

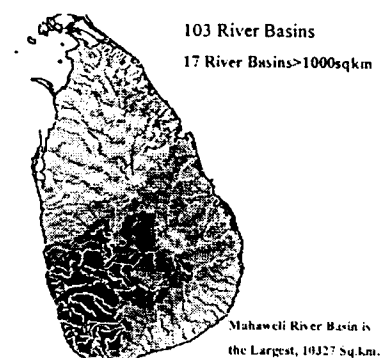
ROLE OF MAHAWELI RIVER BASIN MANAGEMENT AGENCY IN SOUTH ASIA NETWORK OF RIVER BASIN ORGANIZATIONS (SASNET - RBO)

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1. INTRODUCTION

1.1 Sri Lanka - Overview

Sri Lanka is a tropical island situated in the Indian Ocean with a total land area of 65,525 km². Its rainfall feeds a radial network of rivers that begin from the highlands in the Central part. 103 distinct rivers cover about 59,217 Sq. km. within their basins. Large percentage of water resources in these basins are used for irrigated agriculture and hydropower generation. Current population is estimated to be around 19 million and is projected to be stabilized at 23 million by 2025. The literacy rate is 97%.



1.2 Historical Perspective Of Water Resources Management

Sri Lanka is a country with a long history of hydraulic civilization, which had been developed along the main river basins of the country. Early settlers began developing their network of irrigation systems in the main river basins around 5th Century B.C. Some of the large basins developed by them were; Malwathu, Mahaweli, Deduru, Kelani, Kalu, Walawe, Kirindi, Menik and Kumbukkan. Many of these rivers originate in the central highlands and flow towards plateaus in other parts of the country providing opportunities for irrigated agriculture. This geographical situation helped the early settlers to conserve the watersheds in the highlands and to develop plateaus in agriculture by storing water in a network of reservoirs.

This system of optimum use of water is well expressed in the popular dictum by the King Parakramabahu (AD 1153) that ***"not a single drop of water received from the rain should be allowed to escape into the sea without being utilized for human benefit"***.

1.3 Sectoral Approach

During the early part of 20th Century, a programme for restoration of ancient irrigation works located in the dry zone was launched under the British rule and continued after gaining independence in 1949. People were resettled in these areas with a view to developing agriculture basically to achieve food security, employment and socio-economic development objectives of the country. At present responsibility for water resource management is fragmented and entrusted to different government agencies viz. Irrigation Department, Ceylon Electricity Board, National Water Supply and Drainage Board AND Water Resources Board.

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These institutions were established with single-purpose mandates, which could be seen as parts of highly fragmented sectoral approach towards service deliveries with no relationship to integrated water resource management. Each agency is mandated to develop their own water sources extracting from either rivers, streams or groundwater in catering to the service delivery functions in respect of irrigation, hydro-power, domestic water supply etc.

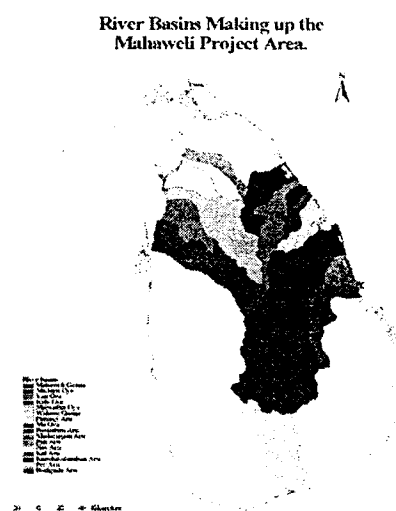
1.4 Multi-Purpose Area Based Development

Having realized the limitations of sectoral approaches to development, the government of Sri Lanka introduced an area based, multipurpose Mahaweli Development Programme with an integrated approach to development. The Mahaweli Development Master Plan which was prepared for stepwise implementation over a period of 30 years, had been revised under the Accelerated Mahaweli Development Programme in 1977. Accordingly the period of implementation was reduced to 6 years. Major components of the programme were; providing irrigation facilities for dry zone agriculture, generation of hydro-electric power, settlement of displaced and landless families by providing required physical and social infrastructure for human habitation, providing marketing facilities for agricultural produce and social facilities for sports, cultural and religious purposes.

1.5 Planning Experiences Of Multi-Purpose Water Resources Development Projects / River Basin Study Series

The following Multi-purpose water resources development projects have been implemented in Sri Lanka since 1947:

- GALOYA Valley Development Project.
(Eastern Province of Sri Lanka).
- WALAWE River Valley Development Project.
(South Eastern Part of Sri Lanka)
- KELANI Ganga - Hydro Power, Flood Control
and Domestic Water Supply.
- GIN GANGA
- Nilwala Ganga } Flood Control
(Southern Part of the Island)
- Kirindi Oya - Irrigation/Fisheries &
Wild Life Habitats
- Accelerated Mahaweli Development Scheme



The following studies have been carried out in relation to river basin planning and management :

