. MRC has earlier been involved in river bank projection projects in Cambodia and Lao PDR and therefore possess experience and knowledge on how to prevent and overcome these problems. During the strategy formulation process particularly Lao PDR raised concern over this issue as the Mekong is an important borderline. MRC will therefore take this issue into due consideration when carrying out strategic navigation improvement and also draw attention to the impacts on the river banks when navigation increases.

- Introducing rules on carriage of dangerous and noxious goods - harmonisation

International conventions and agreements calling for the construction of ships and inland tank barges carrying liquid cargoes should be built with a double hull, are gaining credence and thus are implemented on a worldwide basis. If such provisions were recognised and implemented in the Mekong Navigation Line Agencies, this would considerably increase the safety of waterborne transportation of oil and hazardous liquid cargoes[21]. 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.

One of the International Maritime Organisation's (IMO) main functions since its establishment in 1959 has been to ensure that safety is not impaired by changes that have been introduced for commercial reasons. IMO has since then introduced safety regulations for dry cargo and other regulations for the carriage of dangerous goods, gases and liquids such as petroleum and chemicals. IMO has prepared this well for maritime traffic but, unfortunately, such international rules for inland rivers do not exist. However the European transportation administrations have issued harmonised rules such as the ADNR (Carriage of Dangerous Goods on the Rhine) which specifies the technical and operational safety requirements for the license and operation of inland navigation vessels which carry dangerous goods[22]. It would not be very complicated to adjust these rules to the situation on the Mekong.

- Policy on environmental assessment in Trans-boundary context

A policy statement on EIA's in a trans-boundary context is also given in the Mekong River Commission's Report "Development of an EIA/SEA System for the Lower Mekong Basin", Final Report, April 2002. This is based on the intention of the Mekong Agreement of 1995 set in a trans-boundary context as regards developments that may require this approach, such as navigation improvements and port and harbour developments etc.

The Policy recommendations propose the MRC member countries commit to holding formal discussions on the following elements of a trans-boundary EIA process, at which the MRC proposals could be agreed:

[21] Design features such as double-hulls, bolted flanges, automatic shutdowns, and various spill containment devices can help reduce the likelihood of a spill.

[22] The dangerous goods are classified as follows:
- explosive substances and articles;
- gases;
- flammable liquids and solids;
- toxic and infectious substances'; and
- radioactive and corrosive substances.

- A set of criteria, indicators or project types that will help determine when developments are likely to have trans-boundary impact and which would therefore require application of the MRC's trans-boundary EIA sub-system;
- A detailed trans-boundary EIA process[23];
- A set of common MRC standards, criteria or indicators to determine whether an impact identified in the EIA study is significant and requires mitigation; and
- A process for resolving disputes related to the conduct of the trans-boundary EIA study and/or related to the incidence (or likely incidence) of trans-boundary impact.

The implementation of the above items would form a major step forward in the promotion of sustainable basinwide Navigation development.

- Public participation

Navigation projects have the potential to have a significant impact on the local population. Whilst the aim is to improve the well-being of the population, a lack of understanding of the people and their society may result in developments that have considerable negative impact or are unsustainable in the long-term. This is often due to inadequate feelings of ownership of the project by the local population. More significantly, there may be a divergence between national or regional interests and the interests or needs of the local populations.

It is therefore essential that public participation is included in the planning process. Guidelines for the environmental assessment of Navigation projects are developed in the document "Development of an EIA/SEA System for the Lower Mekong Basin", Final Report, April 2002 and associated documents. The main guidelines are quoted here. For full background details reference is made to that MRC report.

The Environmental Assessment provides an ideal forum for checking that the section of the public which is affected has been adequately consulted and their views taken into account in project preparation. As the Environmental Assessment progresses, public consultation is likely to decrease, although it is important to disseminate information (for example, through public meetings, radio broadcasts and newspapers). The type of consultation will vary depending on the proposed development. The public participation/consultation and information dissemination activities need to be planned, budgeted and recorded in the Environmental Assessment.

It may be the case that people are not consulted directly, but instead through representative groups. In such cases it is essential that the Environmental Assessment team have a good understanding of the local communication methods, including government extension services, and to be aware of any groups that may be under- or over-represented.

- Maintaining the dialogue with environmental movements.

It is observed that there is a tendency on the part of environmentalists (and also of the public authorities) to judge the environmental consequences of inland waterway projects more severely than those of projects for other modes (e.g. roads, airports and rail).

The criteria used in judging waterway projects should be the same as those used for the other transport modes. In November 2002 open dialogues [24](question-and-answer sessions) were also held at the MRC Secretariat with Civil Society Organisations. It was also recognised, by

[23] , including timing, activities, responsibilities and standardised documentation on notification, responding to a notice, setting the scope of the trans-boundary EIA study, developing and agreeing a ToR for the study, contracting, managing and financing the study, involving the public in the study and its review, completing the study and reporting its findings in an Environmental Impact Statement (EIS).

[24] On the issue of the navigation channel improvement works that are on-going between Simao and Luang Prabang under the Quadripartite Navigation Agreement (China, Lao PDR, Myanmar and Thailand).

the environmental groups and the MRC that certain aspects need better scientific investigations rather than speculations.

It is further argued, that the concerns of environmentalists should be better incorporated in 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. [25]

- Adapt the ships to the waterway rather than the waterway to the ships

There seem to be strong environmental arguments for not focussing on navigation on a larger scale, or making the river navigable if this implies major physical changes. A key approach will be to adjust trade and ships to the river and not the other way around. The river is, however, big enough to absorb increased traffic and still be an environment for fish and biodiversity, as long as the ambition level considers these aspects.

In the face of expanding economies and increased demand for transport facilities throughout the world, water transportation is often shown to be the preferred alternative from not only an economic standpoint, but also in terms of environmental conservation. However, this alternative is often contested in the name of environmentalism. This argument is fuelled by past errors, whereby drastic river development schemes had damaging consequences for the ecology simply because insufficient precautions were taken. Moreover, in many cases, the main aim of the scheme was not river navigation, but one or another of the numerous uses that have been made of rivers since time immemorial. Current development methods include the necessary measures for reconciling the requirements of different uses. The overriding aim has become planning for the future with a strict regard for sustainable development. It is important that new projects or navigation operations consider the main natural functions of river systems; in other words that they ensure maintenance of the key ecological functions, including:

- Morphological process (erosion-transport and sedimentation);
- Maintenance of hydrological balance (e.g. flood pulse);
- Maintenance of sediment balance;
- Provision of habitat (ecological continuum); and
- Maintenance of biological and chemical processes (nutrient cycles)

The commission does not speak on behalf of the river, but of its member countries and the driving force in this case is increased but sustainable navigation. Therefore the future Navigation Programme should avoid a situation that could create conflict with the member countries and their development priorities for infrastructure, transport or environment in general. It is important that the navigation strategy develops into a program and an action plan that properly balances the advantages to be gained from increased regional navigation with policy priorities expressed by the member states.

