



Annual Report 2002
Mekong River Commission

A Vision for the Mekong River Basin

An economically prosperous, socially just and environmentally sound Mekong River Basin

A Vision for the Mekong River Commission

A world class, financially secure, international river basin organisation serving the Mekong countries to achieve the basin vision

The Mission of the Mekong River Commission

To promote and coordinate sustainable management and development of water and related resources for the countries' mutual benefit and the people's well-being by implementing strategic programmes and activities and providing scientific information and policy advice.



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The MEKONG RIVER COMMISSION

The Mekong River Commission is an intergovernmental body created in 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam.

The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin came about as the four countries saw a common interest in jointly managing their shared natural resources. Signed on 5 April 1995, it set a new mandate for the organisation "to cooperate in all fields of sustainable development, utilisation, management and conservation of the water and related resources of the Mekong River Basin."

The agreement brought a change of identity for the organisation previously known as the Mekong Committee, which had been established in 1957 as the Committee for Coordination of Investigations of the Lower Mekong Basin - the Mekong Committee.

Since the 1995 Agreement, the Mekong River Commission (MRC) has launched a process to ensure "reasonable and equitable use" of the Mekong River System, through a participatory process with National Mekong Committees in each country to develop rules and procedures for water utilisation. The MRC monitors the quality of water resources, and is supporting a joint basin-wide planning process with the four countries called the Basin Development Plan. The MRC is also involved in fisheries management, promotion of safe navigation, agricultural development, flood mitigation and hydropower planning within an overall framework of renewable resources management.

The two upper states of the Mekong River Basin, the People's Republic of China and the Union of Myanmar, are dialogue partners to the MRC.

Structure

The MRC consists of three permanent bodies: the Council, the Joint Committee (JC) and the Secretariat.



The Council, comprising one member at Ministerial and Cabinet level from each MRC member country, convenes annually and has overall governance of the Mekong River Commission.

The JC, also comprising one member from each member country at Head of Department level or higher, convenes at least two times a year. This body functions as a board of management.

The Secretariat, which provides technical and administrative services to the JC and the Council, is under the direction of a Chief Executive Officer (CEO) appointed by the Council. The Secretariat is located in Phnom Penh, Cambodia. The Assistant CEO is of the same nationality as the JC Chair and serves a one-year term.

The MRC is funded by contributions from the four member countries and from aid donors. Formal consultation with the donor community is carried out through an annual Donor Consultative Group meeting.

The National Mekong Committees coordinate MRC programmes at the national level and provide links between the MRC Secretariat and the national ministries and line agencies. The principal implementing agencies of the MRC programmes and projects are the line agencies of the riparian countries in the Lower Mekong Basin.



Message from the Chairman of the Mekong River Commission Council

It is my great pleasure on behalf of the Mekong River Commission to convey to all readers our warmest regards and best wishes.

During 2002, the successful course of MRC was maintained with considerable progress recorded also this year. The progress made within the Mekong cooperation has had a positive impact on the relations between our four governments. Thereby MRC was also materialising as a key to promoting peace, sustainability, and prosperity in our region.

At the Ninth Council Meeting in November 2002, we took stock of the Mekong cooperation over the past three years and concluded that our organisation during that time had made important decisions that have now placed it among the most promising river basin organisations in the world of developing countries. In this context, the Council took note with great appreciation that MRC had been awarded the 2002 Thiess Services' River Prize for excellence in river management.

The Council, with particular satisfaction, noted the progress of the three core programmes, the Basin Development Plan, the Water Utilisation Programme and the Environment Programme. The first joint presentation to the Council Members of the programmes clearly demonstrated how they connect to each other and highlighted their importance in providing our organisation with the means to manage the development of the Mekong Basin in a sustainable manner. Under the Water Utilisation Programme, we approved a set of Preliminary Procedures for Notification, Prior Consultation and Agreement. These procedures will provide us with the first set of detailed guidelines for our cooperation when we use the Mekong water.

The Council in 2002 approved a new Flood Management Programme. With the devastating floods we have experienced over the past years, flood management and mitigation will be a cornerstone for MRC. We all know that extensive floods have to be addressed in a regional context. The Programme will over a six-year period establish capacities for regional flood management and after that time, the four riparian countries will sustain the activities by their own means. I am confident that with this programme we will be able to significantly reduce human suffering and loss of lives and property due to floods.

On 1 April 2002, MRC entered into a historic data-sharing agreement with China. It is to the mutual advantage of all six riparian countries to share information to a larger extent and progress on this should be continued in the future.

In 2002 we reformulated our Fisheries Programme to align it more closely with our three core programmes. The Fisheries Programme is among the oldest and most significant of MRC cooperation programmes. The new structure of the Programme allows more donors to support it in a flexible manner. The Programme aims to ensure the livelihood and food security of millions of people. At the Council, we also took note that a Navigation Programme was under development and would be ready during 2003.

In 2002, we expanded the circle of observers to the Council meetings. Representatives from ASEAN, IUCN and WWF participated in the meeting for the first time. We sincerely hope that this new feature will further strengthen the transparency and credibility of the Mekong cooperation. We wish to work in partnership with other organisations that share our goal of developing and conserving the Mekong Basin.

The achievements in 2002 have become reality due to the cooperative spirit of our four governments and due to extensive support from our donors. We are truly grateful for this essential support and are indeed encouraged that the donors share our vision with respect to the direction we have set for our organisation.

Le Huy Ngo
Chairman of the MRC Council for 2002-2003

STRUCTURE OF THE MEKONG RIVER COMMISSION

Members of the MRC Council

Members at Ministerial and Cabinet level, responsible for policy and decision-making



H.E. Mr Khy Tainglim
Minister of Public Works
and Transport
Member of the
MRC Council for Cambodia



H.E. Mr Somphong Mongkhonvilay
Minister of the
Prime Minister's Office
Member of the
MRC Council for Lao PDR



H.E. Mr Prapat Panyachatraksa
Minister of Natural Resources
and the Environment
Member of the
MRC Council for Thailand



H.E. Mr Le Huy Ngo
Minister of Agriculture
and Rural Development
Member of the
MRC Council for Viet Nam

Members of the MRC Joint Committee

Members at Department Head level or higher, responsible for implementing policies and decisions



H.E. Mr Sin Niny
Vice-Chairman of Cambodia
National Mekong Committee
Member of the
MRC Joint Committee
for Cambodia



H.E. Mr Sitaheng Rasphone
Vice-Minister of
Agriculture and Forestry
Member of the
MRC Joint Committee
for Lao PDR



Dr Plodprasop Suraswadi
Permanent Secretary,
Ministry of Natural Resources
and the Environment
Member of the
MRC Joint Committee
for Thailand



H.E. Dr Nguyen Dinh Thinh
Vice-Minister of Agriculture
and Rural Development
Member of the
MRC Joint Committee
for Viet Nam