- Western River Basins Sector Project
(Five Basin Study)
- Kelani, Kalu, Atthanagalu Oya,
Malwathu Oya, Bolgoda Lake
- River Basin Studies by Interim National Water Resources Authority in Manik, Malwathu, Kirindi and Galoya basins
- IWMI - Reference Basin Study
(Walawe & Kirindi Oya)

2. WATER RESOURCES MANAGEMENT PRACTICES IN MAHAWELI AREAS

The Mahaweli basin is the largest river basin of Sri Lanka covering an area of over 10,000 Sq. Km. and representing one –sixth of the size of Sri Lanka and contributing towards multi-purpose development objectives as listed below:

- highest provider of irrigation water
- substantial hydro-power generation
- meeting other water needs of townships and
- claiming for large part of natural resource base of Sri Lanka
- and providing shelter for large section of the population

The Mahaweli basin covers a land area cutting across five provinces, nine districts and fifty seven Divisional Secretary Divisions with an average population of 2.8 million that represents 15% of the country's population. The Mahaweli waters have also fed adjacent river basins that had resolved major water scarce issues relating to irrigation while addressing domestic water supply demands to a limited extent. Development of the water and land resources have been undertaken in several special areas in the Mahaweli Basin and adjacent basins by Mahaweli Authority of Sri Lanka (MASL) mainly to cater for irrigation settlements and hydro-power generation and currently engaged in management of natural resources within the developed areas, while providing settler services. MASL has also been involved in similar development and management activities in Walawe basin. MASL has served as a river basin management and development agency catering to water delivery services of majority water users located in major irrigation systems, while following integrated approaches for socio-economic development of the settler population.

The finances for water resources development is mobilized mainly through government and donor agencies while operation and maintenance costs are borne by the water users. In rehabilitation of irrigation schemes, part of the costs upto 10% to 20% are borne by the irrigation farmers, depending on the nature of the work involved. In many instances water users are providing the labour contribution of rehabilitation, operation and maintenance of irrigation canals at tertiary level. In case of water supply projects, part of the construction costs are borne by the water user beneficiaries. In all irrigation schemes, farmers are formed into Field Channel Groups and Distributary Canal Farmer Organizations that are responsible for operation and maintenance of respective canals systems. In all Mahaweli based schemes, Project Management Committees and sub- committees are functional while Farmer Federations and Farmer Companies have been activated in some areas that would lead farmers to extend their water management responsibility to improve productivity and farmer incomes through enhanced negotiation processes through state supported empowerment programs.

The Water Resources Secretariat / Interim National Water Resources Authority is an apex body to develop policies and legislation for integrated water resources management mainly for cross cutting themes such as water allocation, river basin planning and management, water demand management, groundwater management, data and information management etc. Several technical assistance projects for water resources management have been implemented on institutional strengthening for water resources management, mainly for development of water resources policy / legislation, capacity building and river basin planning targeting at several inter-provincial river basins.

2.1 Mandate of the Mahaweli Authority of Sri Lanka

The MASL is mandated to develop water resources in Mahaweli or any other river for development of special areas in providing water for meeting multi-purpose objectives such as irrigation schemes, hydro-power generation, township development etc. It is also entrusted with the responsibility of providing settler services in special areas declared for development of irrigation settlements viz. land administration,

agricultural extension, community services, human resources development in the form of farmer empowerment for participatory management of irrigation schemes etc. It has been designed to take up an integrated approach for development and management of special areas with powers to provide settler services and managing the water for irrigation and water supply services under one roof. The MASL has been involved in construction of large dams and reservoirs, trans-basin diversion of water through large canals and tunnels for downstream water users in the dry zone of Sri Lanka following integrated approaches using inter-disciplinary teams as an efficient means to develop remote areas. The total number of reservoirs that were constructed and rehabilitated was 10 with a capacity of 2670 MCM while length of the main canals and branch canals were 370 km. and 350 km. respectively. The length of Distributary canals and Field channels were 2135 km. and 5304 km. respectively. The total land extent that were subjected to development was 467,584 Ha. while the number of settlers benefited from the Accelerated Mahaweli Ganga Development Scheme was 128,568. Several irrigation settlements were developed in System H, B, C, G, L, and Uda Walawe.

The MASL is currently responsible for the following functions:

- Administration of 6 irrigation settlement systems located within Mahaweli (Systems C & G), Maduru Oya (System B), Kala-Oya (System H), Welis-Oya (System L) and Walawe (Uda Walawe System) river basins
- Operation and maintenance of water management structures involving several multi-purpose reservoirs / dams and related canal/tunnel system viz. Kotmale, Victoria, Randenigala, Rantambe, Bowatenna and Polgolla barrage
- Effective water distribution according to seasonal operational plans for irrigation settlement schemes while providing for hydro-power and meeting water supply requirements of several townships
- providing services in irrigated agriculture/ livestock and aquaculture development, land administration in settlements
- Land use planning in upper watershed areas as a service to main land users, awareness creation among school children and agricultural extension services in relation to soil conservation practices among upstream farmers etc.
- Head-works administration, operation and maintenance including management of reservoir reservations and water quality monitoring in reservoirs
- Human settlement services facilitating socio-economic development / enterprise development, sports, community empowerment process (institutional development among water user associations)
- Water quality measurement in limited areas more as a routine matter in selected systems
- Pilot project to introduce commercial agriculture to System H while promoting sustainability of tertiary water infrastructure through farmer empowerment process
- Feasibility studies in water resources development in balance areas identified under Mahaweli Development Scheme
- Implementation of special projects relating to rehabilitation of irrigation canals, farmer empowerment, related infrastructure improvements and socio-economic development among the poor vulnerable groups of remote villages (VSHLI)

