



MEKONG RIVER COMMISSION

# 15 YEARS OF COOPERATION FOR SUSTAINABLE DEVELOPMENT

# 1995-2010



**Mekong River Commission**

P.O.Box 6101, 184 Fa Ngoum Road, Unit 18, Ban Sithane Neua,  
Sikhottabong District, Vientiane, Lao PDR

Telephone: (856) 21 263 263 Facsimile: (856) 21 263 264  
E-mail: [mrcc@mrcmekong.org](mailto:mrcc@mrcmekong.org)  
Website: [www.mrcmekong.org](http://www.mrcmekong.org)



**KEY DEVELOPMENT FACTS:**

**Cambodia**

- \* Annual GDP growth rate 1990 – 2005: 5.5 percent
- \* Likelihood of not surviving past the age of 40: 24 percent
- \* Population that don't have access to an improved water source: 36 percent
- \* Children aged 0 – 5 years old are underweight: 36 percent

**Lao PDR**

- \* Annual GDP growth rate 1990 – 2005: 3.8 percent
- \* Likelihood of not surviving past the age of 40: 16.6 percent
- \* Population that don't have access to an improved water source: 27.5 percent
- \* Children aged 0 – 5 years old are underweight: 40 percent

**Thailand**

- \* Annual GDP growth rate 1990 – 2005: 2.7 percent
- \* Likelihood of not surviving past the age of 40: 12 percent
- \* Population that don't have access to an improved water source: 1 percent
- \* Children aged 0 – 5 years old are underweight: 18 percent

**Viet Nam**

- \* Annual GDP growth rate 1990 – 2005: 5.9 percent
- \* Likelihood of not surviving past the age of 40: 7.7 percent
- \* Population that don't have access to an improved water source: 15 percent
- \* Children aged 0 – 5 years old are underweight: 27 percent

## THE MEKONG RIVER COMMISSION



## HISTORY OF THE MEKONG RIVER COMMISSION

### BEFORE 1995

The Mekong River Commission has its origins in both the Mekong Committee, and the Interim Mekong Committee, which operated between 1957 and 1995.

- The Mekong Committee, with Cambodia, Lao PDR, Thailand and Viet Nam as Members, was established in 1957 under the United Nations, immediately after countries in Indochina gained independence from France.
- The Committee was part of the United Nations and initially focused on the hydropower potential of the region, and this interest intensified further in the early 1970s.
- In 1977, Cambodia left the organisation due to the unstable political climate, resulting in the establishment of the three-country Interim Mekong Committee in January 1978.
- In 1991 Cambodia requested re-admission, culminating in the signing of the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin on 5 April 1995. The independent Mekong River Commission (MRC) was then established as an international agency.

## THE MEKONG RIVER COMMISSION SINCE 1995

Since the signing of the 1995 Mekong Agreement, the Mekong River Commission (MRC) has comprised four Member Countries (Cambodia, Lao PDR, Thailand and Viet Nam), with two upstream states (China and Myanmar) being dialogue partners since 1996.

The role of the MRC in serving the joint interests of its Member States is to promote sustainable development in the Mekong River Basin. The primary value-added by MRC as an International River Basin Organisation is to focus on the joint and basin-wide issues, including development scenarios, identification of important joint and basin-wide projects and programmes, and the analysis of implications (economic, social and environmental) of ongoing and proposed developments in the basin including the cumulative impacts of national developments. In this role, the MRC will work to find long-term solutions to common problems in the region.

AS THE 15TH ANNIVERSARY OF THE SIGNING OF THE 1995 AGREEMENT APPROACHES, IT IS TIME TO REFLECT ON HOW THE MRC HAS PROMOTED THE SPIRIT OF MEKONG COOPERATION, ADAPTED TO A CHANGING ENVIRONMENT AND STRENGTHENED THE COMMITMENT OF MEMBER COUNTRIES TO SUSTAINABLE DEVELOPMENT AND TO THE PRINCIPLES OF INTEGRATED WATER RESOURCES MANAGEMENT

### **What the MRC is aiming to achieve:**

- increased food security through efficient land and water development and irrigation;
- appropriate development of the basin's hydropower potential to help meet the increasing need for energy;
- maintenance of productive fisheries and enhanced aquaculture of indigenous species;
- more active and efficient river transportation through increased freedom of navigation;
- avoiding, minimising and mitigating people's suffering and economic losses due to floods and droughts;
- protecting the environment, natural resources, aquatic life and ecological balance of the basin

**The MRC's key strength is that it is a knowledge based institution. It provides capacity building and advice, supports research, and offers help to Mekong governments to manage the water related resources of the basin.**

## THE MEKONG BASIN – GROWING ECONOMIES, REDUCING POVERTY, INCREASING PRESSURES



Since the early 1990s, more stable governments, the end of serious conflict and a more integrated political climate have fuelled unparalleled economic expansion in Cambodia, Lao PDR, Thailand and Viet Nam.

However, despite the prosperity, many of the 60 million people in the Mekong Basin still live in poverty. In some places – such as Lao PDR – over 70 percent of the population lives on less than US\$ 2 per day, and many basin inhabitants depend wholly or partially on water related resources to support their subsistence lifestyle.

The river system's rich biodiversity provides food, irrigation for agriculture and forestry, transport, as well as other tourism, infrastructure and commercial opportunities.

Population expansion, urban growth, pollution, agricultural development, deforestation, mining, a growing demand for electricity and increasing pressure on governments to utilise the river system to lift their countries out of poverty all contribute to increased pressures on the river as a resource.

### MANAGEMENT OF WATER RESOURCES DEPENDS ON TRANS-BOUNDARY COOPERATION

- The Mekong River acts as a national boundary in some places, yet the activities of people on the river seldom stay within the boundaries of one country.
- Riparian countries share a range of trans-boundary benefits through the water resources of the Mekong Basin.
- Human interventions can have serious impacts downstream and upstream and importantly require a basin-wide perspective.
- Trans-boundary water use in the Mekong is an opportunity for cooperation and improved development across the region.
- Development pressures have potential trans-boundary impacts, and these are already being considered jointly under the framework of Mekong cooperation.

## MRC – MEKONG COOPERATION THROUGH PUTTING INTEGRATED WATER RESOURCES MANAGEMENT INTO PRACTICE



- MRC activities have been defined through an Integrated Water Resources Management Strategy since the signing of the 1995 Agreement.



- This course of action is beginning to shape a common trans-boundary understanding on how long-term development planning for the basin will continue to evolve.



- The MRC has facilitated information, technical guidance, and mediation, developing a common understanding of how trans-boundary issues can have an impact on all levels of development and of the importance of environmental and social values, and the significant scale of natural assets of the basin.



- The MRC's Basin Development Strategy outlines how the four Lower Mekong Basin countries will share, use, manage and protect water resources in an equitable and sustainable way.



- The governments of the Lower Mekong Basin have adopted an approach to managing the resources of the river system that includes consultations with ordinary people affected by changes to water resource use.

