

Network of Asian River Basin Organizations

4th NARBO Training Program
6-10 November, 2006, Sri Lanka.

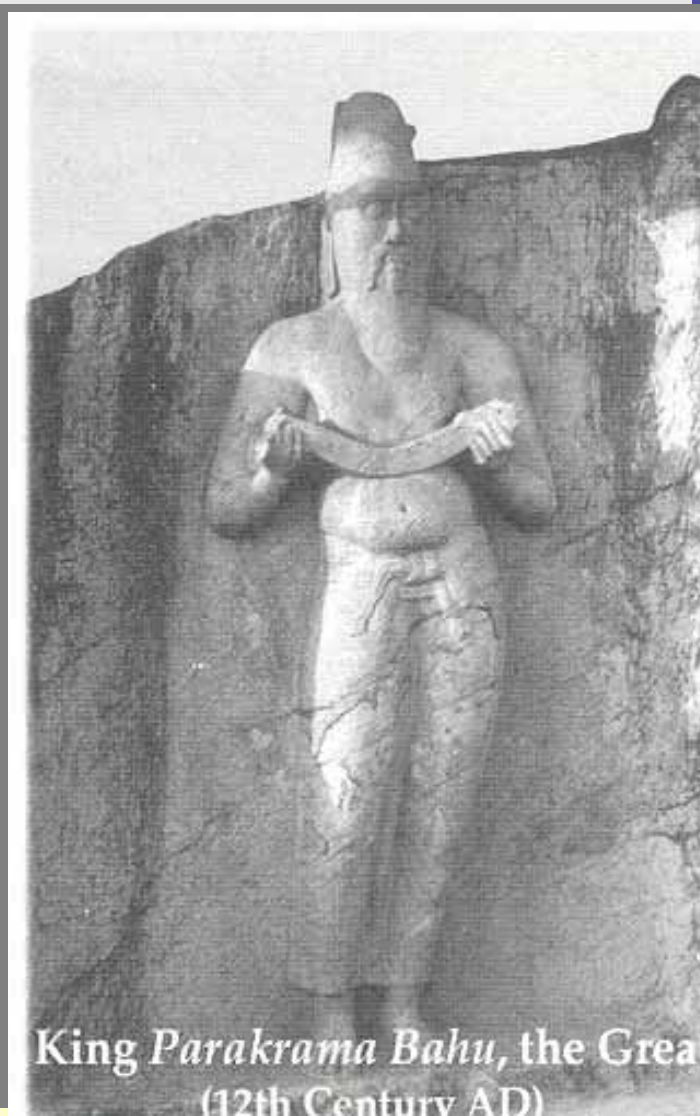


Application of River Basin Management



Presented by: Eng. Sudharma Elakanda,

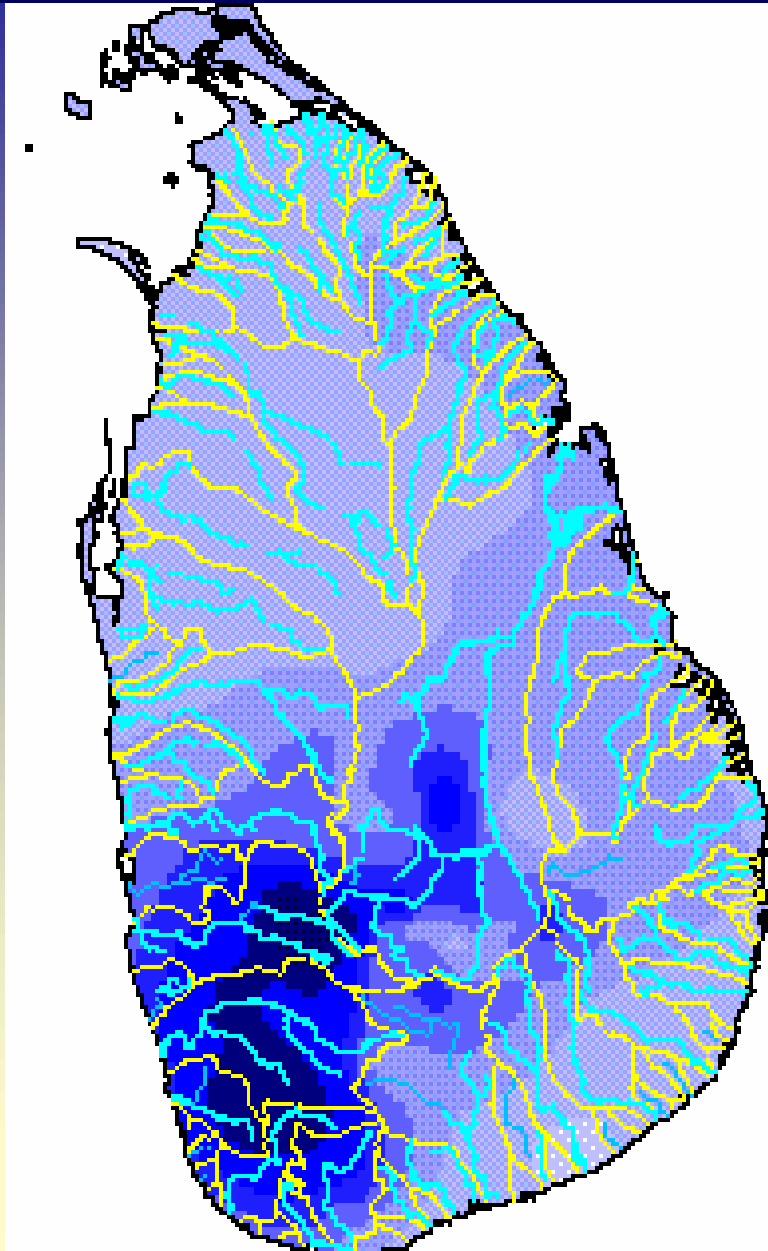
Water and Wisdom



The Sri Lankan knew the wisdom of the words of their mediaeval king, *Parakrama Bahu* the Great, who declared that

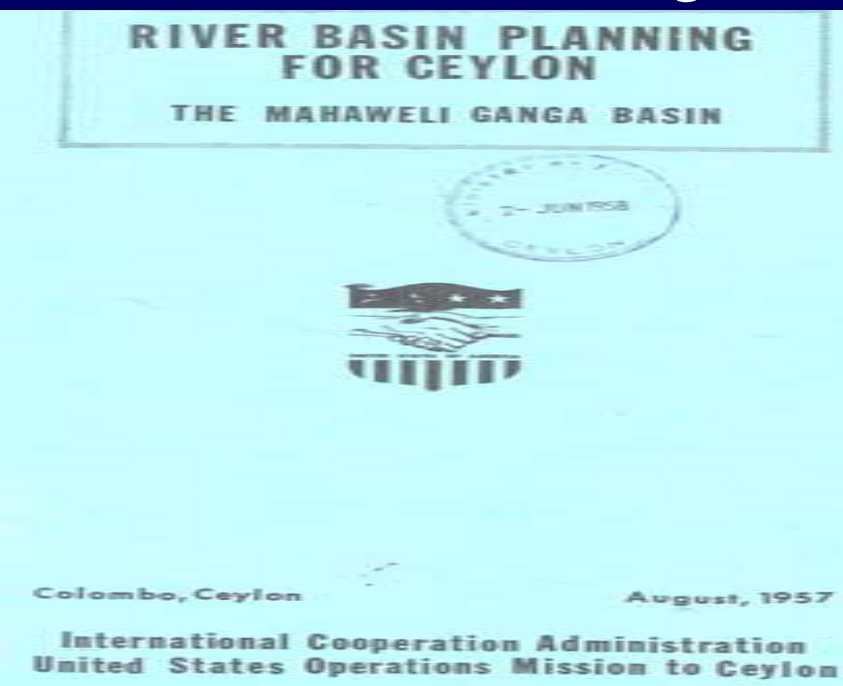
“Not a single drop of water received from rain should be allowed to escape into the sea without being utilized for human benefit”.

River Basins of Sri Lanka



- 103 River Basins
- Mahaweli River Basin is the Largest RB.
- Total surface area is 10327 Sq.km
- 17 RBs >1000 sqkm

History 50 years Back



In 1957, On the request made by the "Government of Ceylon" a study was carried out on "River Basin Planning for Ceylon" by a US Operation Mission to Ceylon.

History ... Continued

This concept was implemented in different time periods in Sri Lanka, since 1947,

- **GALOYA Valley Development Project (Eastern Part of Sri Lanka).**
- **WALawe River Valley Development Project. (South Eastern Part of Sri Lanka)**
- **KELANI Ganga
Hydro Power, Flood Control and Domestic Water Supply.**

History ... Continued

- Gin Ganga
 - Nilwala Ganga
- } Flood Control



- Kirindi Oya - Irrigation/Fisheries & Wild Life Habitats
- WRS - Western River Sector Project (Five Basin Study)
 - (Kelani, Kalu, Atthanagalu Oya, Malwathu Oya, Bolgoda Lake)
- IWMI - Benchmark Basin Study (Ruhuna Basin)

Sectoral Approach to Water Development in Sri Lanka

- Increased population and urbanization required sectoral developments:

- Irrigation, water supply and sanitation, drainage, hydropower, flood control, fishing, navigation, recreation.