2.2 Current Status of MASL

- Two irrigation rehabilitation/ infrastructure improvement projects coupled to farmer empowerment process and promotion of commercial agriculture are being implemented
- The number of employees have been reduced from approximately 11000 to 4900 under a Voluntary Early Separation Package (VESP)
- A River Basin Planning and Management Division has been created within MASL to initiate a river basin planning process in Kala-Oya basin as a pilot project

- Transformation of MASL to Mahaweli River basin Management Agency has been initiated under the Mahaweli Restructuring and Rehabilitation Project (MRRP) and followed through a cabinet decision
- Handing over of public infrastructure developed by the MASL to line agencies and sub-national institutions has been completed in many Irrigation Systems. Handing over of responsibility of operation and maintenance of Field and Distributary canals to farmer organizations have been completed in majority irrigation systems
- Four Companies have been formed
 - Mahaweli Livestock and Agro-Enterprise (Pvt.) Ltd; Mahaweli Consultancy Bureau (MCB); Mahaweli Engineering Services (Pvt.) Ltd. and Natural Resources Management Services (Pvt.) Ltd.

MASL has suspended direct financial support to the above companies in the form of staff salaries and other resources thus compelling them to become self sustaining companies with their own resources.

2.3 Issues to be addressed by the MASL

With the development of the Mahaweli special areas the following issues have been arisen:

- creation of limited areas of land productivity (irrigation systems) thus having a differentiation in yields within the basins
- No attention for other water needs of basin wide population viz. industrial, domestic water supply, environmental flows etc. and for increasing demands within irrigation schemes and outside
- natural resources degradation leading to rapid decrease in reservoir capacity and land productivity of upper watershed areas resulting from soil erosion
- increased pollution of streams, rivers and water bodies with little emphasis on mitigatory measures
- potential groundwater resources have not been assessed
- no formal mechanism for allocation of water among bulk water users, resolution of conflicts among water users and for promoting investments in the water sector and other economic sectors in a basin wide context
- Lack of reliable data and information for management of water both quantity and quality as well as surface and groundwater resources on a real time basis
- Little emphasis on water conservation for meeting growing demands
- No formal institutional mechanism to resolve basin wide water and other natural resource issues in a basin wide context involving upstream and downstream stakeholders
- Ineffective management of river reservations and riverine areas (river banks and beds)
- Settler services have been deteriorated thus affecting the productivity of land and water resources
- Sustainability of water infrastructure has been affected due to slow process of transfer of responsibility of O & M of irrigation canals to the water user organizations

The approach to resolve the above issues are to be introduced through comprehensive planning for management of water resources, water use and other natural resources covering the whole river basin/s following integrated water resources management approaches with the involvement of all stakeholders. The Comprehensive plan will consist of a water allocation plan, environmental management plan and an institutional/ human resources development plan that will focus on sustainable development of natural resources. A comprehensive planning, management and development approach at basin level will facilitate identifying suitable strategies, functions, projects and programmes in the form of solutions to address issues more effectively on the basis of a detailed issue identification process involving the basin stakeholders viz. line agencies, provincial, district, divisional and local administration, NGOs, Major Water User Groups and all other basin stakeholders.

2.4 Objectives

The objectives of the transformed MASL as envisaged under the transformation process initiated through the MRRP in 2002 are as follows:

Primary (Management) Objective: MASL is transformed into a river basin management agency whose primary mission is to ensure productive and sustainable use, and management, of the water and land resources of the whole Mahaweli and adjoining connected river basins.

Secondary (Development) Objective: MASL to take the lead in planning, developing and "managing in a participatory manner", current and remaining economic water resource development opportunities in the Mahaweli and adjoining connected river basins, fully integrating environmental, social, economic, technical, and resource sustainability considerations.

In meeting the above objectives, it was intended to improve efficiency of service deliveries and natural resources management while extending the area of jurisdiction from special areas to cover the entire Mahaweli basin and other adjacent basins that are fed with Mahaweli waters viz. Malwathu Oya, Maduru-Oya, Kala-Oya and Yan Oya through planning, co-ordination, regulation, monitoring and facilitation programmes involving all basin stakeholders. While MASL will hold direct responsibility to manage and develop water resources for different uses in the above basins, other natural resources management functions would be co-ordinated through specialized line agencies and administration units. The objective is to ensure minimum impact to water resources in terms of water quality and environmental degradation, while enhancing the capacity to manage other natural resources effectively. The basin agency would also ensure socio-economic development of the basin population through co-ordination of human resource development programmes and facilitation of natural resources development projects on a sustainable basis, by catering to water resources demands in the basins.