MRC Secretariat

Responsible for technical and administrative services



Mr Joern Kristensen
Chief Executive Officer

ORGANOGRAM OF THE MEKONG RIVER COMMISSION



Government of CAMBODIA



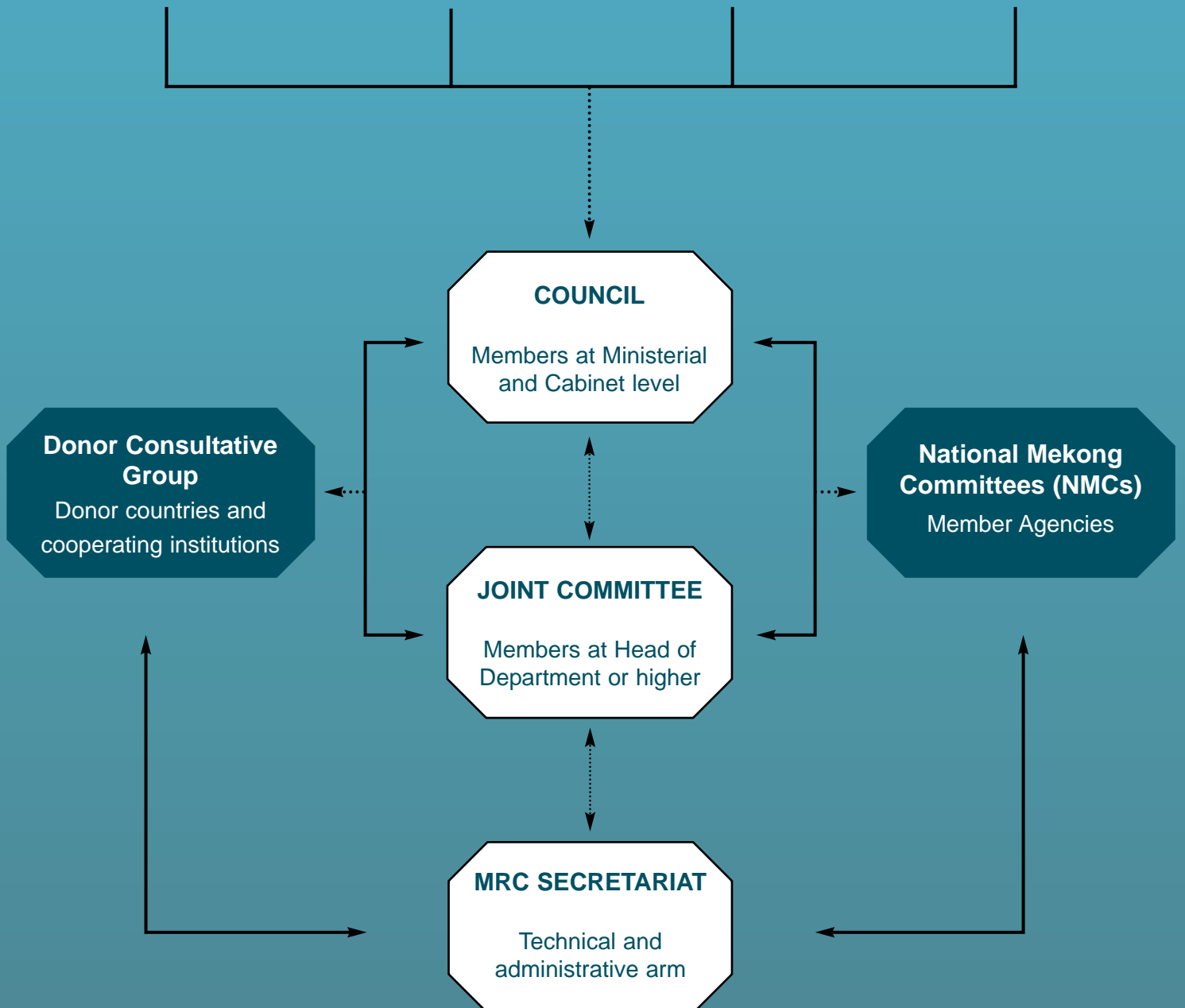
Government of LAO PDR



Government of THAILAND

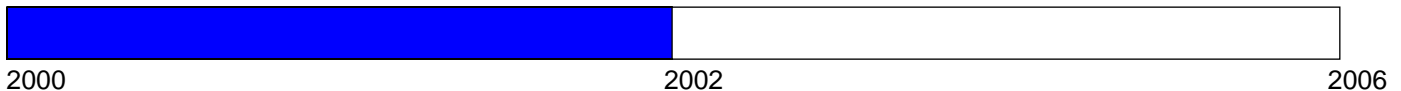


Government of VIET NAM



Progress Report 2002

Water Utilisation Programme



The Water Utilisation Programme aims to establish effective mechanisms to improve water resources management for the economic and social development of the Mekong Basin in an environmentally sustainable manner, based on the principle of "reasonable and equitable water utilisation" while ensuring protection of the environment, aquatic life and ecological balance of the Basin. The programme has three main outputs, namely:

- Creating a basin model and knowledge base for use in future decision-making
- Developing rules for water utilisation between the four Lower Mekong countries
- Management and institutional strengthening

It is a 6-year programme funded by the Global Environment Facility through the World Bank for US\$11.9 million. In 2002, the programme was in its third year and therefore mid-way through implementation. Expenditures to December 2002 were US\$4.25 million, or 35 per cent of the total budget.

Preliminary procedures for notification, consultation and agreement on basin-related development projects were agreed upon in October 2002, marking the 2nd milestone in the "rules" process. (See page 17 for more information.)

Other major achievements during the year were:

- Continued progress in the development of a computer-based modelling system to predict impacts and outcomes of proposed development in the Mekong River Basin. This component is under execution by Halcrow consultants and the work is on schedule for completion in September 2003.

- Introduction of Transboundary Diagnostic Analysis, an issue-based approach to transboundary environmental management, to be used in support of all core programme activities.
- Introduction of the "flow management" approach to determining Mekong mainstream flow requirements, integrating both physical and ecological considerations. This approach is required to support the mainstream flow procedures due in 2004. (See the article on page 18, "Keeping the river flowing", for a description of this approach.)
- Improvements in management and collaboration between the Secretariat and National Mekong Committees.



Basin Development Plan



The Basin Development Plan is funded by donors for the amount of US\$6.5 million over a 3-year time span.

The two aims of the programme are to establish a planning process at national and regional levels that will enable the Lower Mekong countries to jointly plan the development of the Mekong Basin, and to produce the first regionally-owned Basin Development Plan by October 2004.

The BDP was formally launched in Bangkok in February 2002 and a workplan produced by May. National sub-committees have been established to support the planning process, liaising closely with the BDP Team at the MRC Secretariat. BDP units within the National Mekong Committees have been established in all four countries to coordinate implementation. Representatives from key line agencies participate in the BDP units at national level, or are associated as focal contact points.

The planning process is based on studies to be carried out in 10 "sub-areas", selected districts where new developments have potential for cross-border benefits. Based on the need for public participation, a consultative process involving provincial government, the private sector and civil society leaders will propose development scenarios for integration into the overall Basin Development Plan.

To date, the programme has made considerable progress in initiating sub-area studies. Orientation meetings have been held with provincial authorities and sub-area working groups have been nominated. Concurrently, a number of guidelines and working papers on important aspects of the overall BDP process have been drafted and regional sector overviews prepared.



Environment Programme



The programme aims to ensure adequate protection of the environment and the ecological balance of the basin. To this end, it undertakes monitoring and assessment of the environment and provides technical and information support to aid the workings of the other two core programmes.

The programme has a total 5-year budget of US\$23.4 million, of which US\$7.1 million has been secured. The sum of US\$3.8 million has been disbursed since its start in January 2001.

The Environment Programme has five components:

- Environmental monitoring and assessment



- Environmental decision support
- Strategic networking and coordination
- Capacity and awareness building
- Support studies and research facilitation

Major achievements in 2002 were:

- Commencement of the redesign of the existing basin-wide water quality monitoring network to bring it in line with current needs and standards, including upgrading of government laboratories with essential equipment and staff training.
- Development of common classification systems, including one for wetlands. Watershed classification of the basin was completed and the data incorporated in the MRC Information System. In cooperation with other agencies, including the International Centre for Environment Management, IUCN - The World Conservation Union and the World Wide Fund for Nature, a review of protected area management in the basin was also completed and recommendations made for improving the management of these areas.
- Drafting of technical guidelines for a transboundary EIA/SEA (Environmental Impact Assessment/Strategic Environmental Assessment) system for the Mekong River Basin.
- Development of the self-study River Awareness Kit on CD-ROM. A State of the Basin report has also been in preparation and will be issued in 2003.

According to plan, the Environment Programme is to be revised during 2003. The joint review by major donors in late 2002 provided useful recommendations on the way the programme can be revised to ensure that it supports the work of the core programmes of MRC. The revision is expected to refocus activities within five thematic areas: monitoring and assessment, humans and ecosystems, decision support systems, ecosystem knowledge, and flow management.

Fisheries Programme



2002 2003
Planning of new programme

In 2002 the Fisheries Programme experienced a cutback of over 50 per cent of donor funding, necessitating a major restructure of its activities. The programme was redesigned to link it more closely to MRC's core programmes, with ongoing activities funded to the value of US\$5.1 million from 2003 to 2005. In addition, new funding is needed to cover the activities considered to be priorities within fisheries line agencies in the Lower Mekong countries, to the value of US\$9.3 million.

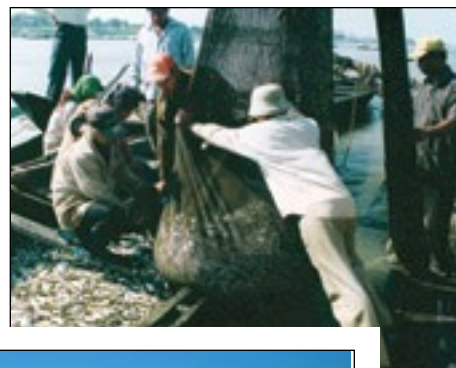
In line with the overall aim of integrating fisheries information into other planning sectors, there was a high priority given to communications activities. Regular publishing of formally edited fisheries papers in three series (MRC Technical Papers; Mekong Development Series and Conference Series) has resulted in a higher profiling of issues to a very broad audience through free distribution to partners and low-cost sales to the general public.

A film on fisheries in Cambodia, "Where There Is Water, There Is Fish" was completed and will go to air in 2003. An earlier film, "Mekong: The Mother" premiered in Cambodia and Lao PDR in April 2002.

Valuation of fish resources was carried out through fish fry sampling and fish-yield-per-habitat studies. Monitoring of the dai fishery in Cambodia has continued to provide more information about the link between fish yields and flood levels.

Support for co-management at selected reservoir areas continued, as did promotion of aquaculture systems for indigenous species. Rural extension work for aquaculture development was terminated in the Mekong Delta but project activities have continued, an indication of the project's overall sustainability.

Major preparation of the international Large Rivers Symposium (LARS2), to be held in February 2003, was carried out.