This Approach was Appropriate only to Resolve Immediate Sectoral Problems

However countries increasingly saddled with;

- Conflicts Between Sectors For:

- * *Quantity,*

- * *Quality,*

- * *Time*



- Increasing Demands/Increasing Scarcity
- Drop in Quality of Water (Surface & Ground)
- Degradation of the Catchments
- Ecological Issues



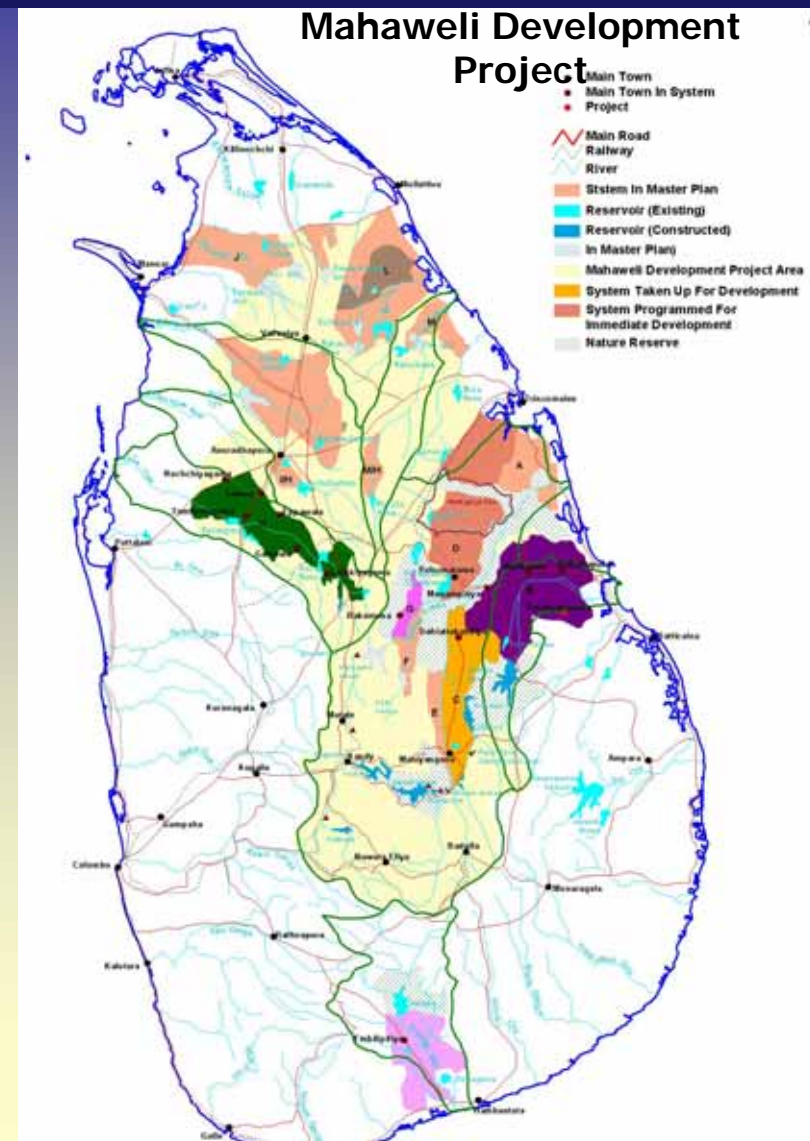
To overcome limitations of sectoral approach, Area based Integrated, Multi-purpose development was adopted.

Mahaweli Multipurpose Development Program, is the best known example of this approach in South Asia.

The “Mahaweli Authority of Sri Lanka (MASL)” is Responsible for:

Planning, Implementation,
Operation, Asset Management,
Resource Allocation and
Regulation.

‘One Stop Shop’, for selected
“Special Areas” of Basins.