- Capacity building

Environmental issues are not sufficiently covered in the training of staff in ports, ships or among the relevant authorities, especially with respect to prevention of spill and mitigation actions. MRC holds a unique role; to identify relevant training and training institutes and to assist in developing the curriculum, including assisting in providing funds for establishment of such training and training facilities.

[25] A very good example of how the waterway improvement can be made compatible with ecological concerns is the southern part of the Main-Danube Canal in Europe. The LMB waterway can also be maintained very satisfactorily with integration into the natural habitat. Examples like this should be made better known to the public and should be discussed with stakeholders in the environmental movement. It is necessary to outline the positive environmental and mobility impact given the growing concern about waterway development.

The following activities are identified as proposed tools to address the above-mentioned needs and opportunities related to regional navigation development. For reasons of clarity the proposed activities are presented due to their strategic relation to the role of MRC.

It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

The full matrix of activities, now presented according to the priorities given at the Regional Consultation Workshop, is included in Annex 1.

ROLE 1: DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION.

- Contribute to implementation of standardised EIA regulations. (trans-boundary issues to be included, needs to be institutional strengthening to ensure compatibility);
- Support inclusion of important environmental issues in international navigation agreements, particularly with regard to river training works, carriage of dangerous cargo and petroleum products, cross-border pollution, ship construction and ship sewage specifications and requirements - following best practice and international regulations; and
- Regional harmonisation of standards such as: Ship Registration and Inspection, Carriage of Petroleum Products and Dangerous Goods etc. (see also strategic objective 2).

ROLE 2: PROVIDE TECHNICAL PRODUCTS AND SERVICES.

- Assess and monitor, together with other relevant and directly related partners, environmental impacts from increased navigation;
- Collect, examine and distribute environmental data relevant for navigation and the potential impact from increased IWT (Including river training works);
- Contribute to improved EIA procedures for navigation-related developments among the member countries;
- Establish monitoring procedures for implementation; and
- Develop contingency plans to deal with emergencies and accidents in the waterway and river ports.

ROLE 3: STRENGTHEN INSTITUTIONS AND CAPACITY

- Promote regular training provision and assist in the needed development of environmental standards to those groups charged with navigation developments and to the navigation sector;
- Support and encourage the least developed countries in implementing the most important and relevant regulations, systems, guidelines, and training etc.;
- Contribute to including relevant environmental issues in navigation training (training of staff in ports, ships or among the relevant authorities (including customs, immigration and quarantine)), especially with respect to prevention of spill and mitigation/contingency actions; and

- Facilitate development of a regional information and monitoring system regarding illegal trade particularly of wildlife and natural resources through IWT.

ROLE 4: PROMOTE AND CO-ORDINATE

(Incl. Public Participation - Co-ordination with other Partners and MRC programmes)

- Create increased awareness of environmental issues associated with navigation, both negative and positive amongst decision makers, and stakeholders;
- Assist the development of environmental standards related to waterborne transportation as complimentary to the MRC Environment Programme, and prepare co-ordinated actions;
- Promote the establishment of co-ordinated and harmonised regulations, training etc. within the area;
- Make reports, studies, and impact assessments available for the public and defined target groups on national and regional level, and make presentation of the conclusions; and
- Set up an integrated framework with the Water Utilisation and Environment Programmes of MRC, on how to prevent solve and deal with trans-boundary pollution from ships.

3.4.5 Strategic Objective 5: SOCIAL

The report prepared for the assessment of trends in the transport sector in the LMB with special emphasis on waterborne transport, states that for many small communities, the Mekong River and its tributaries have traditionally provided, and continue to provide, a lifeline connecting them with the outside world. If their main means of support is agriculture or fishing, their vital access to produce markets located in district or provincial towns will invariably be provided by small boats. Similarly, their families will be transported to schools, hospitals, district or provincial social services, and indeed to other neighbouring communities, in boats. The transport function of the waterways will be all the more important to poor communities, which would otherwise have no year-round connection by any other means of transport. In combination with the River's other life-enhancing attributes (such as its fishery resources and its potable and irrigation water resources), water transport can also be claimed to alleviate poverty in such communities.

- **To improve access to markets, schools and hospitals through water transportation in remote areas;**
- **Improve water transportation during floods;**
- **Increase river-based employment;**
- **Reduce negative social effects of cross-border navigation; and**
- **Facilitate coordination on navigation development between the countries.**

NEEDS AND JUSTIFICATION

As mentioned in the SWOT analysis softer aspects of navigation have traditionally not been taken very much into account when planning physical as well as non-physical navigation improvement. During the regional consultation workshop, a presentation was given to the participants showing how the River Loire in France had been affected by negative side-effects from structural improvements. Today, river works are carried out on the basis of much better information and technological equipment, which means that negative impacts can be kept to a minimum. While keeping in mind that public concerns have to be taken seriously by the transport sector, it should not be overlooked that navigation is a relatively friendly transport mode with regard to environmental as well as social impacts,. The limited attention given to positive social aspects of navigation during the national workshops and the regional consultation workshops reflects this dominating perception. It is also characteristic that concerns arise on issues like impact on fisheries, consequences of more and heavier traffic on the river system and the impacts of dredging.

There is, however, a need for a systematic approach and we believe MRC could play a vital role here. Social aspects should be included in any major navigation study or development plan, and a proper baseline for this should be made within the countries. In order to be in line with the comprehensive regional development planning that is taking place within the MRC Basin Development Plan (BDP), the Navigation Programme Unit have chosen to draw much stronger attention to social issues than is normally the case when discussing infrastructure development. The underlying argument is that a comprehensive approach is most likely to bring about important spill-over effects on other sectors and on all levels of society. It is implicit that MRC would give this area high priority and co-operate with the national committees and others to increase awareness, and highlight and implement relevant aspects. Among the measures that would be relevant for a regional body such as MRC to engage in:

- Ensure adequate information is disseminated by the national authorities and project owners in order to explain the expected impacts from projects and general developments (positive and negative);
- Prepare a checklist or guidelines for how to make sure potential negative impact is avoided and potential positive elements materialised for all target groups and ensure dissemination to relevant organisations;

- If such a systematic approach already exists in one or several member countries, consider using this as a starting point for the intervention fields above; and
- Start by identifying areas to be included and what kind of roles the different organisations should play: MRC, National Mekong Committees, national authorities and international organisations.