3. THE TRANSITION PLAN FOR TRANSFORMATION OF MASL

After series of discussions with the senior officials of the MASL and other water related agencies, a draft Transition Plan for the transformation of the MASL was formulated with the following salient features:

- The responsibility of management, operation and maintenance of the Branch and Tertiary canals of major irrigation systems operated and maintained by the MASL are to be transferred to Farmer Federations and Farmer Companies while retaining the responsibility of management of main canals by the MASL

- The land administration function to be handed over to Land Commissioner's Department after converting the Land Development (LDO) permits held by the Settlers of irrigation systems to Grant status within one year
- The Agricultural extension service function would be intensified in collaboration with Department of Agriculture, Agrarian Development Department, Provincial authorities and the private sector with a gradual transfer to Farmer Federations while maintaining the responsibility for dissemination of research findings with the Department of Agriculture
- The community development / services function to be transferred to the Administration Units and other relevant line agencies while retaining a co-ordination responsibility by the Mahaweli river basin agency

- The water resources related asset management and development function including dam safety relating to major multi purpose dams and water resources management structures within the basins would be retained by the Mahaweli river basin agency

A new organizational structure and a staffing plan would be developed to cater for the Transition activities as indicated above and to perform new river basin management and development functions. The transition activities are to be continued for around two years from 2003 that would involve empowerment of farmer organizations/ farmer federations and farmer companies and to collaborate with other agencies before handing over of the functions to Line agencies, Administration Units, Farmer Federations and the private sector.

The surplus staff of the MASL out of a current strength of 4912 would be offered a voluntary retirement package (VRS) in order to reduce burden on the government after carrying out a skill inventory and identifying the human resources requirement to perform the river basin management functions.

3.1 Proposed Core Responsibilities and Functions of the Transformed MASL

The proposed core responsibilities and functions of the transformed MASL would focus on river basin management through participatory actions, linkage/ partnership building with other institutions and development of water resources coupled to productivity enhancement of land, water and human resources in a basin wide context. The Mahaweli River Basin Agency is to be established under the MASL Act with delegated authority envisaged under the National Water Resources Authority Act once it is enacted by the parliament and the National Environmental Act.

3.2 Changes to the Transition Plan

The Cabinet has approved a modified Transition Plan in July 2003 that emphasizes transferring the following responsibilities and functions of the MASL, considering them as overlapping functions direct to the respective line agencies by end 2005:

Irrigation management - Irrigation Department
 Agricultural Extension services - Department of Agriculture
 Land Administration - Land Commissioner's Department
 Responsibility for Operation and Maintenance of Branch and Tertiary canals to Farmer Organizations

The cabinet directive states that the MASL should be transformed to a Regional Water Resources Management Agency to perform river basin management functions, according to the proposed National Water Resources (NWR) Act that include water resources asset management, environmental related standards maintenance and comprehensive river basin planning and water resources development for multi-purpose objectives etc. covering the Mahaweli Basin and other basins to be designated under the National Water Resources Act. It has also directed that a water parliament consisting of all basin stakeholders be formed to serve as a Regional Water Resources Council.

Accordingly, steps are being taken to transfer the overlapping functions to the respective line agencies while developing the new organizational structure and a staffing plan to perform the above functions.

3.3 Proposed new functions:

For River Basin Management

- Asset management and ensuring their sustainability ;
- Water resource monitoring, assessment , forecasting, and information management
- Co-ordination, stakeholder awareness, empowerment, participation and conflict management ;
- Demand assessment for equitable water sharing mechanisms focusing on bulk water allocation and delivery;
- Comprehensive planning for integrated water and land use, water quality and ecological resource management for the Mahaweli and adjoining connected basins; Riverine management
- Promoting water conservation measures through water saving devices and conjunctive use of surface and groundwater resources; introducing drip / sprinkler irrigation methods, water quantity standards
- Policies and procedures for management of basin-wide natural resources according to the Comprehensive Plans following the other related laws such as CEA Act and the NWR Act
- Institutional development through formation of River basin Councils and Committees / Technical Committees and empowerment of basin level resource user groups for management of natural resources
- Capacity building of national / sub-national and provincial level institutions to manage water and other natural resources effectively, supporting in the implementation of their respective mandates by strengthening their capacity through partnership building programs
- Approval of projects for bulk water applications and other natural resource uses ;
- Awareness creation programs on basin planning and management concepts, related policies and procedures;
- Economic sustainability programs for meeting costs associated with O & M of infrastructure facilities through charging for water use in consumptive and non-consumptive uses with due recognition on the affordability of small water users
- Education and public consultations for consensus building in the decision making process
- Monitoring and evaluation of implementation of the Comprehensive Plan