MASL is a Lead Agency in the Country having

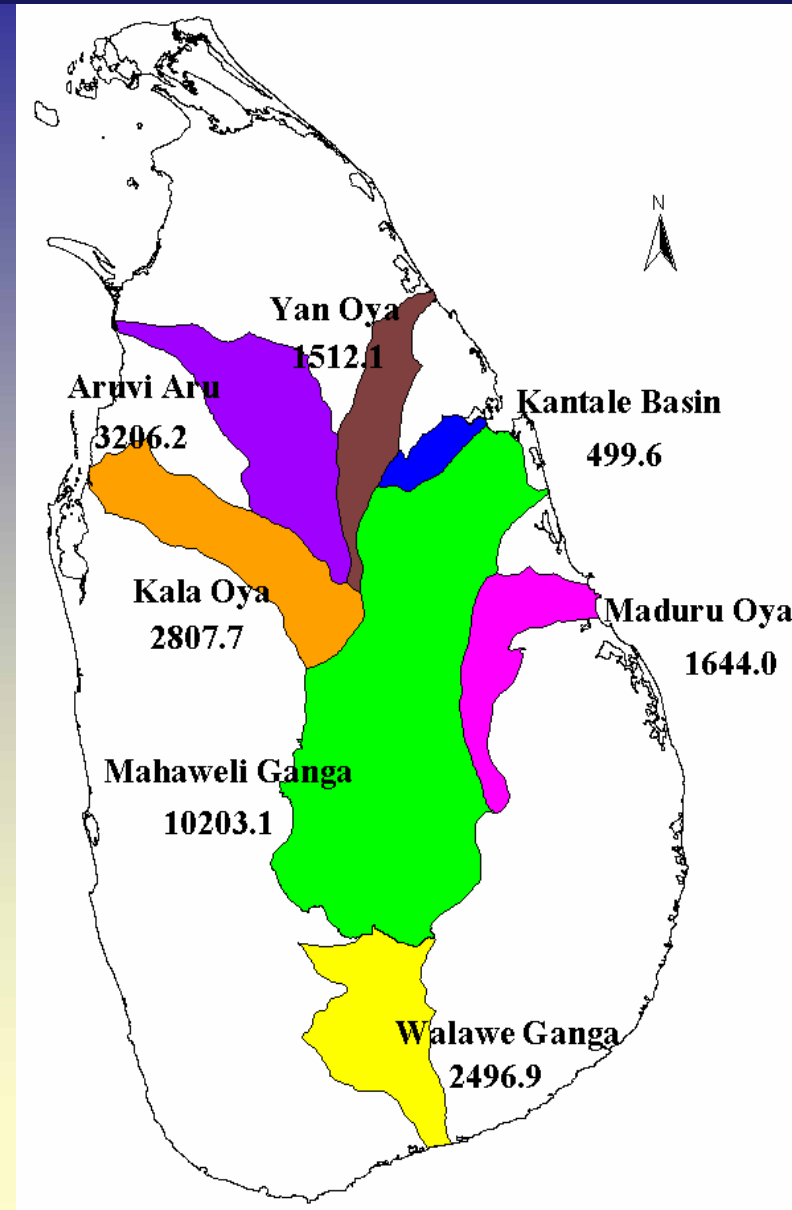
- More than 30 Years experience in planning, development and management of water and land resources using integrated approaches.
- Trained Staff for real time water management for multiple uses, land management and extension services for irrigated agriculture and watershed management.
- Appropriate organizational structure for integrated management of natural resources.
- Strengths for environmental management.
- Consultative mechanism for water sharing.

MASL is now moving towards River Basin Management to address:

- Multi-sectoral allocation of water resources among diverse users/uses.
- Management of Multi-purpose Water Infrastructure.
- Watershed / Water Quality/ Riverine Management.
- Reliability of water availability to meet all demands.
- Demand Management through conservation measures.
- Impacts on Environmental and Health concerns.
- Institutional Development - Public - Private sector Partnership, awareness creation and education.