## MRC – MEKONG COOPERATION THROUGH SHARING A COMMON VISION FOR BASIN DEVELOPMENT PLANNING



The governments of the Member Countries recognise that sustainable development of the economic potential of the Mekong River system can alleviate poverty and improve livelihoods.

The Basin Development Plan was initiated in 1997.

It now lays down a firm foundation for a planning process that takes into account the needs of all people in the basin – particularly the poor and those that rely on water resources for their livelihoods.

As part of this process, the MRC has:

- Developed a consultative process that allows riparian countries to have an input to a range of possible development scenarios including proposed hydropower schemes and the consequences of climate change;







- Created a formal framework for participatory planning amongst stakeholders, that takes into account the interests of governments, community organisations, NGOs, local and village representatives, and private industry;



- Allowed national concerns related to trans-boundary issues of the Mekong water and related resources to be voiced regionally;



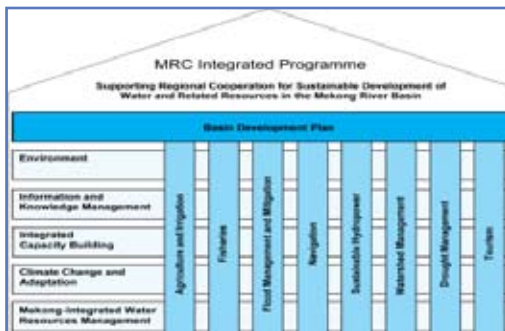
- Improved the capacity of National Mekong Committees and other government agencies in coordinating effective water resources planning;



- Increased stakeholder engagement through meetings at the regional, national and sub-basin levels, a public submission website and surveys; and



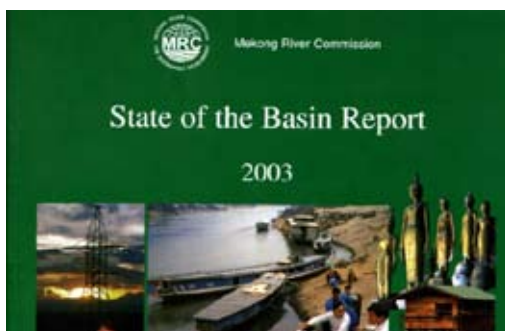
- Become a key advocate in recent years for water resource development planning in the Mekong Basin, supporting the development of a range of tools for Mekong governments, such as:



- ◆ A comprehensive knowledge base across a range of water-related sectors



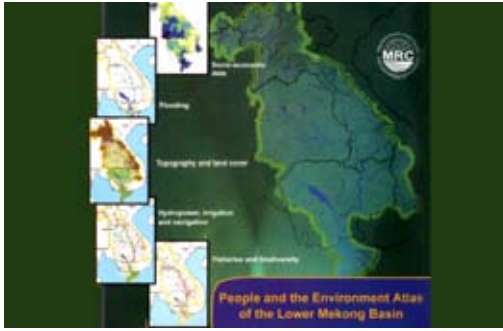
- ◆ Modeling and assessment tools as a decision support framework



- ◆ The MRC State of the Basin Report 2003 and 2010



- ◆ The MRC Social Atlas



- ◆ The MRC People & Environment Atlas



- ◆ A comprehensive database of water-related development projects and programmes

## THE MEKONG BASIN - WATERBORNE TRADE IS THE BACKBONE OF REGIONAL ECONOMIC GROWTH

- The Mekong and its tributaries are vital links for transport, development and commerce in the region, both internationally and locally.
- In many cases, rivers are the only link to the outside world for remote rural populations in the basin.
- The Mekong provides a direct link to international sea ports in Cambodia and Viet Nam. The volume of trade moving by inland navigation in the basin has more than doubled in the four years preceding 2008.
- River transport produces significantly less greenhouse gas than moving cargo by road or rail and rivers are underutilized as a transport corridor for economic growth in the Mekong Basin.
- Much tourism in the basin centres on the river system, and tens of thousands of tourists per year take cruises or use rivers as a means of transport.

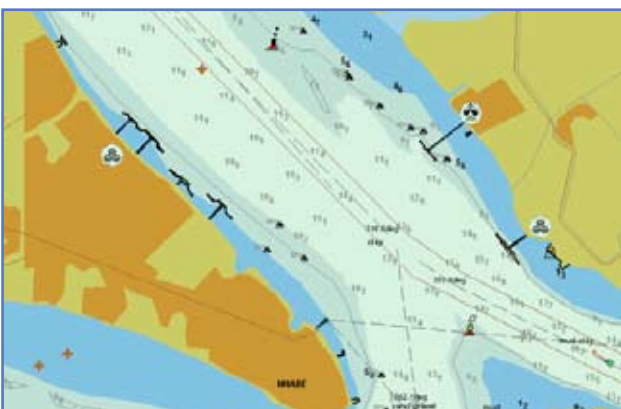
More than one third of the riverside populations of Cambodia and Lao PDR live more than 10 km away from reliable road access.

Between 2002 and 2008, the amount of cargo shipped through Phnom Penh Port grew by 6300 percent.

Between 20,000 and 25,000 tourist cruise passengers a year take trips on the Mekong, mostly between Houei Xay and Luang Prabang.



River transport on the Mekong can be treacherous, with changeable conditions and until recently limited navigational information about the waterway. The MRC has been working to promote freedom of navigation in the Lower Mekong River system in order to assist the Member Countries in developing effective and safe waterborne transport.



- One of the first navigation activities of the MRC following the signing of the 1995 Mekong Agreement was to begin the process of upgrading the Hydrographic Atlas of the Mekong River System for navigation in the Golden Triangle and Mekong Delta areas.



- In the late 1990s sedimentation and morphology problems that posed a risk to shipping in the Mekong were identified.



- Detailed electronic and paper charts of the mainstream and tributaries, including its most dangerous stretches have been produced. These have been made available through local port authorities for the use of shipmasters, pilots and other river users, thus greatly improving the safety of river shipping.



- Aids to navigation systems such as buoys and beacons have been installed in all four countries along the Mekong River. In Cambodia and Viet Nam these systems now allow for 24 hour navigation.



- Electronic navigation charts have been produced for the Mekong, Vam Nao and Bassac Rivers in Viet Nam that provide automated vessel navigation and guidance as well as real-time moving map displays for navigators.



- The Navigation Programme of MRC formulated the Navigation Agreement for Cross-border Waterborne Transportation between Cambodia and Viet Nam and facilitated the negotiating process. The Agreement was signed on 17 December 2009 in Phnom Penh.



- Emergency and Operational Support was provided to the Ketsana flood victims.