Another social issue that it would be natural for MRC to be involved in, is the encouragement of the member countries to develop contingency plans for flooding situations and on where and how to utilise the fleets and waterways. MRC could establish a baseline for such plans, co-ordinate them and make sure they are realistic, and to the extent possible, co-ordinated among the countries. During flooding periods people drown due to overloaded boats, lack of areas to escape to, surprisingly high increases in water levels, and lack of aids to navigation and rescue services. It would be relevant for the above-mentioned contingency plans to address such issues.

As regional navigation development is a cross-border activity and increased navigation from one country to another could have social impacts in both countries such activities should be coordinated better. The social impact assessment (SIA) carried out before an improvement activity is initiated should also include a comparative aspect. When assessing the impacts of the implemented improvements it would be interesting and useful to know how different countries are affected or gain from increased navigation. From a social point of view this could include an assessment of the livelihoods of people living along river stretches where navigation has increased, the effects on local market structures, availability of natural resources and whether the increased use of the river have consequences for the local use of the river for fisheries, transport, drinking water etc.

Social impacts of navigation are not obvious to vital stakeholders thus, it seems useful to establish a database where reliable data is collected and available. This would make identified target groups aware of positive as well as negative impacts under different situations. Such information could be utilised by the national Mekong committees and countries to identify opportunities not realised before. By creating a general database of social aspects and by providing management tools for implementation of social aspects in projects, MRC could be a major focal point for development of poverty-targeted navigation activities and river based development in general.

- Human resettlements

As is the case in all other improvement projects pertaining to infrastructure, local inhabitants may have to be resettled either on a temporary basis or permanently. The underlying reasons can vary, but regardless of arguments, a resettlement must follow a set of minimum requirements. An alternative settlement programme should always include proper compensation for loss of jobs and/or property and any possible gender-related impacts.

No matter how sensitive the resettlement, it will always be a challenge for people to move to another area, as it often has larger social implications than just the physical move itself. Women as well as men will meet new challenges and new possibilities; both sexes could be forced into new jobs that would provide them with problems, or in a best case scenario with new opportunities. In poor societies the risk of social deroute is much larger than in developed countries operating with comprehensive social security systems. MRC has responsibility to ensure that the improvement activities that are taking place within its assistance should not be initiated before a proper social impact assessment has been made.

- MRC should make sure these aspects are included in all physical projects where resettlement cannot be avoided;
- MRC should prepare guidelines and checklists and ensure their implementation; and
- MRC could contribute to the development of management tools and make sure they are implemented in the projects.

- ***Awareness of and information on social impacts***

There seems to be an outspoken need for creating awareness of the positive socio-economic impacts arising from increased waterborne transport and such a task would be in line with one of the core roles of MRC. The vast majority of the navigation activities proposed under this strategy will have a positive impact on the population due to increased trade and investments that would have positive socio-economic consequences. The economic prospects will allow more people to earn a better income and improve their livelihoods. Trade and tourism are activities from which even low skilled people could benefit from without much improvement of their current skill levels. However, to realise the full potentials of trade and tourism, larger parallel investments in safety measures, capacities, service and related capacities will be needed.

Most social impact will be of a positive nature, hence the guidelines should also focus on how to create a suitable awareness of social development potential and how to make sure that the real impact will be materialised according to plans and ambitions. Vital elements in such guidelines could be:

- provisions for active participation of local societies in their own development planning;
- employment potentials;
- possibilities for improving job quality and safety;
- opportunities for improving the quality of services;
- full assessment of expected spill-over effects; and
- opportunities for training.

Guidelines within these areas will differ from country to country, thus a close collaboration between the MRCS and the relevant national authorities are a prerequisite for success. An overall methodological reference document formulated by MRCS or by the 4 member states could be of great use.

Information to be disseminated to national policymakers and implementing parties is needed to fully explain the expected impact of navigation projects and related development; positive as well as negative. In addition, there seems to be a need for the same organisations to be provided with a checklist or guidelines for how to ensure that potential negative impact is avoided and potential positive elements are materialised in a way where they will benefit all parties concerned. It could be that such a systematic approach for the navigation sector is already launched in one or more of the MRC member countries and it might be a low cost solution to develop this further.

Regarding the prospects for tourism development, a specific set of guidelines could be developed in order to ensure that the full potential of these activities is realised while at the same time safeguarding natural and human resources. By doing so, there will be a greater chance to limit negative side-effects such as overexploitation and unnecessary disturbances, disrespect for local cultures and communication of diseases. MRC and its 4 member countries have a common responsibility to ensure that utilisation of the Mekong River for tourism purposes is carried out only on a sustainable basis. Due to the short term economic benefits of increased tourism, awareness- of the negative long-term consequences of such activities should be given high priority on national and local levels. Again in this field, MRCS could assist the LMB countries by developing a comprehensive reference document to be used when national guidelines are to be formulated.

- ***Institutional set-up***

As social impacts have not traditionally been taken into consideration when formulating and developing navigation projects, it should be taken carefully into consideration how awareness about social aspects of navigation could be reached in the most efficient manner. The starting point could be to identify areas to be addressed and the roles that different organisations (MRCS, NMC's, national authorities and international civil society organisations) could play. Defining and establishing a systematic approach to be included in future improvement projects within the navigation sector could be an important initial role for MRCS.

The following activities are identified as proposed tools to address the above-mentioned needs and opportunities related to regional navigation development. For reasons of clarity the proposed activities are presented due to their strategic relation to the role of MRC.

It is important to note that not all of these proposed activities will be incorporated into the MRC Navigation Strategy Implementation Programme. A process of careful screening, based on priorities and working principles, will be carried out in collaboration with our stakeholders in order to select the relevant activities for the programme components.

The full matrix of activities, now presented according to the priorities given at the Regional Consultation Workshop, is included in Annex 1.

ROLE 1: DEVELOP AND IMPLEMENT ARTICLE 9, FREEDOM OF NAVIGATION.

- Support the development of a framework for increased cross-border water-related tourism.

ROLE 2: PROVIDE TECHNICAL PRODUCTS AND SERVICES.

- Implement guidelines for incorporation of social issues in major navigation projects or studies;
- Carry out Social Impact Assessments of major navigation improvement projects;
- Prepare a baseline for social impacts from river based tourism in the member countries;
- Prepare checklist for tracing and removing unexploded ordinances before works in the river or on the banks are carried out;
- Prepare guidelines for assessment and needed actions to be taken for increased river based trade; and
- Prepare a systematic approach for how to utilise boats and ships under flooding and emergency situations.

ROLE 3: STRENGTHEN INSTITUTIONS AND CAPACITY

- Establish cross-border networks of stakeholders operating in the tourism sector.