Agriculture, Irrigation and Forestry Programme

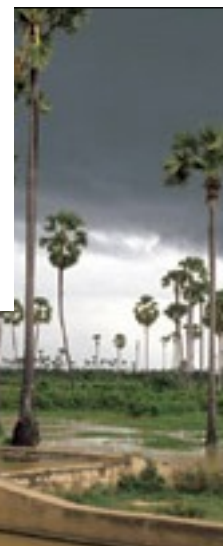


2002 2003
Start-up phase

Based on a catchment management approach, the programme focuses on activities that require regional cooperation to promote the sustainability and further development of food production from the land and water resources of the Basin.

In 2002, work began on a model to demonstrate and evaluate the multi-functionality of paddy fields.

The programme has secured funds of approximately US\$7 million. Full implementation of the AIFP will commence in 2003, including reforestation work in some border areas.





Flood Management and Mitigation Programme



2002 2003

2008

Start-up phase through links with existing programmes

The new Flood Management and Mitigation Programme was prepared in 2002 through a consultation process in the four Lower Mekong countries. In November, the MRC Council approved the new programme, which is presented in the form of six components to be carried out over a 6-year period:

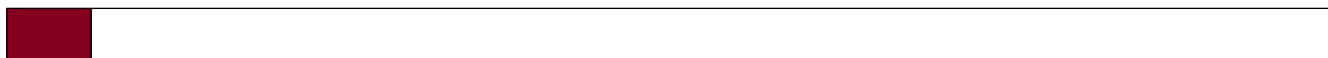
- Establishment of a regional flood management and mitigation centre
- Structural measures
- Mediation of transboundary flood issues
- Flood emergency management strengthening
- Flood proofing measures
- Land use management

The 1st Annual Flood Forum was held in Phnom Penh in April 2002, drawing over 80 participants from the region to this new platform for information exchange and coordination.

Relationships with NGOs and other partner agencies have been strengthened and enhanced, increasing the effectiveness of flood warning dissemination.

Full implementation will begin in 2003. Funding of the programme is fully pledged to the value of US\$22 million.

Navigation Programme



2002

Drafting of new strategy

In August 2002 the MRC started updating the existing MRC Navigation Strategy which was formulated in 1994. The eventual Navigation Programme is expected to be made up of five proposed components as titled:

- Socio-economic analysis and regional water transport planning
- Legal framework for cross-border navigation
- Safety and environment
- Promotion, coordination and information
- Institutional development and programme management

The terms of reference for a Cambodia-based project, "Master Plan for the Mekong Water Transport Sector in Cambodia" were completed in 2002. This project will relate closely to the overall regional programme when it is developed.

Projects commenced in 2002:

- "Institutional Strengthening and Capacity Building for Navigation in Cambodia", financed by the Belgian Government
- "Digitizing of the Hydrographic Atlas and Navigation Charts in Cambodia, Lao PDR and Thailand", financed by the Government of Finland

Projects completed in 2002:

- Formulation of the "Technical Guidelines for management and monitoring of spills from navigation in the Mekong River: Assessment and initial recommendations", financed by the Government of Flanders.
- "Harmonisation of the Aids to Navigation Systems along the Greater Mekong River". A joint MRC-ESCAP project, financed by Finland and the Netherlands.

Close dialogue with NGOs and civil society was initiated during the year in response to concerns raised regarding upstream navigation issues. A study of potential transboundary impacts of upstream navigation development was also commissioned and disseminated to member governments and programme partners.



Integrated Capacity Building Programme

2000

UNDP support ends 31 March 2003

Ongoing



The Capacity Building Programme funded by UNDP for US\$ 2.268 million in 2000-2002 will conclude by the end of March 2003. However an Integrated Capacity Building Programme with a focus on training and programme support continues. (See page 22 for more information on "Increasing human resource capacity".)

Major outputs during 2002 included the revision of the Mekong Programme Manual and training of staff in its application; coordination of staff training in English, report and proposal writing, financial reporting, professional efficiency and specialised computer operating skills; and several improvements to programme coordination management, human resource management and financial management systems.

National Mekong Committees focused on outreach by presenting their organisations to line agencies and including them in capacity building activities. Joint Committee members received special support with the contracting of Senior Advisors who were attached to the rotating chair of the MRC Joint Committee.

Programme coordination was strengthened through a Programmes Coordination Group functioning at Secretariat level, and a Core Programmes Management Group involving Secretaries-General from each National Mekong Committee, programme managers and the Chief Executive Officer. The Core Programmes Management Group provides the link between programme planning at a Secretariat level and programme implementation at a national level. Meanwhile the Programmes Coordination Group oversees a system of working groups at the Secretariat. The working groups provide a forum for professional staff

from across the different programmes to work together on cross-cutting issues such as data management, transboundary issues, socio-economic development and public participation.

The National Mekong Committees completed corporate strategic plans in support of the overall MRC Strategic Plan 2001-2005, and also contributed to the drafting processes of MRC Administration and Finance manuals as well as various MRC strategy and programme documents.

The communications function established within the Office of the CEO in 2001 was fully operational in 2002. It was responsible for the quarterly issue of Mekong News and other corporate information material, packaging and promotion of MRC information products, preparation of visual displays at key events, ongoing media and NGO liaison and website management. A new corporate website was developed during the year, including the facility for on-line sales, as part of an overall marketing and distribution system for information products.

Corporate highlights

New partnerships

The MRC established further partnerships in 2002 with institutions sharing common goals for development of the Lower Mekong Region. For the first time, two partner NGOs - the World Wide Fund for Nature and IUCN, the World Conservation Union - attended a Council meeting with observer status.

New partnerships were established with:

Asia Disaster Preparedness Centre
University of New South Wales, Australia
University of Sydney, Australia
World Wide Fund for Nature
Network of Aquaculture Centres in Asia-Pacific
Canada Space Agency and Natural Resources

China agreement

An agreement with China on the provision of hydrological information on the Lancang/Mekong River during flood season was signed at the MRC Secretariat on 1 April 2002. The agreement represents another step towards a closer relationship with upstream partners.



Recognition of excellence

In September 2002, the MRC was awarded the Thies Services International Riverprize at the Brisbane Riversymposium, an annual event held in Australia. The prize was in recognition of MRC's conceptual model for development of the Mekong. It was the first time the prize had been won for management of a river shared by developing countries.



Research challenge

In late 2002, the MRC was selected as regional coordinator for the CGIAR Challenge Programme on Water and Food. The role involves promotion and coordination of research priorities related to water and food security in the Mekong River Basin, through participatory consultation with stakeholders including advanced research institutes, national research organisations and NGOs. (See page 30 on "Meeting the challenge of water for food".)



On the Riverprize

The Thies Services International Riverprize is the most generous award of its type in the world, to the value of AUD 100,000. The prize recognises excellence in river management. The prize is open to any individual, organisation, agency or group of organisations that can demonstrate outstanding achievement in river management, and provides an incentive to further the worldwide effort of restoring healthy rivers. It has been awarded annually since the year 2000. Winners are selected by a judging panel of representatives from universities and organisations such as the Global Water Partnership, the International Water Association and the Australian Academy of Science.



On receiving the Riverprize on 5 September in Brisbane, MRC Chief Executive Officer Mr Joern Kristensen said, "This prize is, for us, a confirmation that the concept of river basin management that we have developed is the right one. We are now confident that MRC represents international best practice and responds adequately to the needs of the people of the Mekong region, and is seen to be serious about the need to secure livelihoods, and enable economic and social prosperity....The cooperation between Mekong countries has started before there is a crisis of water management. There is time for us to learn from both the successes and failures of other river basin organisations of the world. The Mekong is the living, breathing hope for the future of millions of people."

Previous Riverprizes have been awarded for management of the Mersey River in the United Kingdom and the Grand River in Canada. Shortlisted nominees for the prize in 2002 were the Danube River in Europe, the Fu-Nan River in China, the Humber River in Canada, and the Kissimmee River in the United States.

Water utilisation "Rules" reach 2nd milestone

With the signing of the 1995 Agreement on the Sustainable Development of the Mekong River Basin, Cambodia, Lao PDR, Thailand and Viet Nam enshrined the universally accepted principle that each is entitled to "reasonable and equitable" use of international waters. This principle is stated in conjunction with another universally accepted principle of international water law - that of "sovereign equality", meaning that each state has equal rights. In order to implement these two principles and others set out in the Mekong Agreement, firstly, the specific provisions of Article 5 provide the framework for proposed uses within the basin and for inter-basin diversions (the diverting of water out of the river basin). Secondly, Article 26 requires the Joint Committee to prepare "Rules for Water Utilisation and Inter-basin Diversions". Thus, in October 1999, the MRC Council committed to negotiate the terms of conditions of 5 sets of "rules" within a period of 6 years so that these principles can be applied.

This rule-making process has been undertaken through the Water Utilisation Program (WUP), one of three core programs of the MRC. WUP is a World Bank-executed project financially supported by the Global Environment Facility (GEF). Since 2000, the WUP has put in place a process of extensive technical and legal discussions between the four countries to enable development of these rules.