- The MRC has helped to make river navigation and trade safer by supporting the development of improved infrastructure. In recent years, this has included among other things:



- ◆ US\$20 million worth of ferry construction in Cambodia (two newly built and three refurbishments, including a slipway for construction);



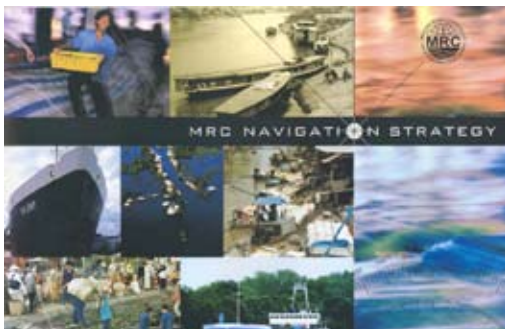
- ◆ A feasibility Study for the Improvement of the Entrance Channel to the Bassac River in Viet Nam;



- ◆ Bank Protection works and the construction of river ports in the Lao PDR;



- ◆ The harmonisation and installation of aids to navigation (such as buoys, night time channel markers, beacons and warning systems) in dangerous stretches of the river system in all Member Countries; and



- ◆ Formulation of the Regional Navigation Strategy and Programme.



The MRC works with Member Countries to develop legal and other frameworks for cross-border navigation and reduce institutional barriers to trade.

- The MRC helped facilitate the bilateral trade and navigation agreement between Mekong countries. For example, The Treaty on Waterway Transportation between Cambodia and Viet Nam in 2009 that allows freedom of navigation on Mekong waterways between the two countries.
- The MRC has been developing design guidance so that any future dams will incorporate standard specifications of navigation locks and minimum bridge clearances.
- The MRC is an observer to the Joint Committee on Coordination of Commercial Navigation on the Lancang/Mekong River; which has agreed to standardise port charges and navigation fees, aids to navigation, navigational charts and safety procedures, as well as a series of joint riparian projects.



## THE LOWER MEKONG BASIN - FLOODS ENDANGER LIVES AND PROPERTY



- Regular flooding in the Lower Mekong Basin brings water, nutrients and other benefits to floodplains, wetlands and ecosystems. For example, flooding in the Tonle Sap is critical to the breeding patterns of fish and the Mekong inland fishing industry.
- However, floods also have the potential to directly endanger life; do millions of dollars worth of damage to property; destroy livelihoods and crops; and put people at increased risk of poverty, malnutrition and diseases.

## MRC – MEKONG COOPERATION THROUGH FORECASTING FLOODS AND PROVIDING WARNINGS



- Constant MRC monitoring of the water levels and rainfalls on the mainstream of the Mekong and the provision of flood forecasts during the June-November flood season have helped authorities reduce the potential impacts of flooding.



As part of the broader achievement of establishing sustainable flood risk management capacity in the Member Countries:

- MRC support, particularly in flood prone areas in Cambodia, has resulted in the provision of a set of guidelines and best practice advice that can be utilised by riparian governments in flood preparedness.
- It has included technical advice on:
  - ◆ The construction of flood barriers such as levees, berms and flood walls, flood embankments and dykes;
  - ◆ Dry flood proofing” of buildings designed to withstand flooding, including building techniques and materials, code requirements and engineering considerations
  - ◆ Mapping of flood probability and vulnerability, showing the extent and boundaries of primary and secondary flood hazard areas for example, in the Kok River Basin in Thailand; and
  - ◆ Building bank erosion control measures for use across the basin.
- Formalised procedures, norms and rules for mediation and decision-making in trans-boundary flood management are helping implement better flood prevention.
- The MRC has helped improve disaster preparedness in Member Countries by upgrading Emergency Management Systems across the basin, through capacity building of provincial disaster management offices, knowledge sharing and public awareness campaigns.



In Hatxayfong and Sikkothabong Districts, near Vientiane; Leuk Dek and Peam Ro Districts in Cambodia; and Chau Phu and Tam Nong Districts in Viet Nam a project is being conducted whereby villagers are trained to take water level measurements on local rivers and report these back to national flood control agencies via cell phones provided by MRC – improving the forecasting ability for localised flash flooding.

## THE LOWER MEKONG BASIN - AQUATIC BIODIVERSITY AND WETLANDS UNDERPIN LIVELIHOODS

- Biodiversity of aquatic life and the wetlands that support it are vital to retaining healthy fish stocks in the river.
- Natural wetlands also support rice cultivation, grazing lands, a source of wood for fuel and building, medicinal plants and supplementary foods, and water for household use.
- The river and its numerous tributaries, lakes, and swamps support many unique ecosystems, such as deep river pools, and mangrove forests.
- Water quality and flows, climate change, hydropower, human infrastructure, fisheries, agriculture and forestry all have the potential to threaten the biodiversity of the Lower Mekong Basin.

## MRC – MEKONG COOPERATION THROUGH MONITORING THE ENVIRONMENTAL HEALTH OF THE LOWER MEKONG BASIN AS AN INPUT TO BASIN MANAGEMENT



The MRC works to boost the ability of Member Countries to ensure the ecological health of the Lower Mekong Basin's aquatic habitats that support both the area's rich diversity of natural resources and people's livelihoods.

The MRC has had a long history of monitoring and investigating the ecological health of the Lower Mekong Basin.

After many years, this gives the organisation a large, impartial GIS-linked database of information that can be used to understand the implications of future planning decisions.



- As early as 1997, the MRC began a formal process to integrate environmental concerns into all its programmes. This cross-cutting focus has continued today.



- By 1998 detailed classification and mapping of all watersheds and land-use across the Lower Mekong basin were made available.



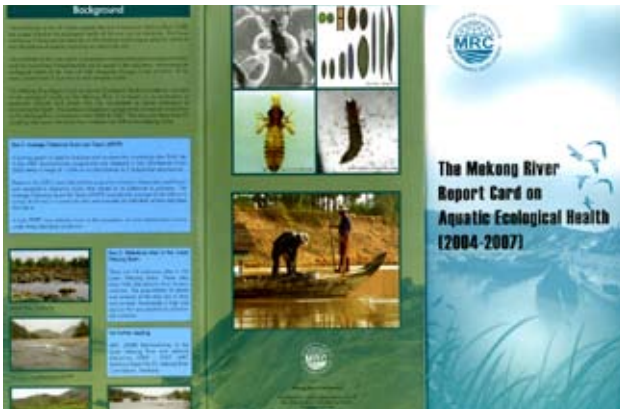
- The MRC's work to monitor the water quality; water composition; and regular testing for a range of chemical parameters has significantly increased the understanding of the aquatic health of the Lower Mekong Basin.



- Continuous monitoring from the mid 1980s provides a clear picture of changes over time.



- This information is invaluable in determining how human activity may be influencing the ecology of the Lower Mekong Basin.



- Since 2004, monitoring information has been disseminated through easy-to-understand annual Water Quality Report Cards.



- The MRC was one of the first organisations to conduct basin-wide forest cover and assessment monitoring, in conjunction with the forestry departments of Member Countries.



- MRC study and monitoring of the increased boat traffic along the Mekong River is helping Member Countries draw up guidelines for dealing with the increased risks of oil and other dangerous chemical spills.



- MRC monitoring of agrochemical runoff into waterways has identified decreased water quality in the Mekong Delta, where intense agriculture is prevalent.