ROLE 4: PROMOTE AND CO-ORDINATE

(Incl. Public Participation - Co-ordination with other Partners and MRC programmes)

- Make the reports, studies, and impact assessments available for the public and define target groups on national or regional levels, and make presentation of the conclusions.

CHAPTER 4 - FROM STRATEGY TO IMPLEMENTATION PROGRAMME

4.1 Approach

Based on the navigation strategy, the work of the last phase of the NASP will be focused on the formulation of the draft Navigation Programme.

The proposals which follow, in the components of the action plan, are put forward for discussion as one way of achieving the MRC-NASP objectives for promotion of inland water transport in the LMB and for the participatory formulation of the Navigation Programme.

Because of the need for integrated participatory planning, the navigation programme needs to be prepared with basinwide scope. The programme should be prepared in close consultation with all countries in order to ensure ownership of the components of the NASP.

Due to the complexity of the legal issues found during the formulation of the navigation strategy, it is foreseen that in order to adequately and comprehensively address these issues extra efforts will have to be put into this side.

Regional Expert Consultation Meetings with donors and line agencies in the member countries will be needed for ensuring ownership. The meetings have the objective to discuss and obtain feedback from national authorities, institutes, donor agencies, the private sector etc. The output of these meetings is to elaborate the plan for investment priorities, training requirements and medium to long term development of water transportation. Therefore, discussion will be focussed on basinwide selected investment priorities with the Line Agencies and other agencies.

The consultation meetings will allow collection of the information required for finalising the programme and action plan in which the feedback of local authorities, institutes etc. has been duly taken into account.

Relevant questions to be answered during the formulation of the programme and priority components are:

- How to demonstrate that water transportation is economically viable in the LMB?
- How to integrate it with other transport modes? (at present, transport modes are competing rather than inter-linking their services);
- How to promote action at national level? (governments shall have transport policies in place);
- How to increase interaction between the NMCs and the Line Agencies? (the doers);
- How to promote actions at regional level? (governments have to honour and implement international agreements);
- How to make it possible for MRC to play an active role as an inter-governmental organisation in facilitating co-operation between the countries?
- How to incorporate international standards and regulations to improve environmental protection and reduce poverty?
- How to co-operate with China and Myanmar?
- How to promote transportation improvements satisfying all levels of society?
- How to avoid overlapping of activities with other organisations, agencies, investment banks, and how to co-ordinate and collaborate?
- How to establish the best institutional set-up and organisation for the overall navigation unit for MRC (at the MRC Secretariat, National Mekong Committees and Line Agencies)?
- How to assess the capacity of MRC in terms of feasibility of the navigation programme?

- Who will do what on a regional level – national level?
- How to deal with other benefits and impacts of water transportation at national and regional level (medium and long-term: cross-cutting issues)>
- How to get the best co-operation with and attention from the private sector?
- How to guarantee sustainability?

The Action Plan formulation will start with the analysis of a detailed programme of components and activities established in the navigation programme. After reviewing the programme of components and activities with MRCS, the action plan and the bankable programme will be finalised for its incorporation into the MRCS Work Programme.

The action plan will present the immediate investment priorities, including training requirements and TOR for further studies and will provide an outline for a short, and medium to long term development strategy of River-Sea transport.

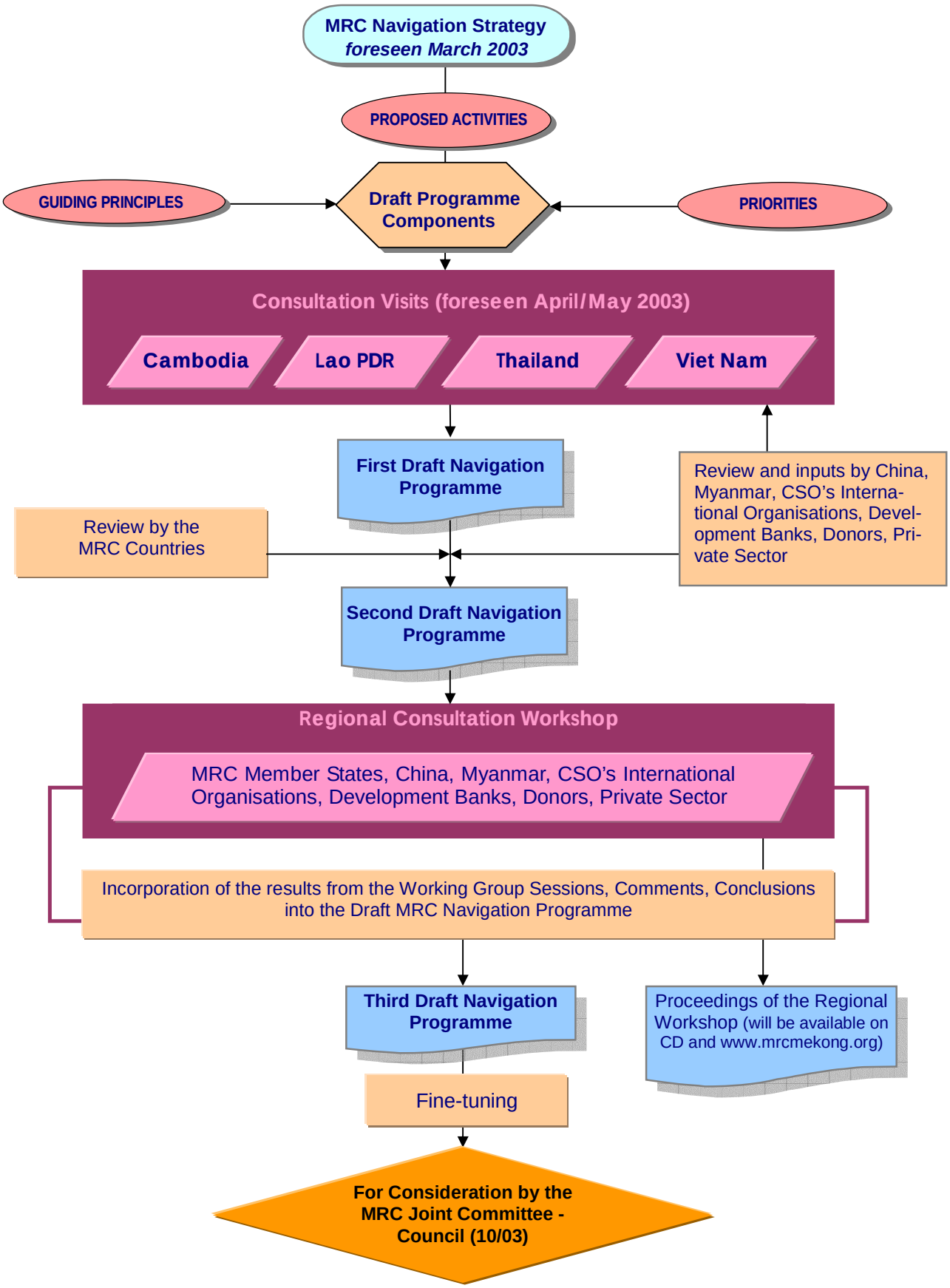
4.2 Next Steps

The methodology and schedule to arrive at the MRC Navigation Strategy Implementation Programme, in short the MRC Navigation Programme (NAP), and consequently the actual implementation is described in the following **flow chart shown in Figure 4-1**.