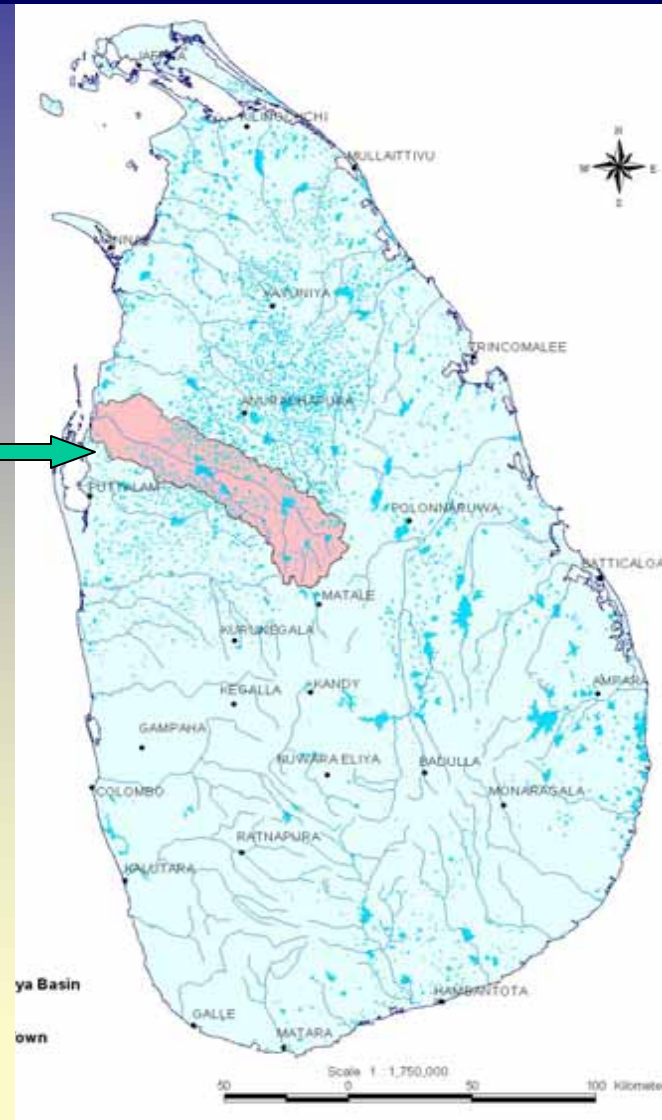
Mahaweli & Adjacent River Basins

- Mahaweli Basin
- Malwathu Oya Basin
- Kala Oya Basin
- Yan Oya Basin
- Maduru Oya Basin
- Walawe Ganga Basin