- The MRC has been a key organisation in developing and disseminating other socio-environmental research that has been vital tool for other stakeholders. Some of the published examples include The Social Atlas of the Lower Mekong Basin and the State of the Basin reports, 2003 and 2010.

## MRC – MEKONG COOPERATION THROUGH BUILDING CAPACITY FOR ENVIRONMENTAL ASSESSMENT

Many environmental monitoring activities are now implemented predominantly by Member Countries. Soon after its formation, the MRC conducted a wide range of capacity building projects across the Lower Mekong Basin to train government agencies in environmental management and promote consistent standards.

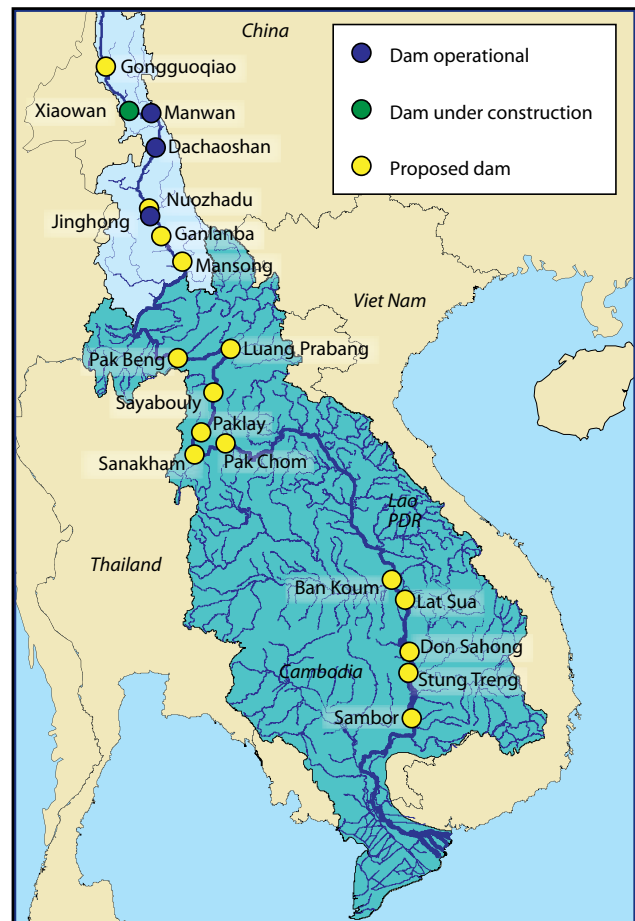
- This included training in the ISO 14000 environment management guidelines and GIS for environmental management.
- Through a range of pilot studies and facilitation programmes, MRC has strengthened regional capacity for trans-boundary and regional environmental impact assessments, strategic environmental assessments as well as ecological risk assessment, environmental conflict management and other topics and tools relevant for regional environmental management.
- The MRC has helped Member Countries in conducting their own water quality and aquatic health monitoring, assisting with the establishment of four laboratories for water quality analysis and associated quality assurance procedures - one in each Member Country.
- Since 1997, the MRC has conducted annual training sessions in water quality and aquatic health analysis. Dozens of staff from government agencies have been trained.

## MRC – MEKONG COOPERATION THROUGH UNDERSTANDING THE LINKAGES BETWEEN THE ENVIRONMENT AND LIVELIHOODS

- One of the first achievements of the MRC following the signing of the 1995 Mekong Agreement was to conduct an inventory of the Cambodian wetlands, particularly in the Tonle Sap.
- This was extended to conducting inventories of wetland flora and fauna across the Lower Mekong Basin and plays an important role in understanding the ecological health of the basin today.
- The MRC has conducted detailed analysis of soil erosion patterns across the Lower Mekong Basin and provided means of mitigating erosion and sedimentation, such as those used in the Vietnamese Plain of Reeds and the Cambodian Flood Plains.
- Pioneering MRC investigations into “deep pools” in the Mekong, especially those around northern Lao PDR, the Khone Falls and eastern Cambodia, revealed that these pools play an integral role in fish breeding.

## PROPOSED HYDROPOWER DEVELOPMENTS POSE BOTH OPPORTUNITIES AND RISKS FOR THE MEKONG RIVER SYSTEM

- Volatility in the international price of energy; increasing regional demand for electricity; the potential for electricity export to generate income for Mekong governments; and hydropower as a renewable energy source have considerably increased interest in building hydropower dams in the Mekong Basin in recent years.
- Many new private sector proposals for hydropower plans are being developed with Member Countries, both on the tributaries and the mainstream of the Mekong.
- Hydropower brings with it numerous concerns regarding the potential impacts on the environment, fisheries and people’s livelihoods.
- These concerns need to be balanced with the economic growth and poverty alleviation priorities of the countries of the Lower Mekong Basin and any negative consequences fully addressed.





## MRC – MEKONG COOPERATION THROUGH UNDERSTANDING THE LINKAGES BETWEEN THE ENVIRONMENT AND LIVELIHOODS



Work to understand and evaluate the potential long-term costs and benefits of hydropower in the Lower Mekong Basin and on the mainstream Mekong has been a core activity of the organisation since its inception in the 1950s.

Throughout its lifetime the former Mekong Committee built a reputation for its investigations into the feasibility of mainstream and tributary projects.

The signing of the 1995 Mekong Agreement marked a turning point as social and environmental considerations took an increasing prominence. Since then the MRC has been working to help Member Countries adopt best environmental practices and work closely together to ensure sustainability considerations are introduced in proposed developments.



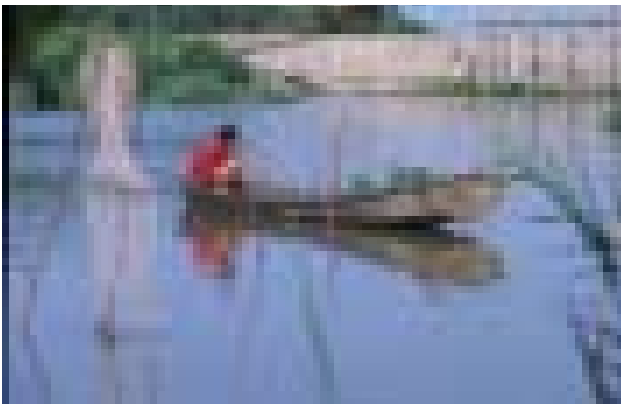
- The MRC adopted a new Hydropower Development Strategy in 2001, which has allowed Member Countries to be at the forefront of developing principles for sustainable hydropower development in the Mekong Basin based on international good practice.



- The MRC has recently initiated the Strategic Environmental Assessment (SEA) of proposed mainstream dams in the Lower Mekong Basin using a multi-stakeholder process to best understand how Member Countries can balance the opportunities and risks posed by hydropower development.



- Its main achievement will be to provide an integrated framework within which any individual proposal can be assessed in terms of economic development, social equity and environmental consequences. Mekong governments can use the SEA to review project-specific Environment Impact Assessments that are prepared by individual developers.