4.3 Coordination with important stakeholder and partners

Throughout the formulation of the MRC Navigation Strategy, there have been regular contacts and liaisons to partners and experts in the region and beyond. During the programme formulation the MRC Navigation Programme Unit and the consultants will look further into how better coordination frameworks and regular information exchange can be established to support a successful implementation of the Navigation Programme in future. It is foreseen that there will be a need for coordination arrangements on both national and regional levels and even for coordination with regional and international agencies working with trade and infrastructure development .

Figure 4-1 Flow Chart of Activities for Development of the Navigation Programme.



ANNEX-1: DETAILED MRC NAVIGATION STRATEGY MATRIX

ANNEX-2: LIST OF ACRONYM

ADB	Asian Development Bank
AFD	Groupe Agence Française de Développment
AIFP	MRC Sector Programme: Agriculture, Irrigation, Forestry (Also: Sustainable Land and Water Use Programme)
AIT	Asian Institute of Technology
AusAID	Australian Agency for International Development
BDP	MRC Core Programme: Basin Development Plan
CB	Capacity Building
DAE	Department of Agriculture and Extension
DANIDA	Danish International Development Assistance
DGIC	General Directorate of International Cooperation
DMH	Department of Meteorology and Hydrology
ENP	MRC Core Programme: Environment Programme
ERCD	Economic Relation and Cooperation Division (Thailand)
ESCAP	The Economic and Social Commission for Asia and the Pacific
EU	European Union
GEF	Global Environment Facility
GMS	Greater Mekong Subregion
GTZ	German Agency for Technical Cooperation
ID	Immigration Department (Lao PDR)
IEAD	International Economic Affairs Department (Thailand)
ISO	International Standards Organization
IWAD	Inland Waterway Administration Division (Lao PDR)
IWT	Inland Waterway Transport
KAMSAB	Kampuchea Shipping Agency and Brokers (Cambodia)
LCD	Legal and Consular Department (Cambodia)
LMB	Lower Mekong Basin
MCTPC	Ministry of Communications, Transport, Post and Construction (Lao PDR)
MD	Marine Department (Thailand)
MFAIC	Ministry of Foreign Affairs and International Cooperation (Cambodia)
MMD	Merchant Maritime Department (Cambodia)
MNRE	Ministry Natural Resources and Environment (Viet Nam)
MPWT	Ministry of Public Works and Transportation (Cambodia)
MRC	Mekong River Commission
MRCS	Mekong River Commission Secretariat
NGO	Civil Society Organisation (Non-Government Organisation)
NMC	National Mekong Committee
NORAD	Norwegian Agency for Development Cooperation
OPD	Operations Division
OXFAM	Oxford Committee for Famine Relief
PA	Port Authority (Lao PDR)
PDR	Peoples Democratic Republic
PPAP	Phnom Penh Autonomous Port (Cambodia)

PRC	Peoples Republic of China
SEF	Strategic Environmental Framework
SIDA	Swedish Agency for Development Cooperation
SIWRR	Southern Institute of Water Resources Research (Viet Nam)
TA	Technical Assistance
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFPA	United Nations Population Fund
VIWA	Viet Nam Inland Waterway Administration (Viet Nam)
VNMB	Viet Nam Natural Maritime Bureau (Viet Nam)
World Bank	International Bank for Reconstruction and Development
WRD	Water Resources Department (Thailand)
WRHP	MRC Sector Programme: Water Resources and Hydrology
WUP	MRC Core Programme: Water Utilisation Programme
WWF	World Wide Fund for Nature

ANNEX-3: GLOSSARY[26]

Basin - (Hydrology) A geographic area drained by a single major stream; consists of a drainage system comprised of streams and often natural or man-made lakes. Also referred to as Drainage Basin, Watershed, or Hydrographic Region. (Ref: Nevada Department of Water Planning).

Cargo carrying capacity - Maximum permissible weight of goods, expressed in tonnes, which a vessel may carry in accordance with its documents.

Data - representations of facts, concepts, or instructions in a formalised manner, suitable for communication, interpretation or processing. (Ref.: Introduction to Information management through Geographic Information Systems and Remote Sensing, Environmental Technical Advisory Programme, UNDP/UNOPS-Cambodia, 1997, Dirk Vanderstighelen & Tom Kunneke).

Dumb barge - IWT freight vessel designed to be towed which does not have its own means of mechanical propulsion. *The fact that a dumb barge is fitted with an auxiliary engine does not change its nature.*

Dumb tanker barge - Dumb barge for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among dumb barges.*

Foreign IWT vessel - IWT vessel which is registered at a given date in a country other than the reporting country.

Hazardous goods - The categories of hazardous goods carried by inland waterways are those defined by the European Provisions Concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN).

Information - data that has been interpreted, processed and refined, and then displayed in a format that is convenient for management, decision making, planning or research purposes. In practice, the distinction between data and information is often difficult to maintain. Data becomes information when used in the context of making a specific decision or when applied to the solution of a particular problem. (Ref.: Introduction to Information management through Geographic Information Systems and Remote Sensing, Environmental Technical Advisory Programme, UNDP/UNOPS-Cambodia, 1997, Dirk Vanderstighelen & Tom Kunneke)

Inland waterway journey - Any movement of an IWT vessel from a specified point of origin to a specified point of destination. *Journey can be divided in a number of stages or sections.*

Inland waterways cabotage transport- National IWT performed by an IWT vessel registered in another country.

Inland waterways convoy - One or more non-powered IWT vessels which are towed or pushed by one or more powered IWT vessels.

Inland waterways fleet - Number of IWT vessels registered at a given date in a country and authorised to use inland waterways open for public navigation. *Changes in the fleet refer to changes, in total or within a vessel type, in the inland waterway fleet of the reporting country, resulting from new construction, modification in type or capacity, purchases or sales abroad, scrapping, casualties, or transfers to or from the marine register.*

Inland waterways traffic - Any movement of an IWT vessel on a given network. *When a vessel is being carried on another vehicle, only the movement of the carrying vehicle (active mode) is taken into account.*

Inland waterways traffic on national territory - Any movement of an IWT vessel within a national territory irrespective of the country in which the vessel is registered.