The first set of rules - the Procedures for Data and Information Exchange and Sharing - was adopted by the MRC Council at its annual meeting in November 2001. The second set - the Preliminary Procedures for Notification, Prior Consultation and Agreement - was signed by the Council on 12 November 2002 in Ho Chi Minh City. Putting these procedures into effect represents punctual achievement of the first two milestones in the 6 year process, and reflects the genuine commitment of the four member countries to maintaining and improving cooperation within the framework of the 1995 Agreement.

The conditions of Article 5 of the 1995 Agreement are there to enable the parties to properly plan the availability of water for optimum sustainable use and prevention of waste for the benefit of all people in the Lower Mekong Basin. Article 5 is not intended to restrict use of water, but rather to provide a framework to enable reasonable and equitable water use, while respecting the sovereign equality of each member state by keeping all parties informed of the proposed uses of water. Domestic and "minor" uses of water are not included.

Article 5 specifies obligations that member states have

regarding water use, distinguishing between uses on the mainstream and on the tributaries, and between uses during the wet and dry seasons. The Preliminary Procedures reflect these various obligations through the following three mechanisms:

1. Notification

Notification is a process of informing the MRC member states of any proposal for a use of water. Notification is required only for uses on Mekong basin tributaries or for uses on the mainstream only during the wet season.

2. Prior Consultation leading to Agreement

Prior Consultation is a more rigorous form of communication required for proposals for a use of water on the mainstream (inter-basin diversion from the mainstream during the wet season and intra-basin use on



the mainstream during the dry season). Prior Consultation requires the proponent to consult with other member states to explain the proposed use and receive responses with the aim of arriving at an Agreement to proceed supported by a decision by the Joint Committee. The Preliminary Procedures provide for a minimum period of 6 months for the consultation process to be carried out before the proposed use can begin.

3. Specific Agreement

A Specific Agreement is the most rigorous process. This is required only when there is a proposal for an inter-basin diversion from the mainstream during the dry season. The provision imposes a duty upon the proposing member state to fully describe the proposed use and for the Joint Committee and the other member

states to carry out "due diligence" prior to implementation.

While notification has been a practice since the signing of the 1995 Agreement, the new Preliminary Procedures prescribe a format for doing so and establishes follow-up mechanisms so that all notifications are duly acknowledged and validated. Since 1995 and prior to the establishment of the Preliminary Procedures, member states made fifteen separate notifications of water use to the Joint Committee. The new Procedures are "preliminary" so that they can be refined before they are finalised in 2003 based on the experience gained through their application.

The "rules" schedule

- Procedures for data and information exchange and sharing by the end of 2001
- Preliminary procedures for notification, consultation and agreement by the end of 2002
- Procedures for monitoring existing water uses by the end of 2003
- Procedures for notification, consultation and agreement by the end of 2003
- Rules for the maintenance of flows by the end of 2004
- Rules for water quality by the end of 2005



Keeping the river flowing



The Mekong is one of the largest rivers in the world, with an immense volume of water. In full flood, it spills over its banks to cover huge swathes of countryside: the vast natural floodplains of Cambodia, southern Laos and the Vietnamese delta. Visitors flying into Phnom Penh in the flood season can sometimes observe the countryside as one vast, glittering mirror of water, flecked with sugar palm trees. From July to October, the sheer force of water coming down the Mekong pushes the Tonle Sap upstream, causing it to flow backwards into the Great Lake, which swells to over five times its dry season size.

With such a natural abundance of water, it may seem extraordinary that the Mekong countries have adopted the far-sighted approach of preparing for possible shortages, in the "maintenance of acceptable minimum monthly natural flow" principle enshrined in the 1995 Agreement on Sustainable Development of the Mekong River Basin. Yet it is a need that has become ever more pressing.

Agriculture is the largest consumer of water. As intensive cultivation increases, more and more river water is diverted into numerous small or large-scale plantations. Population, and with it, the demand for food, is expected to double in the Lower Mekong Basin between 1980 and 2020. Rice production increased dramatically from 1990 to 2000 (see chart on changes in rice production) to provide for the growing population, meet the countries'

requirements for food sufficiency, and provide export income. This has been achieved partly by increasing areas under production, but mainly by intensification of cropping, with a rise in the areas irrigated and an increase in inputs such as fertilizers. The demand for water for irrigation has resulted in the construction of reservoirs on the Mekong tributaries, clearly visible on current satellite images.

The increased use of water for dry-season rice cropping has resulted in greater intrusion of saltwater from the South China Sea into the Mekong Delta. Increased salinity is a threat to the future of agriculture in this area which is Viet Nam's rice bowl. Less water, and changes in when the water is available, also affect the ability of fish to breed and spawn - a crucial factor for food security in the poorer Mekong countries.

The concept of minimum flow

The 1995 Agreement requires cooperation in the maintenance of river flows on the mainstream of the Mekong:

- Of not less than the acceptable minimum monthly natural flow during each month of the dry season;
- To enable acceptable natural reverse flow of the Tonle Sap to take place during the wet season; and
- To prevent average daily peak flows greater than those naturally occurring on average during the flood season.

The Water Utilisation Programme of MRC has been committed by the Council to develop agreed mainstream flow "rules" by the end of 2004.

Defining the concept of minimum flow will require evaluation and agreement by all national governments as to what is "acceptable", in terms of both the physical and biological requirements to maintain a certain level of river health.

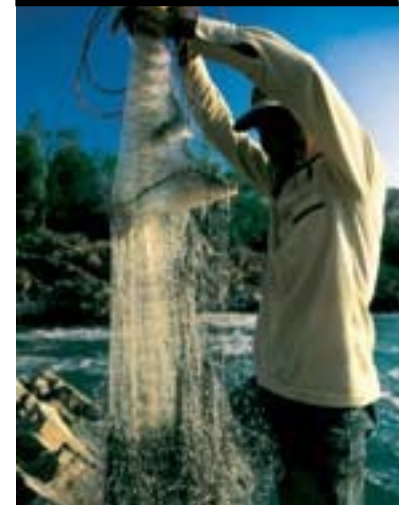
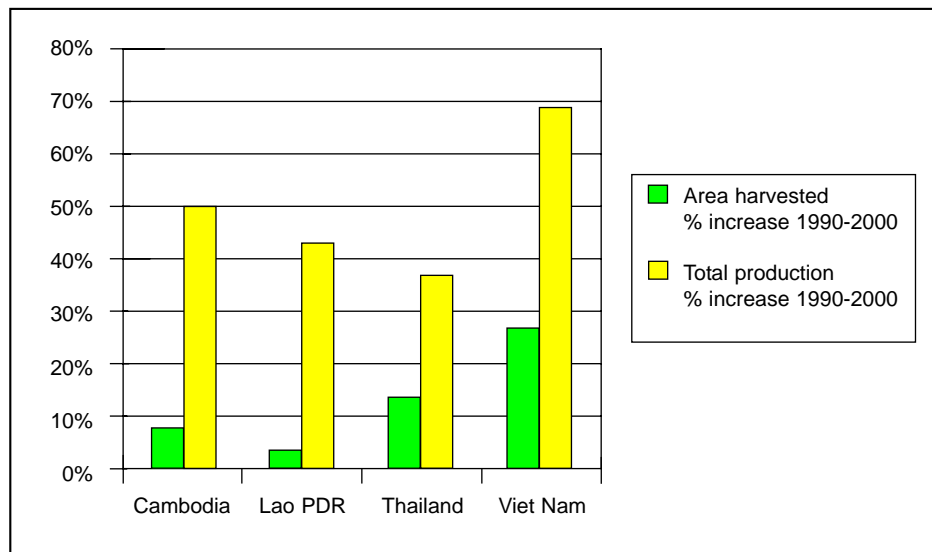
It is not simply the amount of water flowing down a river that keeps it healthy. The seasonal pattern of discharge is important - low flows in dry seasons, high flows in wet - and the variability in flow. Floods and spates maintain channel form and create habitat. They also flush out undesirable species such as water hyacinth, and trigger migration and spawning in fish and invertebrate species. Similarly, low flow in times of drought may be important in the control of pest species. So it is the overall "flow regime" that is important, including both water volume and seasonality.

More than 30 countries around the world now use a "flow management" approach and the number is increasing every year. The approach can be used on any river. The methods of determining flow regime have come from temperate, developed countries; in the case of the Mekong, the approach to be adopted must take into account its own unique blend of social, economic and political realities. The flow regime eventually prescribed for the Mekong must consider its high levels of biodiversity (it has one of the highest levels of fish diversity known in any river in the world) and the large human population of the basin with livelihoods directly linked to a range of riverine natural resources including insects, plants and fish.

Defining and maintaining appropriate flow

Over 2003 and 2004, the MRC will establish a panel of experts in the fields of hydrology, fisheries, river ecology, human use of the river and computer-based modelling of scenarios, to provide the best judgements available as to what "critical values" of the river must be protected. "Critical values" are those that the countries agree should not be lost. All available relevant information on the Mekong will be collected for use in decision-making, and public input will be sought.