- The Procedures for Notification, Prior Consultation and Agreement, approved in 2003, mean that a process already exists for Member Countries to jointly review plans for any major infrastructure developments on the mainstream Mekong and to keep each other notified of projects on the tributaries.



- The MRC has taken a leading role in the on-going public debate about the costs and benefits of dams, initiating discussion forums such as meetings for parties involved in hydropower development and policy making, including civil society, NGOs and pressure groups as well as encouraging public submissions through its website through: <http://www.mrcmekong.org/ISH/hydro-submit.asp>.



- This has been reflected in increasing regional interest in the issue and the role of MRC as a facilitator of discussion.



- Another MRC achievement has been to provide preliminary design guidance for the development of dams on the mainstream Mekong that sets common standards of best practice for planning, design, operation, impact and mitigation measures for any proposed mainstream dam.



- The guidance takes the form of performance targets and design and operating principles for navigation, fish passage, sediment management and transport, water quality and aquatic ecology, and dam safety.

## THE LOWER MEKONG BASIN - FISHERIES AND AGRICULTURE FEEDS MILLIONS

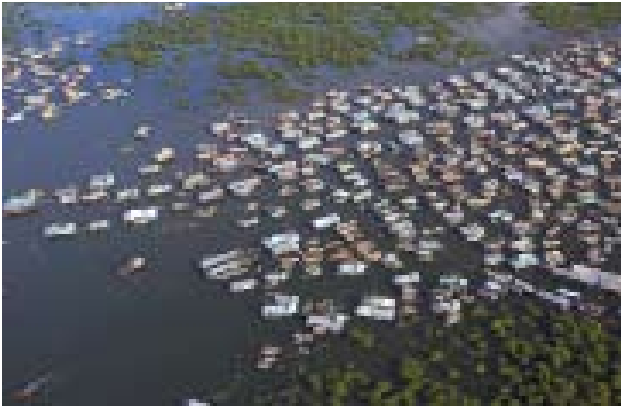
- The Mekong Fishery is the largest inland fishery in the world, estimated to be worth at least US\$ 2.6 billion annually.
- Fish provide the major protein source for many people in the Lower Mekong Basin.
- Fisheries could be under threat from current and potential hydropower schemes, over-fishing and pollution.
- Agriculture is currently the most dominant water-related sector, both for subsistence agriculture and export, particularly in Thailand and Viet Nam where it generates billions of dollars of revenue.
- Expansion of the present level of agriculture is limited by the availability of water in the dry season, with only about two percent of the average annual flow going to this sector. However, the Mekong Basin has on average significantly more water per person than many other comparable river basins around the world.
- There is much potential for increasing irrigated agricultural production and the redistribution of some river flow from wet to dry season thanks to the reservoir storage upstream, which provides an opportunity to divert water for agriculture without increasing salinity concerns in the Delta.

## MRC – MEKONG COOPERATION THROUGH MAINTAINING PRODUCTIVE FISHERIES



Through the MRC, Member Countries have confirmed their commitment to using the river system and water resources as a means for sustainable poverty alleviation, promoting food security and supporting people's livelihoods.

In recent years the MRC has had many significant achievements in fisheries:



- One of the first fisheries related projects after the signing of the Mekong Agreement was to determine the economic value of fish resources on a nationwide scale.



- Although the value of aquatic resources in the Lower Mekong Basin has been revised several times since, this has proven to be a valuable perspective in basin development planning.



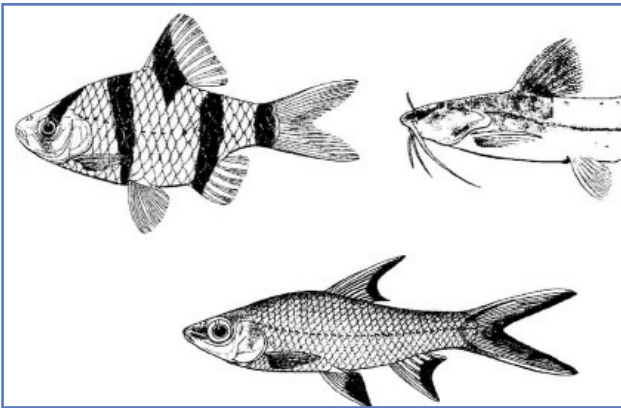
- The MRC has become a recognised regional authority and published widely on Mekong fisheries, often working with other international and national agencies, such as WWF, IUCN and World Fish to better understand fisheries in the Mekong.



- The MRC works to monitor fisheries trends and yields, collecting data on the size of fisheries production, and the overall market value of fish has been invaluable to national planning and development agencies.



- On-going monitoring and research has greatly improved knowledge of the size of and value of fisheries, as well as key indicators of trends, such as fish abundance, biodiversity and relative recruitment strength or larval abundance on a regional scale.



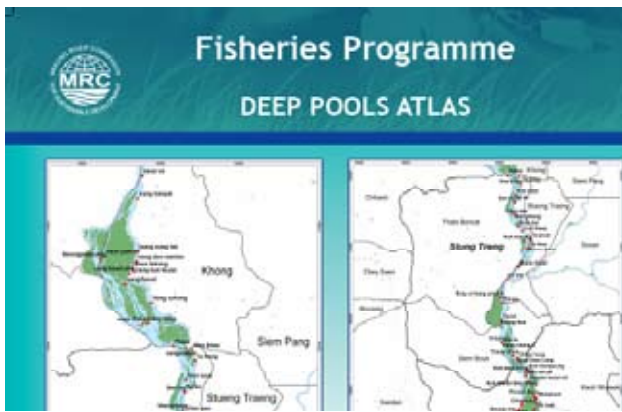
- Other studies aim to document migration patterns and the importance of key habitats for the life cycles of fish. The MRC has advanced the available knowledge of Lower Mekong Basin fisheries so that this sector has an increasing profile in considerations of basin development.



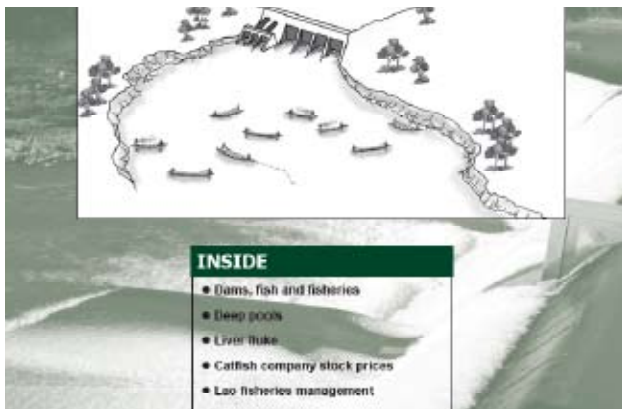
- Many fisheries managers in Member Countries have been trained through the MRC, which has also contributed to regulatory frameworks and built capacity in national fisheries agencies in each Member Country to ensure a good alignment of the programme with national priorities.