Inland waterways transit - IWT through a country between two places (a place of loading/embarkment and a place of unloading/disembarkment) both located in another country, or in other countries, provided the total journey within the country is by an IWT vessel and that there is no loading and unloading in that country. *IWT vessels loaded/unloaded at the frontier of that country onto/from another mode of transport are included.*

Inland waterways transport (IWT) - Any movement of goods and/or passengers using an IWT vessel on a given inland waterways network. *When an IWT vessel is being carried on another vehicle, only the movement of the carrying vehicle (active mode) is taken into account.*

International inland waterways transport - Inland waterways transport between two places (a place of loading/embarkation and a place of unloading/disembarkment) located in two different countries. It may involve transit through one or more additional countries.

[26] (Source: Document prepared by the Intersecretariat Working Group on Transport Statistics EUROSTAT, ECMT, UN/ECE, Second edition, 1997)

Investment expenditure on infrastructure - Expenditure on new construction and extension of existing infrastructure, including reconstruction, renewal and major repairs. *Expenditure on locks is included.*

Investment expenditure on vessels - Expenditure on purchase of vessels.

IWT freight vessel - Vessel designed for the carriage of freight by navigable inland waterways.

IWT passenger vessel - Vessel designed exclusively or primarily for the public carriage of passengers by navigable inland waterways.

IWT vessel - Floating craft designed for the carriage of goods or public transport of passengers by navigable inland waterways. *Vessels under repair are included. Vessels suitable for inland navigation but which are authorised to navigate at sea (mixed seagoing and inland waterways vessels) are included. This category excludes: harbour craft, seaport lighters and seaport tugs, ferries, fishery vessels, dredgers, vessels performing hydraulic work and vessels used exclusively for storage, floating workshops, houseboats and pleasure craft.*

Maintenance expenditure on infrastructure - Expenditure for keeping infrastructure in working order. *Expenditure on locks is included.*

Maintenance expenditure on vessels - Expenditure for keeping vessels in working order.

Maritime law - That system of jurisprudence which prevails in courts having jurisdiction of maritime causes, also called marine law.

Maritime transport - Transport of sea-going vessels at sea or on open waters (rivers-lakes) that are linked to the sea and that have enough depth to accommodate sea-going ships.

MRC Basin Development Plan - a plan to ensure co-ordination of development activities in the Mekong Basin, so that water flow and ecological systems are maintained while Basin resources are developed. (Ref: Mekong River Commission).

MRC Capacity Building Programme - a programme to ensure that the administrative and managerial capacities of the MRC Secretariat, the NMCs and line agencies in the four member countries develop in line with the requirements for implantation of the operational programmes.

MRC Environment Programme - a programme to ensure adequate protection of the environment and ecological balance of the basin.

MRC Water Utilisation Plan - a plan to provide the MRC Member States with the technical framework for managing Mekong water, establish a comprehensive Basin hydrologic modeling package and integrated knowledge base on water and related resources, and formulate a series of “rules” regarding joint water management. (Ref: Mekong River Commission).

National inland waterways transport - Inland waterways transport between two places (a place of loading/embarkment and a place of unloading/disembarkment) located in the same country irrespective of the country in which the IWT vessel is registered. It may involve transit through a second country.

National IWT vessel - IWT vessel which is registered at a given date in the reporting country. *Where registration of IWT vessels does not apply in a specific country, a national IWT vessel is a vessel owned by a company tax resident in that country.*

Navigable canal - Waterway built primarily for navigation.

Navigable inland waterway - A stretch of water, not part of the sea, over which vessels can navigate when normally loaded. This term covers both navigable rivers and lakes and navigable canals. *The length of rivers and canals is measured in mid-channel. The length of lakes and lagoons is measured along the shortest navigable route between the most distant points to and from which transport operations are performed. A waterway forming a common frontier between two countries is reported by both.*

Navigable inland waterways network - All navigable inland waterways open for public navigation in a given area.

Navigable inland waterways regularly used for transport - Waterways over which an amount of transport is carried each year; this amount, expressed as tonne-kilometres per kilometre of waterway, is determined by the authority concerned in the light of conditions prevailing on that country’s waterway network.

Navigable river- Natural waterway open for navigation, irrespective of whether it has been improved for that purpose.

Participatory - 1) characterised by or involving participation; especially: providing the opportunity for individual participation <participatory democracy> (Ref: Merriam-Webster OnLine Dictionary); 2) Participation is a process through which key stakeholders gain influence and take part in decision making in the planning, implementation, monitoring and evaluation of MRC Programmes and Projects. ("Public Participation in the Context of MRC").

Policy - (Water Planning). A statement of governmental intent against which individual actions and decisions are evaluated. The wording of policies conveys the level of commitment to action, for example, policies which use the word "shall" are mandatory directions, while those using the word "should" are statements of direction to be followed unless there are compelling reasons to do otherwise. (Ref: Nevada Department of Water Planning).

Port - Place having facilities for merchant ships to moor and to load or discharge goods, or passengers to go to or from vessels.

Power (kW) - Mechanical force developed by the motive power installation in a vessel. *This power should be measured in effective kilowatts (power transmitted to the propeller) 1 kW=1.36 h.p.; 1 h.p.= 0.735 kW.*

Pushed barge - IWT freight vessel which is designed to be pushed and does not have its own means of mechanical propulsion. *The fact that a pushed barge is fitted with an auxiliary engine does not change its nature.*

Pushed tanker barge - Pushed barge for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among pushed barges.*

Pushed-towed barge - IWT freight vessel which is designed to be either pushed or towed and does not have its own means of mechanical propulsion. *The fact that a pushed-towed barge is fitted with an auxiliary engine does not change its nature.*

Pushed-towed tanker barge - Pushed-towed barge for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster etc., are to be excluded and are to be counted among pushed-towed barges.*

Pusher tug - Powered vessel developing not less than 37 kW and designed or fitted for the towing of dumb barges, pushed-towed barges, or rafts, and for the pushing of pushed and pushed-towed barges, but not for the carriage of goods.

Pusher vessel - Powered vessel developing not less than 37 kW and designed or fitted for the pushing of pushed or pushed-towed barges but not for the carriage of goods. *Port pusher vessels are excluded.*

Sea-going vessel - Vessel designed for the carriage of freight or passengers by sea or by open waters (rivers-lakes) that are linked to the sea and that have enough depth to accommodate sea-going ships.