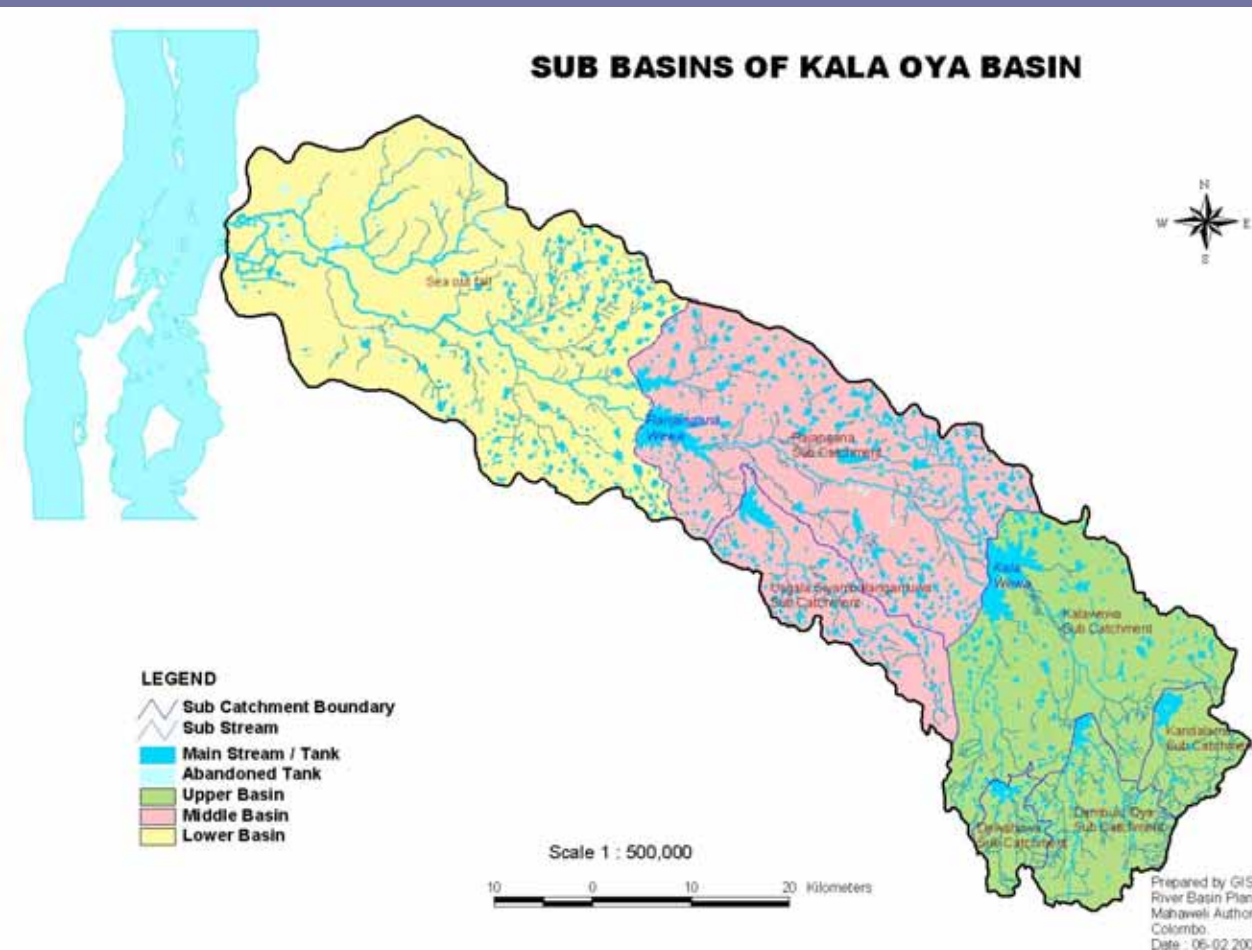


Few of the Pilot River Basins , this concept is currently applied.