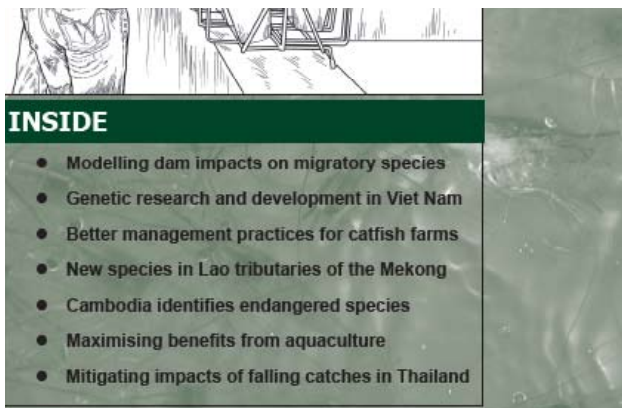
- The MRC helped found the Technical Advisory Body for Fisheries Management and the annual Technical Symposium on Mekong Fisheries, forums that allow senior fisheries managers and scientists to discuss fisheries issues of regional concern.



- The MRC has improved fisheries management and helped ensure that fisheries information is integrated into planning and development decisions in the Lower Mekong Basin. For example, in 2009 the National Assembly of Lao PDR passed a new fisheries law, to which the MRC contributed.



- MRC analysis is making an important contribution to the understanding of the impact that proposed mainstream hydropower dams could have on the capture fishery and the setting of minimum standards for fish passage to protect it.



- Studies including modeling the potential impacts of proposed mainstream dams on migratory fish, as well as basin-wide assessment of the long-term effects of various development scenarios on fisheries.

## MRC – MEKONG COOPERATION THROUGH INCREASING THE PRODUCTION OF AQUACULTURE FISHERIES



- The MRC has helped train government officials in all Member Countries in innovative methods of fisheries management and improved techniques for the aquaculture of indigenous Mekong fish species.



- Developed in cooperation with WWF and IUCN, technical guidelines for aquaculture, such as the international standards for farmed shark catfish help improve its environmental sustainability.



- By 2009, millions of native fish fingerlings, many of which are endangered, had been released into the Mekong.



- Dozens of breeding camps for fish have been installed in riparian communities, for example; in Loei, Nong Khai, Nakhon Phanom and Mukdaharn in Thailand and Champassak in Lao PDR.



## MRC – MEKONG COOPERATION THROUGH UNDERSTANDING THE MULTIPLE BENEFITS OF IRRIGATED AGRICULTURE



The MRC is helping to develop improved irrigation and water use methods across the Lower Mekong Basin by engaging in a range of agricultural and forestry based studies.



- The MRC took an early role in irrigated agriculture management, helping develop legal frameworks for water user associations in Lao PDR and farmers in Thailand in the late 1990s.



- The MRC has significantly expanded the knowledge base of the types of agriculture and other land-use carried out in the Lower Mekong Basin through a range of maps and other tools, as well as establishing a database of irrigated areas. This information is vital for helping plan against the environmental and food security risks posed by climate change and other factors.



- MRC work has helped identify ways that rice paddies can be used to support livelihoods through means other than by growing rice, for example, through supplementary fish breeding.



- MRC supported analysis has helped outline ways that farmers can improve irrigation efficiency on paddy fields in the Lower Mekong Basin, by offering appraisals of irrigation effectiveness in selected irrigation schemes; enhancing the capacity of all the stakeholders in using up-to-date irrigation theory in managing allocated water; and to produce guidelines for improving irrigation efficiency on paddy field that have been disseminated to all Member Countries.

## CLIMATE CHANGE WILL INCREASE VULNERABILITY TO POVERTY, SLOW ECONOMIC DEVELOPMENT AND ENDANGER WATER RESOURCES IN THE MEKONG BASIN

Emissions of greenhouse gas per capita are low in the Lower Mekong Basin compared with other parts of the world. The impacts of climate change are, however, predicted to be significant.

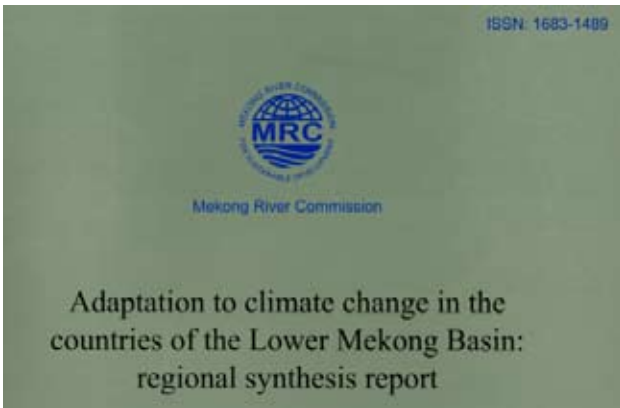
Studies undertaken to date suggest that a range of impacts are possible by 2030 that may exacerbate or increase levels of poverty and slow development, including:

- More extreme weather events;
- A decrease in rainfall during the dry season and more rain in the wet season, which may lead to increasing seasonal water shortages and a higher frequency and increased severity of floods;
- Seasonal water shortages combined with rising sea levels may increase the likelihood and severity of saltwater intrusion into the Mekong Delta, with implications for natural ecosystems, agriculture and food production; and
- The potential displacement of millions of people in the Delta due to sea level rise.

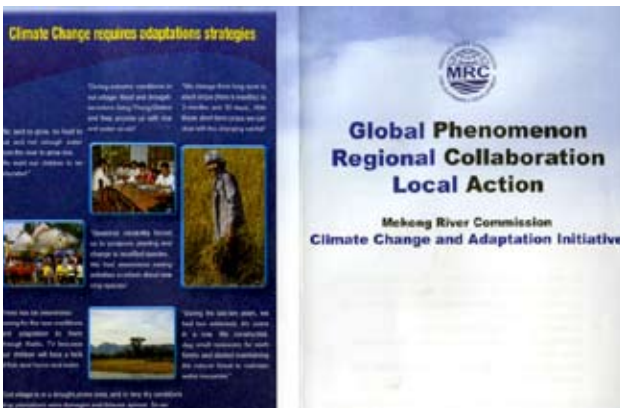
## MRC – MEKONG COOPERATION THROUGH ADAPTING TO THE REALITIES OF CLIMATE CHANGE



The MRC has recently begun working to understand what climate change will mean to the people of the Lower Mekong Basin, and the impacts that this may have on livelihoods and the environment.



- By downscaling global models for the predicted impact of climate change, the MRC has already supported extensive research into developing a detailed understanding of how climate change may threaten each individual Member Country.



- A key achievement of the MRC in 2009 was the establishment of the Climate Change and Adaptation Initiative, which provides a framework for regional cooperation and the mobilisation of resources to support climate change adaptation in the Lower Mekong Basin.



- This has included selecting demonstration sites across the basin, such as in Savannakhet in Lao PDR, where the MRC will work with local farmers to assess how they may be affected by changes to the climate in coming years and to test out adaptation measures, particularly in relation to improving water supply.



- MRC modeling has been successful in raising awareness about the potential impact of climate change in the Lower Mekong Basin, both among the public and riparian governments.