For Water Resources Development and Productivity Enhancement

- Feasibility studies for water resources development
- Implementation of water resources development projects through contract management
- Planning and implementation of canal rehabilitation projects through beneficiary empowerment process in Mahaweli Systems
- System level water management services and monitoring of standards introduced for O & M functions of irrigation structures;
- Promoting commercial agriculture/ livestock through private sector initiatives among system level farmers and basin wide irrigation schemes that would ensure increased land and water productivity in the basin, adopting cost efficient methods in service deliveries

- Promoting enterprise development programs among settler youth to ensure reduced pressure being exerted on natural resource exploitation while supporting employment creation through skill development and formation of business / industrial ventures
- Engage in poverty alleviation programs through human resources development for building capacity of rural poverty groups, bridging the gaps of urban and rural development while providing support for reaping the benefits of globalization
- Promoting rainwater harvesting and use of cement tanks for water storage

4. PRIORITY EXPECTATIONS FROM INTEGRATED WATER RESOURCES MANAGEMENT APPROACHES IN MAHAWELI AND ADJACENT BASINS

Some of the expected priority areas through application of IWRM concepts are :

- Efficient and effective responses by the MASL to resolve water and other natural resource related issues in a basin wide context through a comprehensive planning process
- Productivity enhancement of water and land resources in basin wide context initially in Kala-Oya basin and extending to Mahaweli and Maduru Oya basins.
- Ensuring equitable allocation of water resources for existing water users and new users depending on the availability of water within the basin and through demand management measures and realizing potential development opportunities
- Management of water quality in water bodies, rivers and streams
- Promotion of alternative opportunities for poverty alleviation through safeguarding water rights of vulnerable groups of the basin wide population
- Promotion of investments in the water and other economic sectors through out the basins
- Protection and enrichment of watershed / water source sensitive areas and the riverine areas that would ensure consistent water flows through out the river system
- Ensure minimum flows to safeguard in-stream values viz. environmentally sensitive areas such as bio-diversity, wetlands and wildlife including water for social (recreational, cultural and religious) needs

4.1 Experiences of MASL in Water Resources Management and Service Deliveries

Some of the Strengths of the MASL are related to availability of experienced staff in water resources development and management in terms of water and other physical infrastructure, service delivery in agricultural development, environmental aspects particularly on upper watershed land use planning and awareness creation, community services etc. As indicated elsewhere, the integrated approach for management of natural resources and service delivery functions in irrigated agriculture, community services and water distribution has been a unique approach as applied to a selected number of special areas, where Mahaweli waters have been diverted for its use in economic development of such areas. The MASL has practiced water sharing mechanisms among the key water sub-sectors using a water allocation model viz. irrigation and hydro-power while assisting the water supply sector whenever the need arises. A participatory decision making model has been introduced through establishment of Weekly Water Panel and Seasonal Water Management Panel for the two irrigation seasons – Maha and Yala.

Some of the weaknesses include lack of understanding on the integrated water resources management approaches by majority staff within the organization, resistant to change the development role, loss of focus on the current mandate in the light of diminishing resources in taking up new development and service functions, lack of enthusiasm to take up new mandate that is envisaged under the transformation etc.

Opportunities that exist for MASL include expanding the area of jurisdiction in managing special areas limiting to systems to river basin wide areas thus extending the management scope through empowerment and participatory approaches. The original concept of integrated approaches for development and service delivery mechanisms adopted for special areas will be replaced with more open and participatory approaches that will involve all basin stakeholders in decision making and basin resource management. Stakeholder involvement has been considered as an important factor in maintaining responsibility, accountability and transparency in the introduction of governance to the operations of the Mahaweli River Basin Agency.

Threats are expected from illegal water and other natural resource users, parallel government organizations operating in the water and natural resource sectors who will not respond to the co-ordination role that is expected to be played by the MASL as a river basin management agency. Hence the transparency, responsibility, understanding of clear mandates of the MASL and other organizations will be essential in operating a suitable institutional model for basin wide water and other natural resources management activities to ensure achievement of sustainable development objectives.

4.2 Major challenges Expected by Mahaweli River Basin Agency

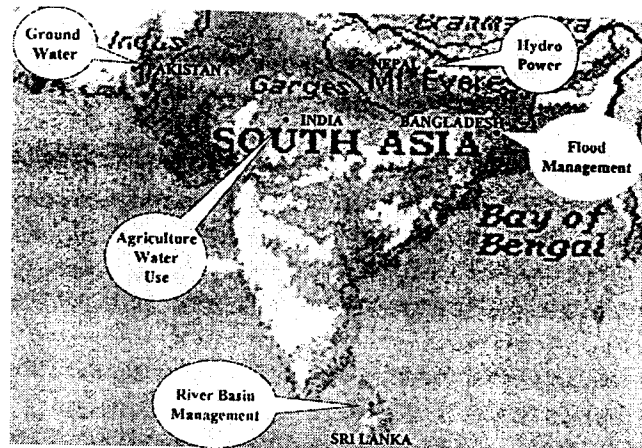
- creating awareness and convincing the basin stakeholders on the value and benefits of integrated water resources management approaches
- Capacity building of the organization in terms of training of staff, attitudinal changes and partnership/ participatory processes that will ensure efficiency and effectiveness in organizational performance
- New technology transfer programs on water saving devises, water conservation and other demand management tools viz. awareness and regulatory aspects
- Motivating the officials to work on the new mandate of Mahaweli river basin management agency
- Involvement of basin stakeholders and consensus building for decision making at river basin committees and their involvement in water and other natural resource management through participatory processes
- Application of regulatory mechanisms for management of water resources for different sub-sectoral uses in equitable sharing of the resources, management of upper watersheds and riverine areas to reduce impact of degradation of such areas on the water resources
- To ensure long term sustainability of water infrastructure through handing over of responsibility for operation and maintenance of branch and tertiary canals to water users through an empowerment and capacity building process.