These information and recommendations will provide the basis for an Interim Flow Plan (IFP) to be presented to the MRC Council in 2004. The IFP would ensure that the present condition of the river is maintained until a more comprehensive and empirically-based strategy for flow management can be carried out during the period 2004-2006.



Source: FAO
Chart: Changes in rice production 1990-2000.
 Increases in irrigated agriculture create more demand for water.

Water quality in the Mekong basin

Water quality continues to be a top concern of governments when considering transboundary environmental issues. Water quality in general, and sedimentation in particular, emerged recently as two of the three most serious concerns identified in workshops in 2002.

The monitoring of water quality in the Mekong goes back to 1984, when the former Mekong Committee established a water quality monitoring network. Samples were taken and analysed regularly from Lao PDR, Viet Nam and Thailand. Cambodia joined the project in 1992. Since this time, water samples have been collected monthly at about 100 sites throughout the basin and are analysed for about 20 different chemical parameters.



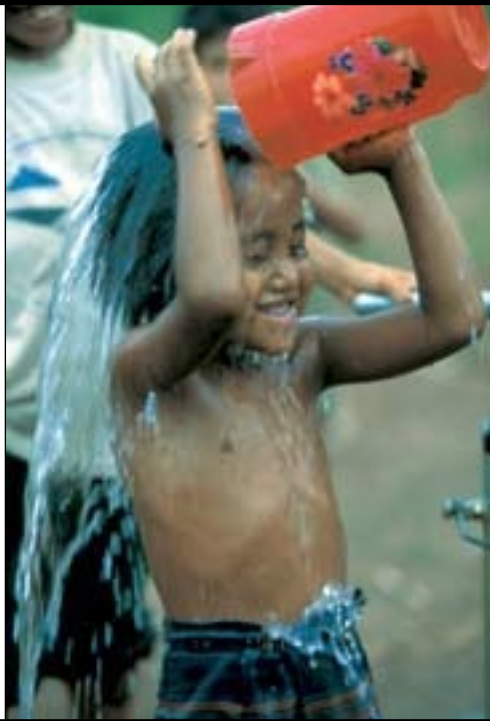
Recent data analysis of the results from this monitoring indicates that water quality basin-wide is generally good. Suspended solids, which contribute to sedimentation, have been decreasing at sites on the mainstream as far downstream as Pakse, and at most sites in northeastern Thailand. This decrease can be attributed to the construction of dams that trap the sediment, with the largest decrease on the mainstream occurring following the closure of Manwan Dam in China in 1992, when filling of the dam began. Similarly, decreases in conductivity of the water, a measure of salinity, seem to be associated with river regulation. They are most evident in Thailand.

Within most of the Mekong basin, levels of phosphorus and nitrogen are not particularly high and not much change has been observed. However at most of the sites in the Mekong Delta in Viet Nam, levels are high and have shown significant increases over the period of sampling. This may be related to the increased use of fertilizer in agriculture, increased fish farming or general increases in human populations along the river and the consequent increasing inflows of nutrient-rich effluent.

Phosphorus and nitrogen are two important plant nutrients that have often been implicated as causal factors in eutrophication. As water bodies become eutrophic, increasing amounts of algae accumulate in the water. This may lead to decreases in the concentrations of dissolved oxygen, especially at night when the algae use up oxygen through respiration. During the day the algae produce oxygen through photosynthesis, so the effect is not readily apparent. However at night when there is no light and no photosynthesis, fish kills may occur, especially when there are high temperatures and little wind to mix the water. Some algal species in eutrophic waters may produce toxins which can kill people or animals drinking the water. So high levels of plant nutrients are a cause of considerable concern.

Future testing of Mekong water

At present the water quality monitoring network is being revised. The revision is due for completion in 2003.



National consultants have been contracted to conduct reviews of sites within their own countries and to recommend additional sampling sites in areas not well served by the network, and deletion of redundant sites. During 2003 the range of parameters for analysis will also be reviewed.

The parameters included in the present water quality monitoring activity are limited. Potential contaminants such as pesticides and complex organics such as PCBs and PAHs are not routinely monitored because of the cost and the lack of available analytical facilities in some countries. (PCBs, or polychlorinated biphenyls, have a wide variety of industrial uses as heat transfer fluids, hydraulic fluids and plasticizers. PAHs, polycyclic aromatic hydrocarbons, are produced through the combustion of organic materials such as plastics and are a by-product of some industrial processes.) In 2002, work commenced on a diagnostic study of water quality in the basin that will address potential issues arising from such contaminants. The study will evaluate the current status of contaminants and other water quality issues.

The 1995 Agreement charges the countries with protecting the aquatic life and ecological balance of the Mekong River Basin. At present there is no activity to collect data on the ecological condition of the river, so it is not possible to be certain whether these goals are

being met. In July 2002 a workshop was held to identify how MRC should proceed to develop a biological monitoring programme. Following the recommendations of the workshop, regional consultants are being identified who will work with international mentors to conduct field evaluations of possible bio-monitoring techniques during 2003. This activity will lead to the development of an ecological monitoring programme to be established in 2004.

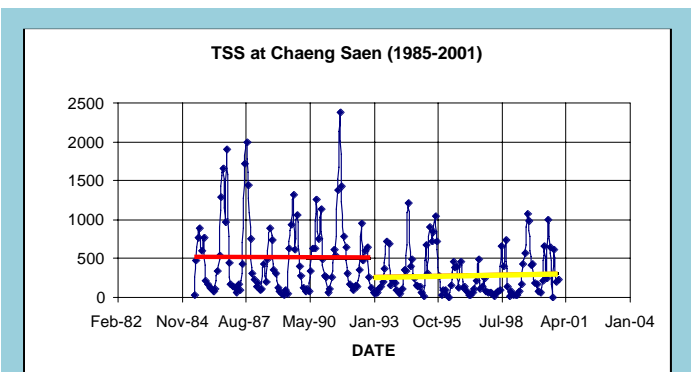


Chart: Total Suspended Sediment (TSS)
 - Before filling of Manwan dam
 - After filling of Manwan dam

Source: MRC

Increasing human resource capacity



When the former Mekong Committee became the Mekong River Commission with the signing of the 1995 Agreement on the Sustainable Development of the Mekong River Basin, major changes were needed in order to equip the fledgling river basin organisation to effectively carry out its new role.

While the former Mekong Committee had focused on management at a national level of many individual projects, the newly created Mekong River Commission now needed to take a broad view of economic, social and environmental issues in a river basin spanning six countries, of which the four downstream members had committed to the cooperation agreement. The shift from implementing individual projects, to management of sustainable development at a basin-wide level, required an adaptation of MRC's organisational structures and management, a review of administrative systems and - most of all - a shift towards a broader view of river basin issues among the staff entrusted with this management.

With the legacy of many preceding years' of identifying and funding-raising for individual projects, it was some time before a culture change could fully take hold in the new organisation. From 1999, however, a move to restructure the Commission's Secretariat won the support of donors, with UNDP committing to a 3-year Capacity Building Programme to improve the ability of the Secretariat and National Mekong Committees to fulfil their new roles.

The UNDP funding supported the improvement of overall systems for strategic management, programme planning and execution, human resource management, information and communications, and financial management. Further to these efforts, strategic partnerships were also built with other organisations and donors to support the process of improving overall human resource capacity at the Commission.

One of the most exciting initiatives in the range of MRC's capacity building activities is the Junior Riparian Professional Programme, which in 2002 had its first intake of young professionals from the four Lower

Name: Pich Sambo

Nationality: Cambodian

Age: 35

Education: Bachelor of Engineering (Hydrology and Geology), Cambodian Technology Institute
MS in Water Resources Engineering, Akita University, Japan



Before joining the JRP programme I worked in the Department of Geology, Ministry of Industry, Mines and Energy. My special interest is the relationship between people's livelihoods and managing watersheds. I wanted to join this programme partly because I want to improve my practical knowledge and skills, but also because I believe we need to learn to work together more closely. The real problems in the basin are trans-boundary, so we need to cooperate closely to find better solutions. Working as a JRP, I realise that people from different countries look at things from different angles. I have to keep my mind open at all times to appreciate their approach to things. I have to learn to communicate my ideas in convincing ways so other people can get my point. I don't always succeed and sometimes it's frustrating - but it is always a challenge. Living and working together with people from so many different countries is giving me a new outlook on the world - and new friends.

Mekong countries. Each Junior Riparian Professional (JRP) will work at the Secretariat for a period of two to three years with over 60 professional colleagues from the Mekong region and elsewhere in the world, rotating between the core programmes to gain overall experience in the issues of integrated river basin management.

One of the key aims of their participation will be to instil systems thinking that can overcome more traditional "sectoral" views that focus on parts such as dams, fisheries and agriculture. Systems thinking focuses attention on how the parts interact, for example, what impact will more irrigation have on this fishery? What impact will it have on agriculture further downstream?