- Many of the consequences of climate change will result in an intensification of events on which MRC has already developed a strong capability, such as flood management and mitigation.



- The Governments of Thailand and Viet Nam have already developed climate change scenarios and projections and have accomplished some studies on impact assessment and potentials for adaptation.



- The MRC has begun to increase regional dialogue on how climate change will impact on the basin, through a range of learning and exchange opportunities and the Mekong Panel on Climate Change.

## WATER RESOURCES MANAGEMENT IN NEED OF A QUALIFIED HUMAN RESOURCES AND SKILLS BASE

- The long-term sustainable management of Mekong resources is coordinated by a network of government ministries and line agencies across the region.
- Despite significant improvement in recent years, this management process is still in need of training and resources to improve the capacity of Mekong governments.
- There is a need in all riparian countries and within the Commission for an improvement in skill level in areas of environment, water and natural resource management, and on approaches to engaging with a wider group of stakeholders in basin planning processes.

## MRC - MEKONG COOPERATION THROUGH BUILDING THE SKILLS BASE FOR WATER RESOURCES MANAGEMENT



All programmes feature capacity building across a range of activities, which can be as diverse as data collection, computer modeling, planning assessments and gender mainstreaming. This has made the MRC a training base for local staff, as well as through the line ministries, National Mekong Committees, local communities, NGOs and civil society organisations, and other stakeholders.



- The MRC offers national agency staff exposure to international and regional good practice



- A key achievement of the MRC is the development of a unique six to 12 month training programme for young professionals from the Lower Mekong Region called the Junior Riparian Professional Programme.



- The MRC invests in the talent of young people from the region as part of a long-term process to generate well-trained and skilled riparian professionals and ensure strong capacity and water expertise in the future.



- The long-term goal now being realised is that of “riparianisation” of the organisation, that is, to increase local ownership and staff the organisation from Member Countries and that the MRC is increasingly being run by people from the Mekong Basin.



There are some factors that still impede women's full access to benefits from natural resources and prevent them from playing a full role in developing and strengthening management institutions.

Gender is a priority issue and is taken into account in all aspects of MRC's development programming. The MRC has begun to implement a policy of gender mainstreaming that includes:

- Ensuring equal opportunities among female and male staff members in the areas of recruitment, promotion, privileges, training and working conditions.
- Implementing a policy of disaggregating all data by sex for needs assessment and programme planning and to include gender analysis into relevant programme design, implementation, monitoring and evaluation.
- Increasing awareness and skills of staff and line agency officials in considering the social differences between men and women when designing, implementing and evaluating programmes.

Gender mainstreaming is the concept of assessing the different implications for women and men of any planned policy or action so that both women and men can benefit equally and that inequality is not perpetuated. Mainstreaming infuses consideration of gender related issues into its policy development, research, advocacy, legislation, resource allocation, planning, implementation and monitoring of programmes and projects.

- Conducting a systematic review of, and putting into place, institutional procedures which ensure that the needs of men and women are all met equitably in planning MRC development activities.
- As an example at sector level, the MRC is working to address women's practical and strategic concerns and priorities through support to the regional Network for Promotion of Gender in Fisheries and its national chapters.

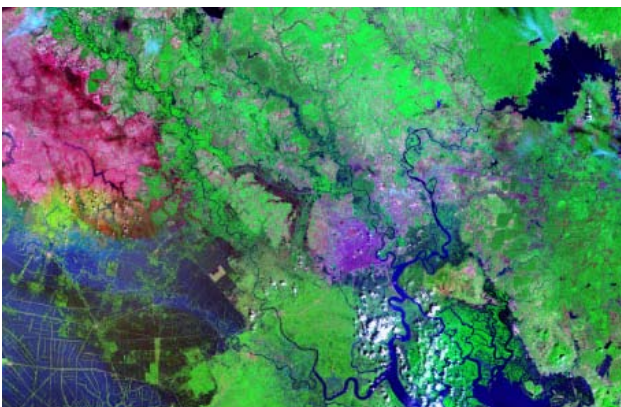


## MRC – MEKONG COOPERATION THROUGH HOSTING A COMPREHENSIVE KNOWLEDGE BASE AND ANALYTIC CAPABILITY



Since the 1950s when the MRC was called the Mekong Committee, its role has been to commission, compile and collect information regarding the Mekong, its ecosystems and the people that rely on it for their livelihoods.

The MRC is a knowledge based institution. Making scientific analysis publicly available is central to the role of the institution.



- One of the first activities of the MRC following the signing of the 1995 Mekong Agreement was to begin the process of establishing “Basin-wide Spatial Database Development,” now more commonly called Geographic Information Systems (GIS) with comprehensive aerial photography of Cambodia in 1997.



- The database systems underpin all MRC activities and are the basis of a great deal of decision support to riparian government to this day.



- The MRC maintains monitoring stations and processes data on the state of the Mekong—in real time. There are 18 stations on the mainstream Mekong that record rainfall, water levels on the river and other information, and feed these to the MRC for use in among other things, flood forecasting and drought monitoring. Since 2002, two monitoring stations have been operated by China for MRC during the flood seasons.



- Over 30 hydro-meteorological stations established on tributaries automatically feed real-time (updated every 15 minutes) information about rainfall and water levels to the MRC for analysis to help local forecasting agencies understand localised flooding.



- The MRC has developed a powerful software suite of modelling tools called the Decision Support Framework that enables planners to model a range of scenarios to assist Mekong governments in assessing how natural and man-made interventions may change water resources.



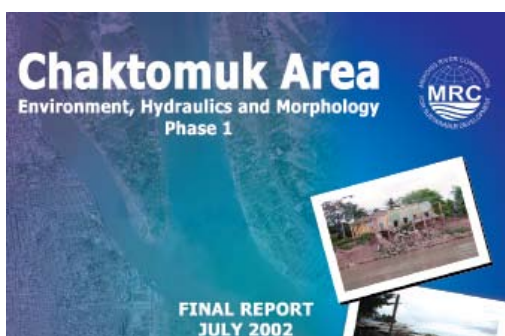
- The system has been used to model the behaviors of the river system to understand such diverse areas as:



- ◆ Quantifying “acceptable” minimum low flows for each month of the dry season and the “acceptable” natural reverse flow of the Tonle Sap in wet season as required under the 1995 Mekong Agreement;



- ◆ Understanding how various types of pollution effect water quality and fish stocks;