5. ESTABLISHMENT OF "SASNET - RBO" IN SRI LANKA

The Global Water Partnership - South Asian Technical Advisory Committee (GWP - SASTAC) at the very inception, identified member countries in the Region to take the lead in certain activities each country was good at, by virtue of their interest and experience. Accordingly, the following focal points were agreed to:

To promote the idea, South Asia Regional Workshop on Sustainable Management of River Basins was held in, July 2000.

| | |
|------------|--------------------------|
| Bangladesh | - Flood Management |
| India | - Agriculture Water Use |
| Nepal | - Hydro Power |
| Pakistan | - Ground Water |
| Sri Lanka | - River Basin Management |



One of the major outcome of the workshop was the acceptance of the Mahaweli Authority of Sri Lanka as the driver agency for this project, which will develop a network of RBOs in South Asia. SASTAC has a keen interest in promoting such networks which will eventually develop their own dynamism to be self sustaining and mutually useful.

National Water Partnerships have identified collaborating institutions in the respective countries to promote this effort.

5.1 Recommendations of the Regional Workshop on Sustainable Management of River Basins in July, 2000

The following recommendations have been made at the Workshop held in July 2000:

- The River Basin is the logical bio-physical unit for the management of natural resources; hence the River Basin Organization (RBO) is an appropriate institution to translate the concepts of IWRM to action.
- There is no single model for River Basin Management (RBM) that can be applied in all circumstances; a range of models may be developed to suit the circumstances.
- The concept of 'subsidiarity' should be applied in RB Management. All decisions relating to the RB should be taken at the lowest appropriate level.
- River Basins should be analyzed through interdisciplinary approaches.
- The relationship between the RBO and the Political and Administrative Units should be recognized, as RBO cannot work in isolation.
- The entire drainage basin of a river should be taken into account in developing plans.
- RBM should take cognizance of dry season (minimum) flows and environmental flows.
- The value and 'real' cost of water should be recognized.
- RBO should promote emergence of a body of 'water professionals' capable of rising above individual disciplines and managing water through integrated approaches.
- New management styles should emerge: eg. Government to function as Regulator/Facilitator to promote Public - Private sector partnerships.
- The potential of using waterways for non-consumptive uses such as inland fisheries and Eco-tourism should be explored.

5.2 International Conference on Sustainable Development of Water Resources – November 2000, New Delhi

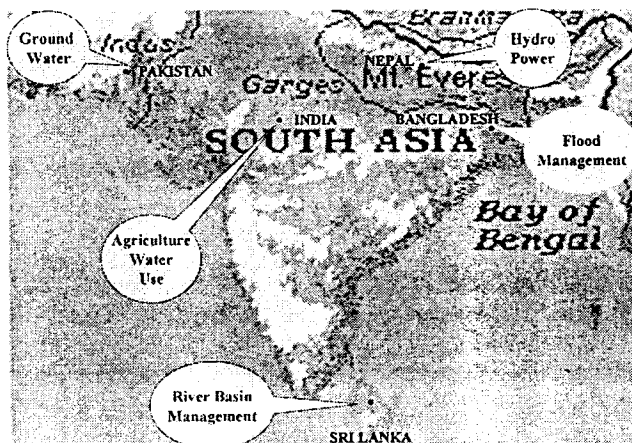
The outcome was presented to above Workshop and it was very well accepted and following comments were given in there deliberations:

- There is need for creation of river basin organizations (RBOs). States should be encouraged to form river basin organizations and the affected people should be associated with these organizations. In course of time, the water users associations could also be integrated with river basin organizations.
- Five phases of action might be taken for development of river basin organizations. These comprise of legal and regulatory framework, state level and inter-state organizations and implementation and monitoring plan.
- There is no single model for RBO that can be applied in all types of situations. Instead, a range of models may be developed to suit specific situations.
- To start with, in some cases, instead of the entire basin, it may be advisable to look into a compact part as a pilot area, so that the integration of social, technical and environmental aspects can become feasible.
- Projects pertaining to inter basin transfer of water should be entrusted to river basin organizations.