A JRP's normal workday may include research, report-writing, making presentations and attending workshops and meetings with government officers, donors and civil society representatives. They become familiar with the current issues being debated in international river basin management, while learning hands-on project management by taking on appropriate responsibility within a team of regional and international staff.



The JRP programme will eventually create a corps of trained professionals with a broad understanding of river basin issues, who have worked together and have strong relationships with their peers from neighbouring countries.

In 2002, the Secretariat also made a study of issues relating to riparian staff turnover, which is caused in part by the practice of time-bound secondments from government agencies in the member countries. The management of river basin issues requires a long term view. Increasing organisational capacity in this regard will require the retention of the most able staff with the institutional knowledge, historical understanding and professional skills to carry the organisation into the future. Recommendations made to the Joint Committee of the MRC on this issue are likely to result in easier terms and conditions for the retention of staff who are best equipped for this role.

Efforts to maintain gender balance have continued, with improvements in recruitment practices to ensure that a wider pool of women candidates compete for all new positions. The promotion of adequately qualified women has also remained a priority.

Through a twinning arrangement between MRC and the Murray-Darling Basin Commission in Australia, MRC's river basin management capacity was further strengthened through training of riparian professional staff on topics such as integrated water resources management, modelling and data management, basin planning, development of water-sharing guidelines, establishing community involvement in natural resource planning, and community awareness-raising.

Name: Bountieng Sonaxonh

Age: 35

Nationality: Lao

Education: MSc. in Agricultural Economics, Crimean Agricultural Institute, Ukraine
MSc. in Regional & Rural Development Planning, Asian Institute of Technology



Before joining the JRP programme I was doing integrated watershed management planning at the Department of Planning, Ministry of Agriculture and Forestry. My special interest is how we can improve people's livelihoods through natural resources management and planning in watershed areas. I wanted to join this programme because I grew up on the river and I want my children and their children to enjoy it as well. We have problems in the basin but we also have time to address them before they become more serious. One thing I am learning in the programme is that managing any river basin is a complex job. Managing one that crosses borders just adds another dimension. Good solutions to basin-wide problems will come from looking at all the dimensions together and treating the basin as a system. It's exciting to be part of a programme like the JRP and working with people who have those skills.



Name: Worawan Sukrarook
Age: 27
Nationality: Thai
Education: MSc. in Environmental Science, Chulalongkorn University; Bachelor of Science Biology, University of Chiang Mai



Before joining the JRP programme I worked for the Ministry of Science, Technology and Environment, screening projects for funding from the Global Environment Facility and implementing Agenda 21 for Thailand. This experience really sparked my interest in water issues and I wanted some first-hand experience in this area. I am only beginning to understand the problems we face in managing a river system like the Mekong. And there is so much we don't yet know. Until joining this programme, I had always thought of education in terms of 'formal education'. After working here for only a few short months, I can see that even international experts are learning everyday. The learning never stops. And it isn't only technical learning, we also have a lot to learn about working together. I can't think of a better place to do that than here at the MRC.

Name: To Quang Toan
Age: 34
Nationality: Vietnamese
Education: MSc. In Integrated Land and Water Resources Development, IHE, The Netherlands



Before joining the JRP programme I was doing research on water resources at the Southern Institute of Water Resources. My special interest is integrated land and water resources development. I wanted to join this programme because I am interested in how one field of science connects to another. In my research work, I was focused on very specific issues. I think specialist knowledge is important, but we need to be able to take a wider view when we are dealing with problems at a basin-wide scale. Working with people in other fields is helping me to better understand how different parts of the system interact. Something else I am learning on the programme - science doesn't solve problems, people do. All the science in the world is useless unless people are willing to cooperate in looking for solutions to problems. Working with colleagues from other countries is a great way to build up team spirit. After three years we all go back to our countries but we will take a network of friends and colleagues with us.

Selected government officers were supported by fellowships to attend short-term courses on various subjects at academic institutions overseas and in the region. Scholarships and organisational assistance were provided to 17 postgraduate students from the member countries to do Master degree courses. As well, 14 students supported by the MRC to do an Executive MBA study of 20 months, graduated in August 2002 and returned to their workplaces where follow-up programme action is being prepared. Their areas of study included human resources management, information technology, regional and rural development planning and water resources management.

Work also commenced in 2002 in cooperation with UNESCO IHE Institute for Water Education. Through this cooperation, the various training needs of the MRC will be brought under the umbrella of an Integrated Training Strategy and Programme, in order that they may be addressed through one comprehensive, coherent and modular training programme of accredited courses conducted at institutes within or outside the region. A major part of the training initiatives to date have been supported by the core programmes of MRC, the Basin Development Plan and the Water Utilisation Programme. Overall, there has been a major change in the organisation as the staff have gradually acquired new

skills relevant to a 21st century river basin commission. On any given day, the meeting rooms at the Secretariat contain small groups of staff from the four member countries working with a trainer or teacher.

In 2002, 67 training programmes were conducted covering MRC programme-related activities, including Human Resource Development in programme management and implementation, LogFrame planning, MRC Programme Manual application, English language and presentation skills, proposal writing and the use of specialised computer software. The many training programmes drew a total of 1,955 participants, 17 per cent of them women. Of the total number of participants, 51 per cent came from National Mekong Committees, 34 per cent from the Secretariat and 15 per cent from other organisations.

The results are seen in the increasing professionalism of discussions and presentations at workshops and conferences, and in a higher standard of input and debate at a programme level. And a greater understanding of issues at a basin level will, in the long run, benefit the people at the grassroots.

Peace-building on the Mekong

Travelling from Thailand to Lao PDR, tourists and locals alike must cross the Mekong, which serves as the border between the two countries. Those going by boat will see rocky outcrops on the stretch from Chiang Saen to Ban Huay Xai, where passengers on the slow boat must overnight before proceeding on to Luang Prabang.

These algae-covered rocks, for generations an integral part of the river's landscape, became the focus of intense discussion in the opening years of the new century.

Since as early as 1993, the government of China had expressed interest in opening a river route from land-locked Yunnan province. Such a route would bring Chinese goods into Thailand and Lao PDR, and allow for the export of raw materials and other items upriver. However the Mekong between China and Lao PDR is strewn with reefs and shoals - in the dry season a bar to all but experienced skippers in small cargo boats and domestic ferries. Some of these rocks pose a real threat to boats and their crew as they negotiate the narrow passes. There are around 10 shipwrecks a year in Lao PDR alone.

The reefs and rocks have their place in the ecosystem. Fish shelter in the shade of the outcrops, and feed on the plant life growing there. Deep pools in the riverbed provide refuges for several important Mekong fish species as the water level falls in the dry season each year. Many Mekong fish species are migratory, heading far upstream to spawn in Lao PDR and Thailand; the fish fry drift down to Cambodia and Vietnam with the current.

In April 2000, the four upstream countries signed the quadripartite Upper Lancang-Mekong Commercial Navigation Agreement, allowing free passage of shipping between China, Myanmar, Thailand and Lao PDR.

Little information was in the public domain about the implications of this agreement. An early draft proposal (by Liuxiang; see "Chronology" section for details) suggested that extensive channelisation could be considered in order to clear the way for shipping of up to 2000 DWT, consisting of 500-DWT barges linked in a 2 x 2 arrangement.

It was generally recognised that an adequate Environmental Impact Assessment (EIA) should be carried out before any actual physical removal of barriers to shipping.

The initial environmental examination report which provided the basis for river works to proceed under the agreement had been done by the United Nations Economic and Social Commission for Asia-Pacific (UN-ESCAP) in their 1995 "Environmental Impact Assessment for Inland Water Transport Development Projects in the Upper Mekong Sub-region". Based on UN-ESCAP's report, a committee led by Chinese experts under the quadripartite agreement continued the EIA study.

In response to a request from the Joint Committee in July 2001, the Commission engaged the services of independent, neutral experts to review the EIA. The



expert reports deemed the EIA process to be insufficient, with inadequate information presented as a basis for the conclusions that followed.

Through the Chair of the MRC Joint Committee, the recommendations were passed on to the countries involved. The report was also shared with programme partners of the MRC and has now moved into the public domain.

While discussions went on, within the space of a year the volume of cargo passing through Chiang Saen port increased by 40 per cent - a trend which had begun even prior to any channelisation being carried out. This increase in cargo was triggered by the reduction of non-physical impediments, including better customs procedures and the abolition of transit fees.

At the July 2002 7th Dialogue Meeting in Phnom Penh, representatives from China provided assurance to the MRC member countries that the removal of rocks would be limited to 11 shoals or rapids and 10 reefs within a 331-km stretch of the river, in order to allow the safe passage of ships of 100 to 150 DWT. This aim is in keeping with the Commission's long-term stance that the natural navigation potential of the Mekong should be promoted, with respect for the normal ecological balance of the basin. At present, the MRC is formulating a Navigation Strategy and Programme, built around the themes of "navigation without frontiers" and "clean river transportation".

The downstream countries of Cambodia and Vietnam have accepted that river works of this extent are unlikely to cause much impact in their own countries.