Self-propelled barge - IWT freight vessel having its own means of mechanical propulsion. *Towed barges, pushed barges and pushed-towed barges which have an auxiliary engine only must be regarded as towed barges, pushed barges or pushed-towed barges as the case may be. The fact that a self-propelled barge can be used for towing does not change its nature.*

Self-propelled barge - IWT freight vessel having its own means of mechanical propulsion. *Towed barges, pushed barges and pushed-towed barges which have an auxiliary engine only must be regarded as towed barges, pushed barges or pushed-towed barges as the case may be. The fact that a self-propelled barge can be used for towing does not change its nature.*

Self-propelled pusher barge - Self-propelled barge designed or fitted to push pushed or pushed-towed barges.

Self-propelled pusher barge - Self-propelled barge designed or fitted to push pushed or pushed-towed barges.

Self-propelled pusher tanker barge - Self-propelled pusher barge for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among self-propelled pusher barges.*

Self-propelled pusher tanker barge - Self-propelled pusher barge for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among self-propelled pusher barges.*

Self-propelled tanker barge - Self-propelled barge intended for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among self-propelled barges.*

Self-propelled tanker barge - Self-propelled barge intended for the bulk transport of liquids or gases. *Tankers for the transport in bulk of powdered products such as cement, flour, plaster, etc., are to be excluded and are to be counted among self-propelled barges.*

Self-propelled vessel for River-Sea navigation - IWT freight vessel having a carrying capacity of at least 20 tonnes also designed for the transport of goods by sea and equipped with their own means of propulsion developing at least 37 kW.

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Stakeholder - A stakeholder is any person, or group of institutions that has an interest in an activity, project or programme. This includes intended beneficiaries and intermediaries, those positively affected, and those involved and/or those who are generally excluded from the decision-making process ("Public Participation in the Context of MRC").

Standards - guidelines for data capture, data processing and data management that are recognised as best practice in their relevant scientific or technical disciplines, with the objective to minimise the transaction costs of using data. (Ref.: MDBC and Environmental Resource Information Network, Government of Australia).

Sustainable - capable of being sustained a) of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged <sustainable techniques> <sustainable agriculture>; b) of or relating to a lifestyle involving the use of sustainable methods <sustainable society> (Ref: Merriam-Webster OnLine Dictionary).

Tug - Powered vessel developing not less than 37 kW and designed for the towing of dumb barges, pushed-towed barges, and rafts, but not for the carriage of goods. *Port and sea tugs are excluded.*

Unladen inland waterways traffic - Any movement of an IWT freight vessel for which the gross-gross weight of goods carried, including that of equipment such as containers, swap-bodies and pallets, is nil; as well as any movement of an IWT passenger vessel without passengers. *The movement of an IWT vessel carrying empty equipment such as containers, swap-bodies and pallets is not considered to be an unladen journey.*

Urban inland waterways transport - Transport carried out on inland waterways located within the boundaries of a built-up area. *Only transport carried mainly or solely on inland waterways located within the boundaries of a built-up area is regarded as urban transport.*

Vessel-kilometre - Unit of measurement representing the movement of an IWT vessel over one kilometre. *The distance taken into account is the distance actually run. Movements of unloaded vessels are included. In a convoy, each unit is counted as a vessel.*

Waterway - River, canal, lake or other stretch of water which by natural or man-made features is suitable for navigation. *Waterways of a maritime character (waterways designated by the reporting country as suitable for navigation primarily by sea-going ships) are included. Waterways also include river estuaries; the boundary being that point nearest the sea where the width of the river is both less than 3 km at low water and less then 5 km at high water.*

Year of construction of vessel - Year of original construction of the hull.

ANNEX-4: REFERENCE DOCUMENTS

ADB Documents

- Cambodia Transport Sector Study (ADB TA 3651), Draft final Report, October 2002.
- Environmental Impact Assessment for Developing Countries in Asia, Volumes I and II – Overview. 1997.

ADB/UNDP Document

- Mobility and HIV/Aids in the Greater Mekong Sub-region, Institute of Asian Studies, Chulalongkorn University, Bangkok, Thailand. 2000.

ASEAN/ANZCER Document

- Mekong Freight Logistics Study: A Study to improve Freight Transport and Facilitate Trade in the Region Cambodia, Lao PDR and Viet Nam, ASEAN-ANZCER. May 2002.

ASTRA Document

- ASTRA, Assessment of transport Strategies, Project number ST-97-SC.1049, EU. September 1998.

BCEOM/MRC role Document

- Integrated Transport Study for the Mekong Delta (Cambodia and Viet Nam): Phase II, Final Report. 1992;
- Strategy study on the Development of Upper Mekong Navigation (Basinwide), Final Report. 1994.

Cambodia and Viet Nam Governments Document

- Agreement on the Transit of Goods between the Government of the Kingdom of Cambodia and the Government of the Socialist Republic of Viet Nam.

Cambodia Customs and Excise Document

- Customs and Trade Related International Documents Volume I.

Changjiang Waterway Bureau Document

- Maintenance of Inland Waterway and Aids to Navigation in China.

CMI, Italy Document

- Essays on Maritime Legislation, Volume II. 1990.

Dan-Pacific Ldt. Document

- Mekong Basin Navigation Strategy Review, Final Report. 1995.

EADA Document

- Proceedings of the 2nd Asian and Australian Ports and Harbors Conference, Developing and Maintaining Operational Ports and Harbors. 1997.

ESCAP Documents

- Guidelines for the Design of Inland Navigation Canals;
- Report on Inland Water Transport Information Systems and Training in the ESCAP Region. 1995;
- Report of the Review on IWT Information Systems and Training in ESCAP Region, (A supplementary paper on Bangladesh inland water). 1995;
- ESCAP/UNDP Manual on Electronic Data Interchange in Transport. 1993;
- Maritime Manpower for the Shipping Industry in the Asia - Pacific Region. 1995;
- Essays on Maritime Legislation, Volume I, Seminar on Maritime Liens and Mortgages and on Enforcement of Securities Dalian, Chi. 1990;
- Guidelines for Port - Related Legislation, Guidelines Volume II. 1990;
- Essays on Maritime Legislation, Volume II. 1990;
- Guidelines for Maritime Industry Labour Legislation, Guidelines Volume III. 1991;
- Guidelines for Maritime Legislation, Guidelines Volume I. 1991;
- Report and Proceedings of the Regional Seminar on Operation and Maintenance of Inland Waterways, Bangkok, 24-28 October 1988. 1988;
- Low Cost Dredging Technology;
- The Development of Multi-modal Transport in the ESCAP Region. 1995;
- Regional Seminar on Environmental Aspects of Dredging Activities in Asia and the Pacific Region, 25-28 October 1994, Bangkok, Thailand. 1994;
- Assessment of the Environmental Impact of Port Development: A Guidebook for EIA of Port Development. 1992;
- Dredging for Navigation: A handbook for Port and Waterways Authorities. 1991;
- Guidelines for the Harmonization of Navigation Rules and Regulations, Volume 1 - Aids to Navigation. 2001; and

- Environmental Impact Assessment for Inland Water Transport Development Projects in the Upper Mekong Subregion, Initial Environmental Examination. 1995.