5.3 Partners of SASNET-RBO

The partner countries of SASNET-RBO are :

- Bangladesh
- India
- Nepal
- Pakistan
- Sri Lanka



5.4 Role of Mahaweli Authority of Sri Lanka in SASNET-RBO

The role of Mahaweli Authority of Sri Lanka / Mahaweli River Basin Agency :

- Serve as a Lead agency for co-ordination and management of the Network with the participation of Partners from all South Asian Countries.
- Link with other GWP Regions, Networks and Centres of Excellence for exchange of experiences and knowledge in river basin planning and management following integrated water resources management approaches

5.5 The Future Role of the Network

- Identify Partners in South Asia and promote them in following IWRM principles in river basin planning and management
- Conduct workshops in individual countries in seeking their views and commitment towards river basin management
- Identify Pilot River Basins to test different models for participatory management in performing IWRM functions at basin level
- Develop a Core group of Professionals in South Asia on River Basin Management
- Link with INBO and other Networks in seeking expert advice on complex issues that are common to all countries
- Organize twinning arrangements with countries that are practicing IWRM principles and river basin management approaches where long term exchange of professionals could be beneficial to both countries
- Facilitate exchange of Information and Experiences/Best Practices of IWRM and basin management through web sites and updating of networking arrangements
- Develop Different RBO Models, water allocation models and technology transfer programmes

5.6 Outcome of the SASNET – RBO Regional Planning Meeting – Kandy, Sri Lanka, 10th – 12th January 2002

The outcome of the above regional planning meeting held in January 2002 in Kandy, Sri Lanka was a Work Plan for three years as indicated below:

Proposed Work Plan for 2003 - 2005 (3 years)

Objectives

- To increase the understanding of river-basin management, including possible organizational design, management tools and processes leading to their definition and implementation.
- To support processes critical to effective river-basin management where there is felt need for improvement of river-basin organizations.
- To support building of national and regional linkages between existing, incipient or embryo river-basin organizations.

Expected Results

The above objectives will be addressed through a programme which is designed to deliver three major results :

- A state-of-the-art synthesis of available knowledge and experience of river-basin management within the region and else where.
- A service of professional support for providing advice and assistance regarding exchange of experience and expertise from within and outside the region.
- A framework for networking water related documentation systems.

Activities

1. Identification of key members of the network

To ensure the effectiveness and geographic coverage of the subsequent activities, initial sets of members from each of the participating countries will be identified. These will be selected with a view to achieving the following characteristics in the network as a whole :

- strong motivation and activity towards the goals and objectives of the network;
- representation of a variety of interests and disciplines;
- representation of a variety of water-related organizations.

2. Identification of river basins

Criteria for inclusion of basins in the initial set:

- There should be some existing or intended development of integrated organization of water management in the basin.
- There should be adequate basic data on the existing resources and uses of water in the basin.
- The basin should not be too large or too complex, and preferably should lie wholly within one political unit.
- Local water management organizations should be willing to participate in the programme, and to share existing data and information and common resources and facilities.
- There should be local capacity and motivation to accomplish the activities and outputs envisaged in this programme.
- Desirably, trans-national rivers should not be included in the initial set.

In each designated basin, at least one local professional person will be designated as principal focal point with the regional network, to ensure the continuance of activities and achievement of objectives under this programme.

3. Monitoring

Within each of the designated basins, a monitoring programme will be established. This programme will combine:

- traditional technical aspects of monitoring of water flows, abstractions, and water quality, with institutional monitoring of events occurring in the system that reflect the state of water management in the basin. Such events may include pollution incidents, water shortages, major disputes or complaints, environmental damages, and any other similar relevant events. Monitoring will refer to the events themselves and the responses of the organisational system to these events.

4. Linkages and Partnerships

For each designated basin, partnerships will be established with various organizations, which may be governmental agencies, private sector businesses, local government authorities, non-governmental

organizations, or semi-governmental entities such as universities. The purposes of such partnerships may include

- improving communication and raising awareness of the need and purposes of river-basin management;
- improving the flow of information about future needs and issues;
- improving the range and quality of data resources;
- improving the level of attention to special issues such as neglected groups or neglected environmental concerns and other such matters.

5. Communication

The regional network will work to raise maximum public awareness of the issues as well as improved understanding within the relevant professional communities concerning the issues and options as solutions.

For these purposes, the network will develop four main kinds of information :

- Regular *annual* reports on each of the designated basins, and national annual reports for each of the participating countries, describing the state of water management, the issues that need to be addressed and the organizational and institutional changes that are proposed to address these issues.
- An advisory service, based on the people involved in the designated study basins, which will provide information, advice and support, mainly to people in other basins who wish to improve their organizational capacity for water management.
- Documentation of key management aspects, including a review of best management practices, and a framework for water documentation systems.
- Opportunities for learning and training of specifically targeted groups.

Two actions are envisaged for ensuring adequate internal communication within the network:

- A network *website/electronic newsletter* will be established;
- Annual network workshops where the state of progress will be evaluated. A scale of about thirty participants is envisaged.