Kala-Oya Basin →

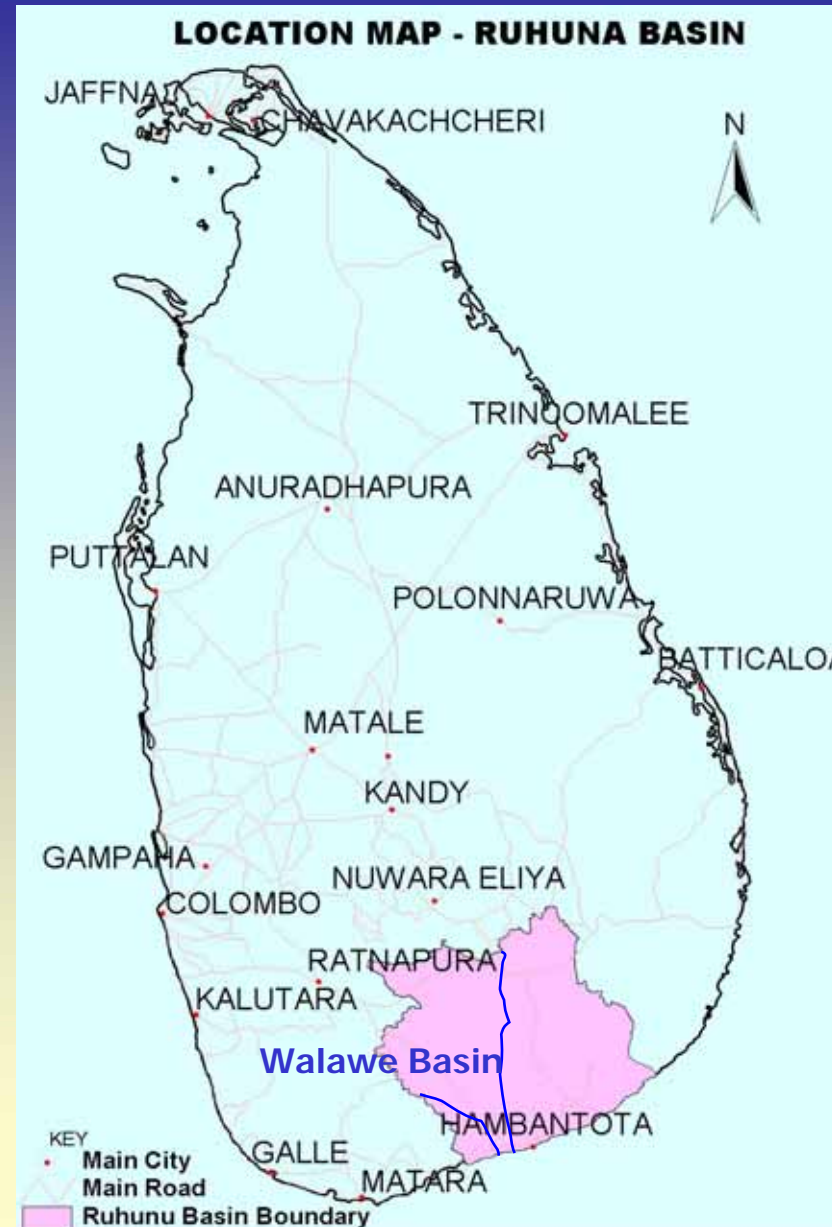


Kala Oya Basin – Pilot Basin



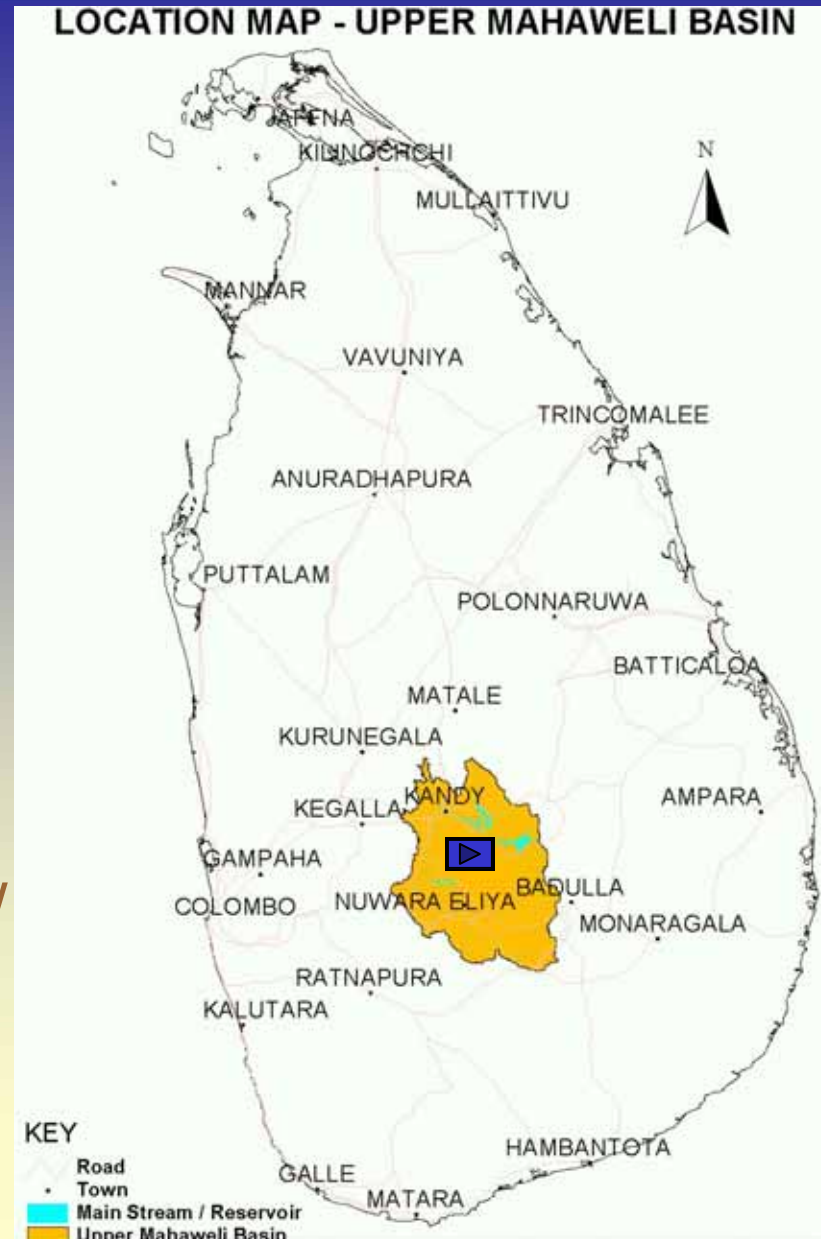
Ruhuna Basin

- IWMI – Benchmark Basin
- Prepared Irrigated area map (GIAM – 2006)
- Wetland Mapping
- Consist with Walawe Basin (Mahaweli Special Project Area)