But concerns were raised by NGOs, particularly those working in Thailand, of local impacts close to the sites of modification. Through the course of the year, letters, statements and clarifications were exchanged with the MRC regarding its role as a basin development agency and the Commission's stance regarding the river works. Open dialogue was also held with Oxfam and its partners, in efforts to arrive at understanding on all sides.

It has become evident that the resolution process gone through with China centred on the MRC's role as an international river basin commission. The Commission is uniquely situated to be the focal point for such resolution; its mandate, based on the 1995 Agreement, requires a broad view of development, essential in the task of hearing the concerns and intentions of all parties. It has a strong footing, developed through years of programme coordination between the four Lower Mekong countries, in the strength of the cross-border relationships at a middle management level, at which technical and administrative work is carried out.



The success of its cooperation arrangements is seen in the light of the final decision made by the four upstream countries to carry out a very limited channelisation.

As basin development planning proceeds, there are more trade-offs to be faced, as the countries negotiate approval for a short-list of projects considered to bring the best and most equitable benefits to the river basin. This year's agreement made through the Water Utilisation Programme, for notification, consultation and prior agreement between countries regarding river-related development, is a step further down the road of pre-emptive resolution on some of these hard issues.

In the long term, peace-building will grow into a major function of the Mekong River Commission. For it to be a success, there is a need for all players - governments, donors, the private sector, and civil society - to support the idea of an international river basin commission, tasked with the vital role of maintaining the peace in the beautiful, resource-rich, and fast developing Mekong River Basin.





Chronology

August 1995

UN-ESCAP releases report on "Environmental Impact Assessment for Inland Water Transport Development Projects in the Upper Mekong Sub-region".

April 2000

China, Myanmar, Thailand and Lao PDR sign a quadripartite agreement allowing Commercial Navigation on the Lancang-Mekong.

November 2000

A joint survey report is released on the feasibility of the waterways improvement project on the Upper Mekong River from China-Myanmar boundary marker 243 to Ban Huayxai in Laos, prepared by the Joint Experts Group on EIA of China, Laos, Myanmar and Thailand.

December 2000

UN-ESCAP publishes consultant paper by Liu Daqing, "Provisional plan for development of navigation and regulation of navigation channel on the Lancang-Mekong River. Sub-regional workshop on technological development of inland water transport infrastructure, 11-15 December 2000."

30 April 2001

EIA process begins with 19-member team: 9 from China, 6 from Lao PDR, 2 from Myanmar and 2 from Thailand.

July 2001

At 14th meeting of the Joint Committee of the MRC, the Secretariat is requested to undertake a full assessment of the findings of the EIA. Lao PDR requests further assistance from MRC to carry out their section of the EIA.

MRC engages three international experts in fisheries, geomorphology and socio-economics to provide a scoping desk study to identify existing data and specifying what data would be required to complete a satisfactory EIA. The Study results are forwarded to the Lao government.

August 2001

A draft EIA report is submitted to governments of the four countries.

September 2001

The same experts engaged by MRC to provide recommendations to the Lao government review the EIA document. Their recommendations are forwarded to the Lao, Thai and Chinese governments, as well as to the downstream countries of Cambodia and Viet Nam.

12 July 2002

At 7th Dialogue Meeting between MRC, China and Myanmar, Chinese officials state that China's involvement in the channelisation project will be for the removal of eleven rapids and shoals, and ten reefs. At the completion of the project, the river stretch would be navigable for ships of up to 100 to 150 DWT, with a higher transport safety standard than in the past.

September 2002

Expert findings on the EIA are released to MRC partners by permission of the Chair of the Joint Committee.

4 November 2002

MRC meets with Oxfam and partners for question-and-answer session on the navigation channel issue.

Working together on flood management

The governments of the four Lower Mekong countries have for some time recognised the need for better overall coordination of flood preparedness, relief and forecasting efforts. At the same time there has been a growing awareness that floods know no borders, and effective flood management can therefore only be handled on a regional basis.

While floods have always been a part of life in the Mekong River Basin, exceptionally severe flooding in the years 2000 and 2001 caused millions of dollars worth of damage and claimed over 1000 lives in the Lower Mekong Basin. Some of the causes could be ascribed to unusual meteorological conditions, but man-made factors such as changes in land use were also implicated, highlighting anew the need for a basin-wide approach to managing the problem of floods.

The obvious first step in the process was to create a mechanism for overall coordination. This was achieved when the Mekong River Commission hosted the 1st Annual Mekong Flood Forum on 23-24 April 2002 in Phnom Penh.

The Forum drew over 100 participants from government and research organisations within the region. Over two days, participants shared information and experiences regarding flood management in their countries, and proposed new initiatives for cooperation.

The mix of participants, from a range of Mekong government agencies and NGOs, made for lively discussion as many different roles and points of view were represented from groups as diverse as the World Resources Institute, Oxfam, CARE, the various Red Cross agencies from different Mekong countries and German, Japanese and American research organisations.

The Forum was invigorated by the new basis for upstream cooperation through an agreement signed



between China and the Mekong River Commission just weeks before the Forum. The freshly signed Agreement on the Exchange of Hydrological Data allowed for China to provide daily readings from the Lancang (the Upper Mekong) to downstream countries during the flood season. (See box, "China signs data-sharing agreement".)

The collective experience presented at the Forum showed that while many agencies were involved in flood-related activities, there was a need to improve links. Agencies agreed that in this area of often urgent need, all should build on their own strengths. In the case of the Mekong River Commission, this means concentrating on the provision of technical products and services, including the current flood forecasting efforts, while working closely with agencies involved with the grassroots for better dissemination of flood messages and warnings.

In the coming year, the MRC will develop working partnerships with some of these agencies for better and more widespread use of the flood forecasts provided by the Commission during the flood season.



China signs data-sharing agreement

Formal technical cooperation between China and the Mekong River Commission began on 1 April 2002 with the signing of the Agreement on the Exchange of Hydrological Data from the Lancang-Mekong. According to the agreement, China will provide daily readings of river levels during the flood season to the four downstream countries of Cambodia, Lao PDR, Thailand and Viet Nam.

Exchange visits between technical staff in China and the Lower Mekong countries occurred during 2002, with the MRC supporting an upgrade of two river monitoring stations in China with AusAID funding. The upgrade allows for standardised readings to be sent via a SIMcard, identical to those used in mobile phones, to the MRC Secretariat where a software programme modifies the forecast information for that day based on the new readings.

The information from China has improved the accuracy of flood forecasts for stations in Thailand and Lao PDR, since it allows a more accurate reading of the situation in China on a day-to-day basis. Data transmission from China occurs from June to October, through the Hydrology Bureau of China's Ministry of Water Resources.

China has been a regular dialogue partner with the Mekong River Commission at yearly meetings since 1996.

The MRC manages a complete network of hydrological monitoring stations on the Lower Mekong, which transmits information directly to the Secretariat in Phnom Penh on a daily basis. River level forecasts are posted daily on the MRC website at www.mrcmekong.org



Components of the Flood Management and Mitigation Programme

A Regional Flood Management Centre will carry out flood monitoring, forecasting, warning and dissemination services. Medium and long-term forecasts will be provided and risk assessment tools developed. The Annual Flood Forum will continue as a key activity of the new centre, for coordination of responses to flooding on a regional basis.

Structural measures including reservoirs, embankments and waterways will be studied, and guidelines and technical standards for good practice in flood management developed.

Mediation of trans-boundary flood issues will be carried out through the work of a coordination section that can facilitate dialogue and resolution of issues on land management and land-use planning, infrastructure development and cross-border emergency management of floods. Recommendations on water and land-use legislation will be developed.

Flood emergency management will be strengthened by the sharing of knowledge about floods through awareness-raising activities, training needs assessment and the development of suitable training materials.

Flood proofing measures will be developed and promoted in flood-prone areas, with a particular emphasis on working in poor communities with building design guidelines, financing mechanisms and awareness-raising.

Land use management in the upland and lowland areas of the main tributaries and the mainstream of the Lower Mekong Basin will be studied to identify and analyse the causes of flooding, with a view to improving planning practices.

Meeting the challenge of water for food

Water is closely tied to food security. In the Mekong region, 80 to 90 per cent of all freshwater use is devoted to growing food, while the fishery produces over 2 million tonnes of fish and other aquatic products a year, providing more than 75 per cent of animal protein intake in the diets of rural people in the river basin.

The water-for-food challenge for the coming 20 years is to find ways of growing more food with less water, while improving rural livelihoods and protecting the environment.

In 2002, the CGIAR Challenge Programme On Water and Food selected the Mekong River Basin as one of seven "benchmark" basins in developing regions around the world. Benchmark basins are areas of population growth and economic development, facing the challenges posed by these twin pressures. The other benchmark river basins are the Nile and Limpopo river basins in Africa, the Sao Francisco river basin in Brazil, the Indo-Gangetic river basin in South Asia, Iran's Karkheh river basin, and China's Huanghe (Yellow) river basin.