6. Continuity

The necessary re-orientation of water management practices towards river-basin systems will require much longer than the present plan period of 3 1/2 years. Networking on these issues, and many of the above activities, are expected to continue. However, the time-frame of 3 1/2 years is appropriate for establishing the network and for its strengthening programme. A termination review followed by a general mid-term review will be carried out on the network's modes of operation and the success or otherwise of each component activity and output, with a view to maintain corrective action series, thus incorporating any changes that experience may have shown to be desirable.

7. Outputs

The project will produce three kinds of outputs: regular annual reports; special publications; and advisory services. Reports and publications will be available widely to users as well as managers of water.

8. Reports

- There will be *annual* reports on each study basin, based on the monitoring activity.
- There will be *annual* reports by each country. These will synthesize the findings of the study basins, and will also record other relevant events in basins other than those which are part of the monitoring programme.
- There will be a final report at the end of the project. Since it is envisaged that the network will continue indefinitely, beyond the end of this initial three-year project, the final report will also highlight the improvements to the structure and ways of functioning of the network as a whole.

9. Publications

In the first three years, the network will produce two principal publications:

- a framework for water documentation within a river-basin;
- guidelines for river-basin management.

10. Services

The network will aim to provide three principal services, available both to its members and to interested water managers or water users:

- Training modules will be developed, which will be oriented principally towards three groups : staff in water management agencies who are new entrants to the field of integrated water resources management; representatives of non-governmental organizations, especially those focusing on environment or poverty-alleviation aspects; representatives of major water-user organizations in the private or public sectors.

During the project period, *two* such training modules will be produced.

- An advisory service will be developed, which will make provide a roster of a set of experienced professionals of various disciplines related to IWRM/ River basin management, whose knowledge and experience can be made available to required organizations. The mode of operation of this service will be developed in accordance with actual demands, which are not known initially. The service will be expected to focus primarily on assisting the extension of integrated river-basin management principles to new basin organizations.
- A *website and electronic newsletter* will provide current information about the network's activities and its monitoring programme. This will be oriented primarily towards keeping network members informed.

Proposed time schedule

| Activity ▶ Month ▼ | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|---|---|---|---|--------|---|
| 1 | x | x | | | | |
| 2 | x | x | | x | | |
| 3 | | x | | x | | |
| 4 | | | | x | | |
| 5 | | | | x | | |
| 6 | | | x | x | | |
| 7 | | | x | x | | |
| 8 | | | x | x | | |
| 9 | | | x | x | x | |
| 10 | | | x | x | x | |
| 11 | | | x | x | x | |
| 12 | | | x | x | x | |
| 13 | | | x | x | x | |
| 14 | | | x | x | x | |
| 15 | | | x | x | x | |
| 16 | | | x | x | x | |
| 17 | | | x | x | x | |
| 18 | | | x | x | x AMR1 | |
| 19 | | | x | x | x ACR1 | |
| 20 | | | x | | x NW1 | |
| 21 | | | x | | x | |
| 22 | | | x | | x WS | |
| 23 | | | x | | x TO1 | |
| 24 | | | x | | x | |
| 25 | | | x | | x | |
| 26 | | | x | | x | |
| 27 | | | x | | x | |
| 28 | | | x | | x FWD | |
| 29 | | | x | | x AMR2 | |
| 30 | | | x | | x ACR2 | |
| 31 | | | x | | x NW2 | |
| 32 | | | x | | x | |
| 33 | | | x | | x TO2 | |
| 34 | | | x | | x | |
| 35 | | | x | | x G | |
| 36 | | | x | | x | x |
| 38 | | | x | | x | x |
| 39 | | | x | | x NW3 | x |
| 40 | | | x | | x | x |
| 41 | | | x | | x AMR3 | x |
| 42 | | | x | | x ACR3 | x |

Key :

| | |
|-------------|---|
| Activity 1: | Identifying key participants |
| Activity 2: | Identifying initial basins |
| Activity 3: | Monitoring |
| Activity 4: | Building linkages |
| Activity 5: | Communications |
| Activity 6: | Preparing for continuation |
| x | On-going activity |
| AMR | Annual monitoring reports on each study basin |
| ACR | Annual country reports |
| TO | Training Opportunities |
| FWD | Framework for water documentation |
| G | Guidelines on key aspects of river-basin management |
| WS | Website establishment |
| NW | Network workshops |
| FR | Final report on the project |

SASNET - RBO PROJECT : BUDGET

| | US \$ '000 |
|--|---------------|
| 1. Start up | 20.00 |
| 2. Operations | 50.00 |
| 3. Monitoring | 40.00 |
| 4. Outputs | |
| - Publications | |
| - Training modules | 50.00 |
| 5. Services | |
| - Advisory | |
| - Electronic Newsletter | 66.00 |
| 6. Professional Development | 235.00 |
| (Tours - Exchanges, Regional Workshops | |
| Research Support, Professional Meetings etc. | |
| 7. Activities/Logistics | 194.00 |
| (Staff, Communication, Equipment, Supervision, | |
| Finance) | |
| 8. Contingencies | 25.00 |
| Total | 680.00 |

Funding Proposed: Donor - 375 K, Partners 284 K, SASTAC 21 K