Upper Mahaweli Basin

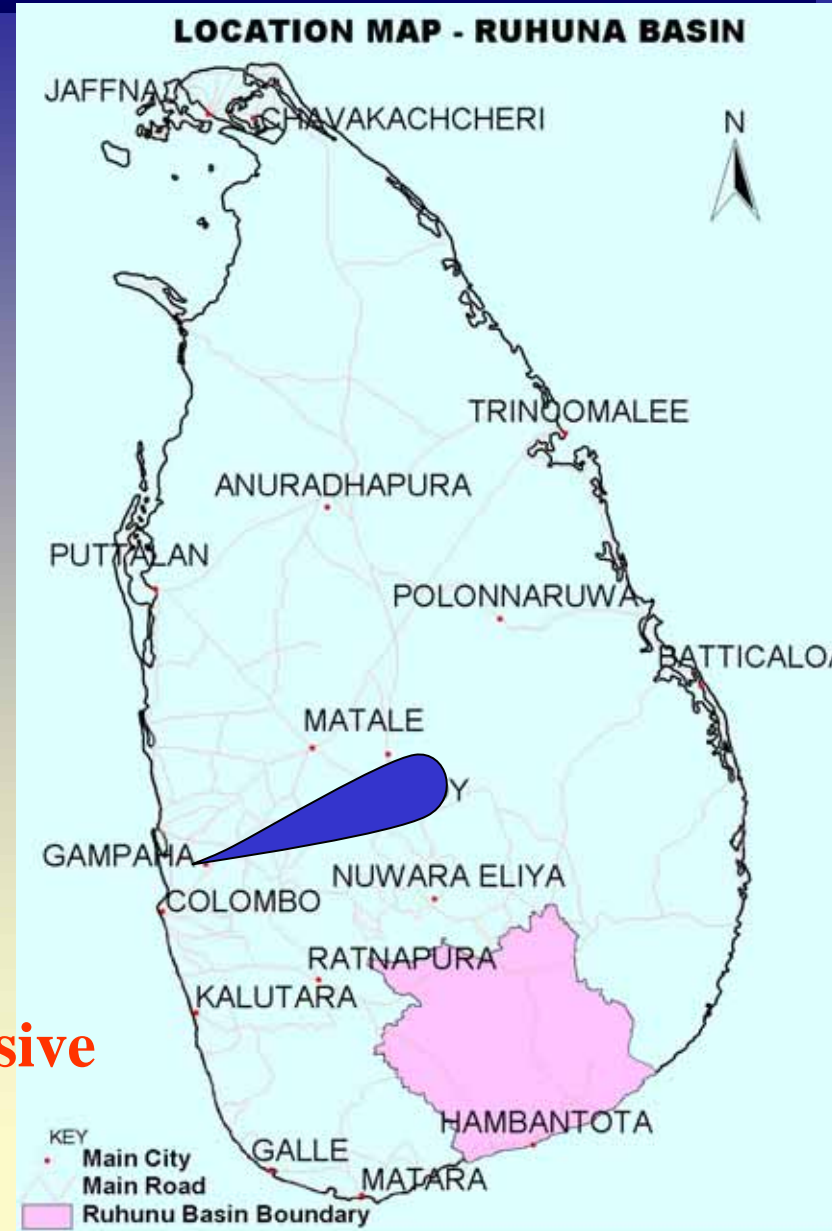
- Located in Hill Country
- Four Major Reservoirs
- Diverted Water to Dry Zone Development
- Contribute 40% Electricity Requirement of the Country.
- Large number of streams & many Waterfalls gives Aesthetic Value to the country



Ma-Oya Basin

- **Begins from Central Hills**
- **Major Part is in North Western Province and Flows to sea at North of Negombo**
- **Heavily used for Domestic and Industrial Purpose.**
- **Polluted by Solid Waste Disposal**
- **Salinity & River Bed largely Eroded by Heavy sand Mining.**

SLNWP has developed a Comprehensive RB Plan for the Ma-Oya and is now Implementing through AWP



Basin Approach

- Stakeholder participation in natural resources and environmental management at all levels/water panel, Consultative committees/ Standing committees.
- Management of entire Watershed (upstream/mid-stream and down stream).
- Asset Management – mainly water infrastructure.
- Water Resources allocation and real time management.
- Awareness and Education on natural resources management.



Continued....

- Gathering and dissemination of information.
- R & D on policy, technology, procedures and specifications/ standards of use.
- Coordination with other agencies/departments, NGOs, private companies/water user associations (CBOs).
- Monitoring and evaluating land and water use and return flows to the system.
- Conflict resolution.
- Management Cost sharing among beneficiaries .

The South Asian Context - Special Features

- Water use dominated by small scale and traditional uses mainly by impoverished agricultural communities.
- extreme seasonal variations - spatially and temporally.
- Increasing environmental pollution dominated by non-point sources.
- The cultural attitudes to rivers as sinks for pollution.



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- Limited financial resources and implementation capacity.
- Most river systems developed on a sectoral basis for and by political and administrative boundaries to be researched.
- The potential for improving their income, health and environment, food production, safe drinking water, hydro-power etc. through better management of the rivers of South Asia is immense.

How does it translate into services ?

- The development of region and country specific services to be based on the best practices of River Basin Management.
- In finding out an appropriate organizational model and related management tools, which will fit the unique conditions of a particular basin, while benefiting from the experience accumulated regionally.

South Asia shares many features and issues specific to the region.

- Vital to exchange experiences and learn from each other.
- Important to share experiences of other parts of the world.
- Important to introduce integrated approach for natural resources management at basin level.

**RIVER BASIN ORGANIZATIONS
(RBOs) WILL NEED TO BE
TAILORED TO THE SITUATIONS
AND CONSTRAINTS
FACING INDIVIDUAL
COUNTRIES.**

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Thank You for your Attention