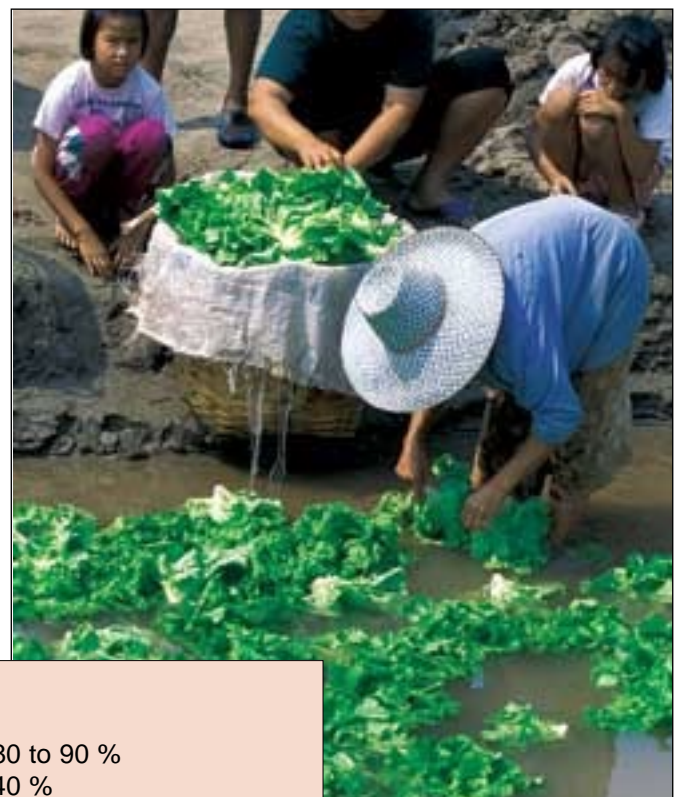
The programme will provide grant funding for research directed at solving real-life problems in these selected areas, based on five key research themes of crop water productivity improvement, multiple use of upper catchments, aquatic ecosystems and fisheries, integrated basin water management systems and global and national food and water systems.

Examples of opportunities to improve water productivity include arrangements for managing water across boundaries, bringing together sectors that compete for water use, breeding crops that need less water, improving water and land management, and combining rice and fish farming.

The Mekong River Commission is the regional coordinator for the programme in the Mekong Basin, with the role of promoting awareness of the programme to all

stakeholders, determining research priorities for the region through a participatory consultation process, and developing a baseline for monitoring the impact of the programme. As regional coordinator, the MRC is also a member of the Challenge Programme management team that is responsible for day-to-day management within annual budgets and work plans approved by the Challenge Programme consortium. Participation in the research programme is open to all interested international and national research organisations and universities, NGOs, advanced research institutes and the CGIAR Future Harvest Centres.

The MRC's new role builds on cooperation that began at a research workshop co-organised with CGIAR in January 2002, on the coordination of research priorities for the Mekong. CGIAR, the Consultative Group on International Agricultural Research, is an international consortium of research centres focused on food security issues.



Water and food in the Mekong region

Proportion of water use devoted to agriculture	80 to 90 %
Percentage of the basin's land area devoted to farming	40 %
Number of people fed by the Mekong Basin's rice crop	300 million people a year
Percentage increase in demand for food products	20-50% in next 30 years
Amount of water needed to yield 1 kg of rice	Minimum 3,000 litres
Percentage of basin population who fish or farm	80 %



Donor Cooperation in 2002

In 2002, donor support to MRC remained strong. Funding agreements made with donors amounted to about US\$ 11.6 million and pledges of further support were officially indicated in an amount of approximately US\$ 5.7 million. Compared to the situation in 2001, when funding agreements came to US\$ 15.6 million, agreements in 2002 were made at a somewhat lower level. This, however, reflected that most MRC programmes are by now well funded and that funding agreements therefore are not required at the high levels of previous years.

By the end of 2002, donors had signalled their strong support for the new Flood Management and Mitigation Programme, approved by the Council in November 2002, with a total budget of about US\$ 19.7 million.

In 2002, MRC received funding and pledges from Denmark, Finland, Germany, Japan, the Netherlands, New Zealand, Switzerland, the United States and UNDP.



New Funding Agreements in 2002

Total Value of New Funding Agreements:

US\$ 11.664 million

Programme

Thousands of \$
(Approximate Conversion)

1.	Consolidation of Hydrological Data and Multi-Functionary Roles of Tonle Sap and its vicinities	404
2.	UHA Digitalizing in Cambodia, Laos and Thailand and Hydrographic Survey on the Bassac River from Phnom Penh to Vam Nao Confluence	263
3.	Development of MRC Flood Management and Mitigation Strategy Implementation Programme	350
4.	Development of Regional Strategy for Flood Protection and Prevention	206
5.	Annual Mekong Flood Forum	72
6.	Investment Subcomponent on Integrated Forest Rehabilitation in the Lower Mekong Basin	5000
7.	Basin Development Plan	1200
8.	Environment Programme	1100
9.	Provision of Flood Early Warning to Flood-Vulnerable Communities in the Lower Mekong Basin	1125
10.	Position of Communications Officer	130
11.	Core Support	100
12.	Twinning arrangement with Inland Fisheries Research and Development Institute (IFReDI)	501
13.	Regional coordination of Research Challenge Programme in Mekong Basin	1,213

Firm Pledging Received in 2002

Total Approximate Value of Firm Pledging:

US\$ 5.773 million

Programme	Thousands of \$ (Approximate Conversion)
1. Core Support	1093
2. Environmental Governance and Flood Management	1000
3. Sustainable Management of Water Catchment in the Lower Mekong Basin	2050
4. Flood Management and Mitigation in the Lower Mekong Basin	1370
5. Gender Mainstreaming in Water Resource Development	260

Finance and Administration



During 2002 the MRC Secretariat successfully managed, through vigorous budget control, to cover the deficit carried over from 2001.

Routines were established to create a closer relationship between the implementation of programmes, and their financial and administrative monitoring. The result is a more holistic system of programme monitoring that also ensures strong financial management.

The Secretariat will continue its firm budget control and seek cost-effective solutions in providing overall support to the programmes.

Following the decision by MRC's previous banking partner in Cambodia, Credit Agricole Indosuez, to close down its operations in the country, the Secretariat selected a new banking partner, Cambodia Public Bank. The decision was based on a careful scrutiny of the banking services available in Cambodia.

A comprehensive system for staff performance evaluation, Participatory Appraisal Review, was developed during 2002 for implementation in 2003. The aim is to ensure that the organisation's human resources are used in the best possible way, by helping to create a positive framework for interaction between staff and supervisor.


Through the year, the administrative support provided by the Secretariat ensured the smooth running of MRC programmes, most of them in full operation in 2002.

Income and Expenditure in 2002


















	2002 USD	2001 USD
Contributions		
Donors	11,448,269	12,111,815
Riparian governments	1,087,065	623,160
	12,535,334	12,734,975
Revenue		
Professional income	47,752	22,604
Interest	16,785	65,319
Miscellaneous	18,115	19,880
	82,652	107,803
Total Income	12,617,986	12,842,778
Expenditure		
<i>Project expenditure</i>		
Personnel services	6,285,493	5,545,192
Sub-contracts	693,672	558,169
Training	1,317,864	1,169,193
Equipment	1,025,032	894,938
Miscellaneous expenses	563,298	499,816
Water Utilisation Project	2,632,083	1,486,245
	12,517,442	10,153,553
<i>Administrative expenditure</i>		
Staff salary and fees	1,028,551	914,908
Common staff costs	424,872	405,100
Travel	3,948	3,327
Contractual services	92,073	56,465
General operating expenses	204,430	164,840
Supplies	18,882	20,639
Furniture and equipment	27,005	86,867
MRC meeting expenses	154,093	88,244
Support to National Mekong Committees and programmes	193,326	88,847
	2,147,180	1,829,237
Total Expenditure	14,664,622	11,982,790
Foreign Exchange Gain	131	6,574
Movement in Fund Balances	(2,046,505)	866,562
Fund Balances as at 1 January	7,089,295	6,222,733
Fund Balances as at 31 December	5,042,790	7,089,295

**ELEVATION MAP
LOWER MEKONG BASIN**

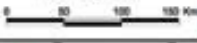


 **Mekong River Commission**

LEGEND

 Country Boundary	 0 - 140	Map Information Map title: Lower Mekong Basin Date: 2014 Scale: 1:2,000,000 Data source: MRC (Mekong River Commission), UNEP (United Nations Environment Programme), and other regional organizations. Prepared by: Mekong River Commission, Vientiane, Laos Date: April 2014 Scale: 1:2,000,000 Note: All rights reserved.	 N
 Provincial Boundary	 140 - 200		
 LSS Boundary	 200 - 250		
 River	 250 - 300		
 Capital	 300 - 400		
 City center	 400 - 500		
	 500 - 600		
	 600 - 700		
	 700 - 1000		
	 1000 - 4000		

Scale: 1:2,000,000



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