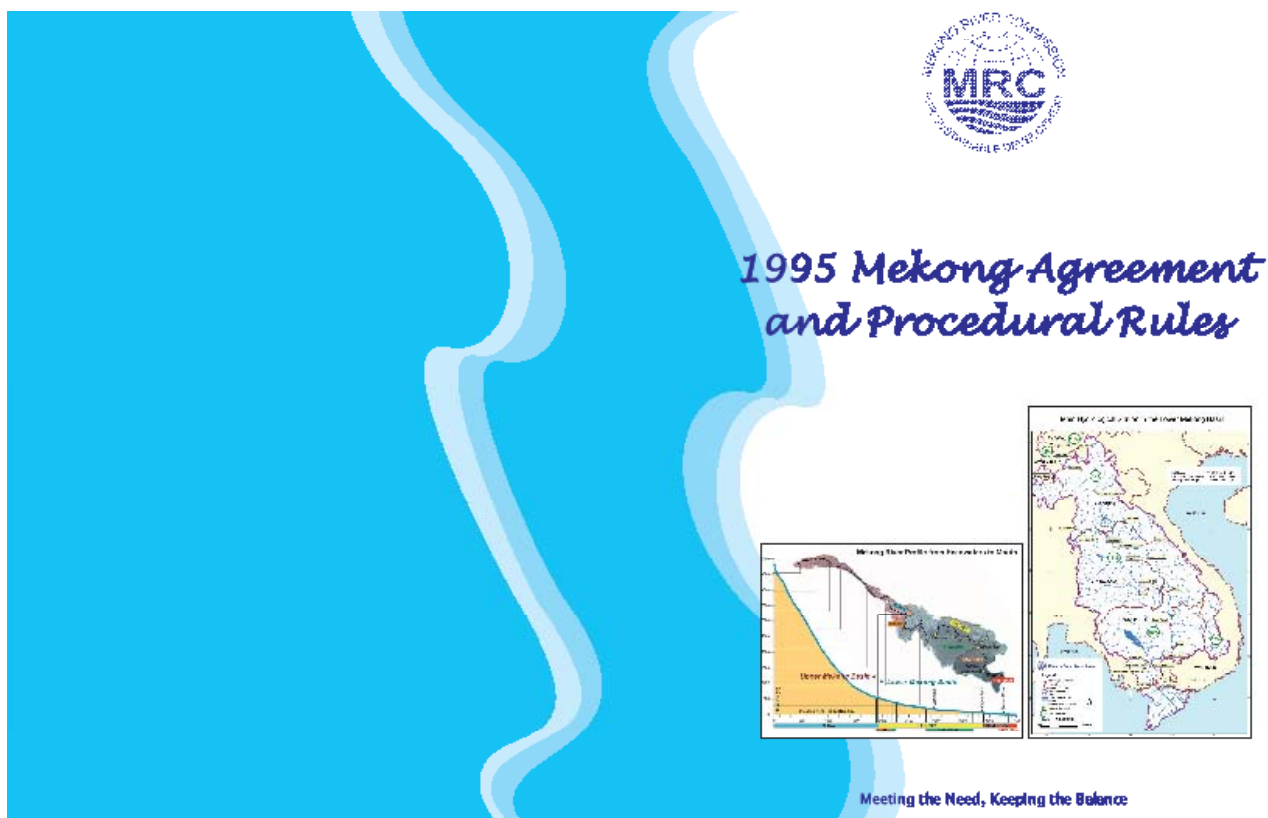


- ◆ Identifying how changes in the morphology and flow of the river can impact on fisheries productivity; and



- ◆ Predicting the impact of erosion.

This system has been a key component of the MRC’s analysis of the potential impact of hydropower, climate change, increased food production and fishing pressure, irrigation infrastructure development and navigation; and how these will impact on people’s access to water, food security and economic development.



Since the signing of the 1995 Mekong Agreement, the MRC has established a range of procedures that govern and regulate trans-boundary activities pertaining to water resources in the Lower Mekong Basin.

These act as a formal framework for engagement among Member Countries within which discussion on new development opportunities can be considered. Regional scrutiny allows for the application of the principles of achieving mutual benefits and minimising harm. The Procedures include:

1. Procedures for Data and Information Exchange and Sharing, approved 2001: establishes a set of protocols for encouraging data and information exchange among the four MRC Member Countries as well as making information available to the public;
2. Procedures for Water Use Monitoring, approved 2003: establishes a legal framework to support the intra-basin monitoring of a range of water uses;
3. Procedures for Notification, Prior Consultation and Agreement, approved 2003: establishes a series of protocols for Member Countries to notify each other if they wish to engage in any major infrastructure developments (such as hydropower schemes) on the Mekong or tributaries. Any mainstream developments are subject to rigorous prior consultation that aims at arriving at an agreement between Member Countries;
4. Procedures for Maintenance of Flows on the Mainstream, approved 2006: establishes minimum acceptable monthly flows during the dry season and a minimum natural reverse flow for the Tonle Sap. This ensures that any proposed upstream water use does not severely impede access to resources downstream; and



5. Procedures for Water Quality, in final draft form: Establishes minimum acceptable levels of water quality and commitment from Member Countries to cooperate in order to maintain acceptable/good water quality on the mainstream; strengthen existing and, if necessary, establish new joint programmes for monitoring and assessing the water quality of the Mekong River. It also establishes a commitment to develop contingency plans for responding to any special water quality problems.

## MRC – MEKONG COOPERATION THROUGH BUILDING UPSTREAM PARTNERSHIPS



The Mekong River Commission has increased effective cooperation at the technical level over the past 15 years to bring together the riparian countries to face trans-boundary challenges. This has been recognised at the highest level in all Member Countries.

Through its continued achievements, the MRC has affirmed commitment from China and Myanmar to work towards the successful implementation of the Mekong Agreement.

Since 1996, China and Myanmar have both attended annual Dialogue Partner meetings with the MRC to discuss a range of trans-boundary issues and identify opportunities for further cooperation.

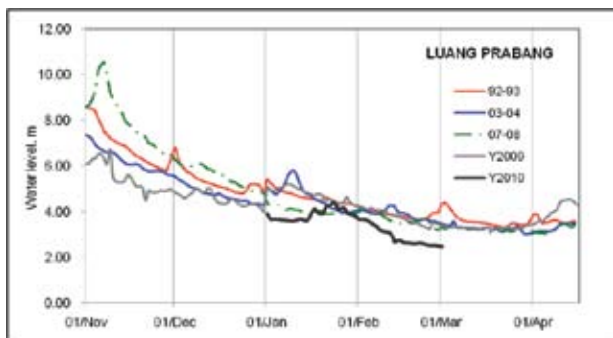
The MRC has forged new alliances and working relationships with China, which have included:



- The Agreement on the Exchange of Hydrological Data from the Lancang-Mekong, signed in 2002, under which China agreed to provide information about rainfall and river flows in the flood season, thereby increasing the accuracy of flood forecasts;



- Strengthened technical cooperation with China, working together to upgrade river monitoring stations in China and the establishment of a data centre;



- MRC provision of monthly flow data from selected hydrological stations in the Lower Mekong Basin to China, which began in 2006;



- China's hosting of study tours and workshops for the MRC's Flood Management and Mitigation Programme, Initiative on Sustainable Hydropower and Navigation Programme, and MRC efforts to engage with China and Myanmar have seen them become valued Dialogue Partners. Both upstream countries engage in MRC's regional meetings on technical issues as well as basin stakeholder meetings; and



- China's recent commitment to take a significant role in the Strategic Environmental Assessment of proposed mainstream hydropower schemes.