FINNIDA Document

- Appraisal Report of the Study of Priority Navigation Activities on the Mekong River, Stretch No. 1, Vientiane/Nong Khai – Mukdhan. 1991.

IALA Documents

- Aids to Navigation Guide, (Navguide). 1990; and
- Vessel Traffic Services Manual. 1993.

IAPH Document

- Dredging for Development, Committee on Port and Ship Safety, Environment and Construction, Report of the Dredging Task Force. 1991.

ILO Documents

- Social and Labor Effects of Structural Adjustment in the Port Industry of Selected Asian and Pacific Countries, Report of the I. 1995;
- Maritime Labor Standards in the Asian Region, Report of the Tripartite Seminar on Maritime Labour Standards for Selected Asian. 1994; and
- Mission to Lao PDR to Assess IWT Training Needs, 29 March - 9 April 1990.

IMO Documents

- Preventing Marine Pollution, The Environmental Threat. 1995;
- IMO and Cargo Safety. 1994;
- Solas: The International Convention for the Safety of Life at Sea 1974. 1995;
- A Summary of IMO Conventions, Lao National Statistics. 1996; and
- Basic Statistics About the Socio-Economic Development in the Lao PDR. 1995.

Maunsell Document

- International Aspects of the My Thuan Bridge Workshop in Ho Chi Minh City. 1992

MRC Documents

- Statistics on Inland Water-Borne Transport, Lao PDR and Thailand. 1987;
- Project Proposal of the Study on International Aspects of the My Thuan Bridge, (Basin-wide). 1990;
- Final Report on the Study of the International Aspects of the My Thuan Bridge, Socialist Republic of Viet Nam. 1992;
- Detailed Design of Aids to Navigation in the Mekong Delta, (Project Proposal). 1993;
- Study on Navigational Channel Marking - (Mainstream), Project Proposal. 1988;
- Technical Specifications for Hydrographic Surveys in the Lower Mekong Basin. 1974;
- MRC Hydropower Development Strategy. 2001;
- MRC Strategy on Flood Management and Mitigation. 2001;
- Strategy Study on the Development of Upper Mekong Navigation - (Basinwide), Summary Report. 1994;
- Reconnaissance Study-The role of the Mekong river in regional and sub-regional transport development, MRC, May 1991;
- Assessment of Trends in the Transport Sector of the Lower Mekong Basin with Special Emphasis on Waterborne Transport, MRC, July 2002;
- Regional Sector Overview (Navigation), MRC, October 14, 2002;
- An Update of Important Subjects of the Mekong Navigation Strategy Review. 1995;
- List of Waterways in the Viet Nam Mekong Delta, (Including the Dong Nai-Saigon Rivers and Navigable Canals in Ho Chi Minh City);
- Development of an EIA/SEA System for the Lower Mekong Basin: Proposed System and Background Report, April 2002;
- Toolkit for Gender Responsive Mekong River Basin Development. 2000;
- Strategy Study on the Development of Upper Mekong Navigation (Basinwide), Summary Report. 1994; and
- Report on the Activities of the Socio-economist, Checklist for the Incorporation of Socio-economic Consideration in RTU's Port. 2000.

MoCTP - Lao PDR & China Document

- Documents on Cross Border Issues. 1996.

MoPWT Document

- Cambodia-Japan Friendship Project for the Rehabilitation of the Port of Phnom Penh. 1996; and
- Draft Protocol on the Implementation of the Agreement between the Royal Government of Cambodia and the Government of the Socialist Republic of Viet Nam.

MPPM Document

- Prospects for Container Shipping and Port Development (East Asia Subregion). 1994.

MRLC/UNEP/DANIDA *Document*

- Southeast Asia Handbook of Treaties and other Legal Instruments in the field of Environmental Law. 1997.

NEDECO Document

- Inland Waterways and Port Modernisation Project, Volume I - Executive Summary (Final Draft). 1996;
- Outline Draft Master Plan: Mekong Delta Master Plan. 1991; and
- Perspectives for Mekong Development Indicative plan for the development of Land, Water and Related Resources of the Lower Mekong Basin. 1988.

PIANC Documents

- Approach Channels, A Guide for Design. 1997;
- Dangerous Cargoes in Ports. 2000;
- Inland Waterway Vessels and Pollution. 1999;
- Environmental Management Framework for Ports and Related Industries. 1999;
- Dredging: The Facts;
- Standardisation of Ships and Inland Waterways for River/Sea Navigation. 1996;
- Container Transport with Inland Vessels. 1992;
- Analysis of Cost of Operating Vessels on Inland Waterways. 1991;
- Standardisation of Inland Waterways' Dimension. 1990;
- Guidelines for the Design and Construction of Flexible Revetments incorporating Geotextiles for Inland Waterways. 1987;
- Economic Implications of Inland Waterway Development. 1984;
- Dangerous Cargoes in Ports. 2000; and
- Site Investigation Requirements for Dredging Works. 2000

PMU-SW Document

- Inland Waterways and Port Rehabilitation Project.

UNCTAD Document

- PORT DEVELOPMENT, A hand book for planners in developing countries. 1985.

United Nations Documents

- United Nations Convention on Conditions for Registration of Ships. 1986; and
- United States Department of Transportation, Marine Administration, Environmental Advantages of Inland Barge Transportation. 1994.

University of Ghent Document

- The Content of the Agreements on the Protection of the Rivers Scheldt and Meuse. 1994.

Vinamarine Documents

- Workshop on the International Sea and River Navigation Legislation. 1999; and
- Workshop on the International Sea and River Navigation Legislation, 2 December 1999, Hanoi, Viet Nam. 1999.

World Wide Web 2002 Documents

- www.abs.gov.au
- www.adb.org
- www.aseantec.org
- www.cia.gov
- www.europa.eu.int
- www.fba.nus.edu.sg
- www.globalsources.com
- www.iata.org
- www.icsea.or.id
- www.irn.org
- www.jica.go.jp
- www.jicaViet Nam.org.vn
- www.mekongsources.com
- www.millenniumindicators.un.org
- www.mofa.gov.vn
- www.mrcmekong.org
- www.oecd.org
- www.padeco.co.jp
- www.prd.go.th
- www.railway-technology.com
- www.schillerinstitute.org
- www.searin.org
- www.som.ait.ac.th
- www.thailandexport.com
- www.tradepartners.gov.uk
- www.tradeport.org
- www.un.int/lao
- www.undp.org.vn
- www.unescap.org
- www.unescobkk.org
- www.vietnamembassy.cu
- www.vr.com.vn
- www.worldbank.org