

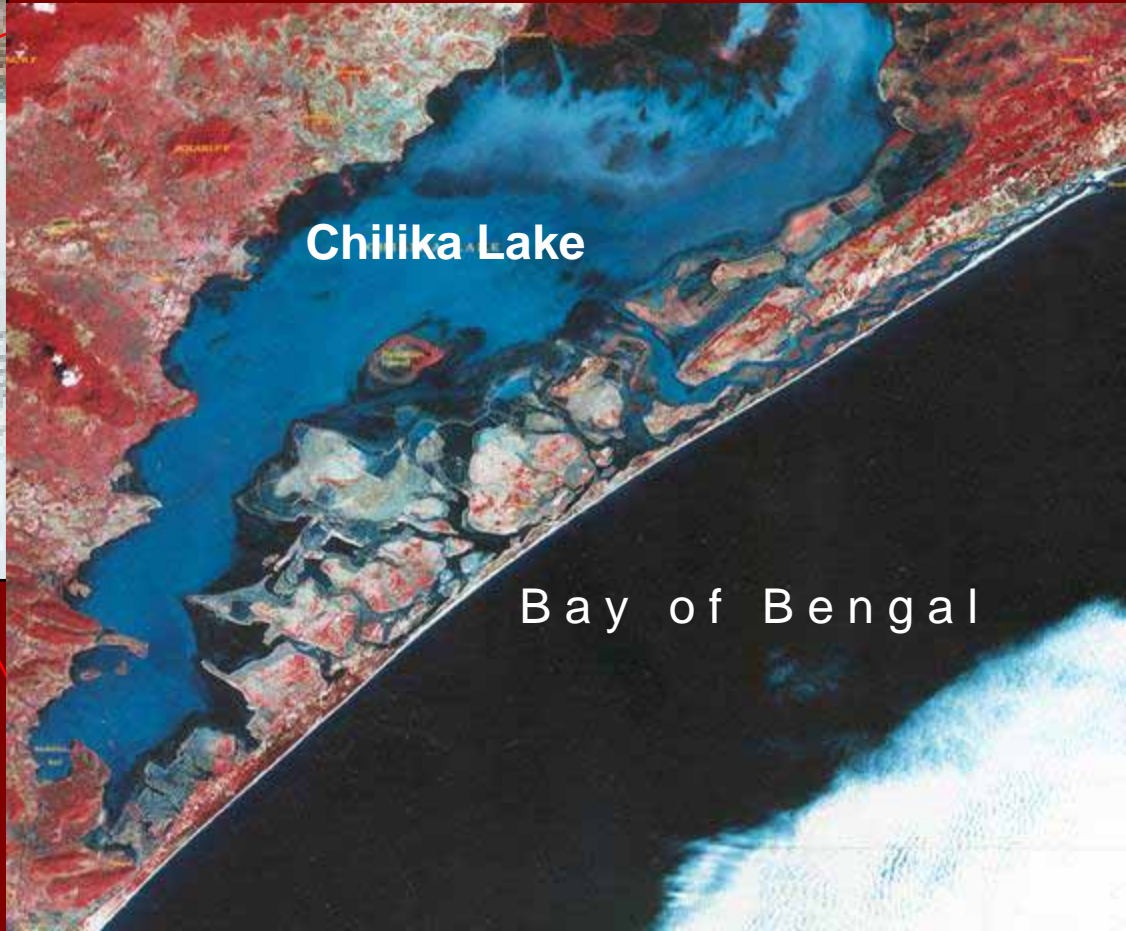
*Institutional
Coordination and Policy
Development in Lake
Basin Management:
Lessons from the
Chilika lake, India*



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Salient features of Chilika Lake

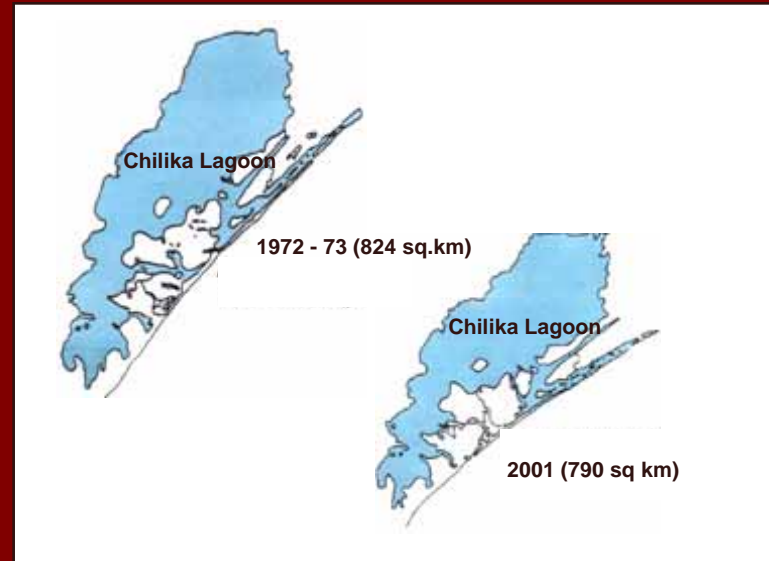
Length	-	64 kms (max)
Breadth	-	20 kms (max)
Avg. water spread area	-	1065 sq. km
Depth	-	0.38 to 4.2 m
Catchment area	-	4406 sq kms
No. of fishermen villages	-	192
Total fisher folk	-	0.2 million



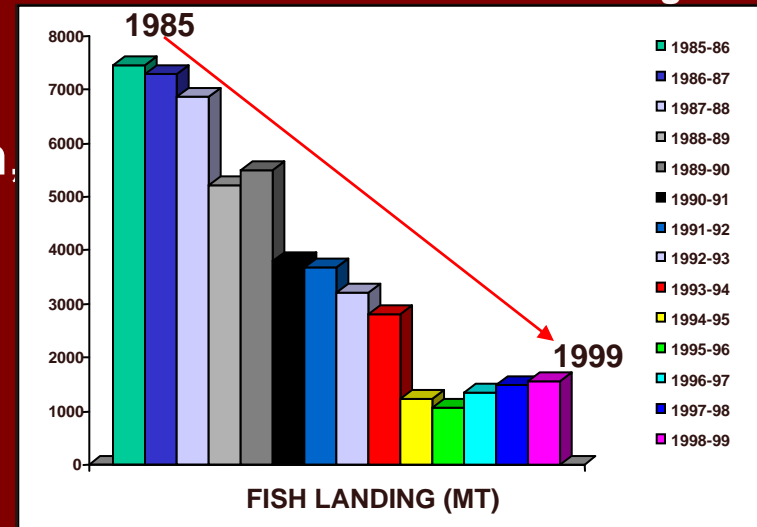
Management issues:

- Complex ecosystem
- Multitude stakeholders (Open use of lake resources without any institutional regulatory mechanisms).
- Change in hydrological regime due to alteration of flow
- Shrinkage of water spread area of the Lake due to siltation and poor flushing.
- Loss of biodiversity and productivity.
- Degradation of the life support system in the lagoon and the drainage basin
- Included in the Montreux record in 1993 due to change in its ecological characters.

Shrinkage of water spread Area (1972 – 2001)



Decrease in fish landing



GOVERNING BODY OF CDA



CHAIRMAN (CHIEF MINISTER)



WORKING CHAIRMAN (MINISTER, ENV)



MEMBERS

**LOCAL REPRESENTATIVES, SECRETARIES FROM KEY DEPARTMENTS,
EXPERTS FROM PREMIER INSTITUTES, REPRESENTATIVE FROM
FISHERMEN FEDERATION.**

Restoration strategy



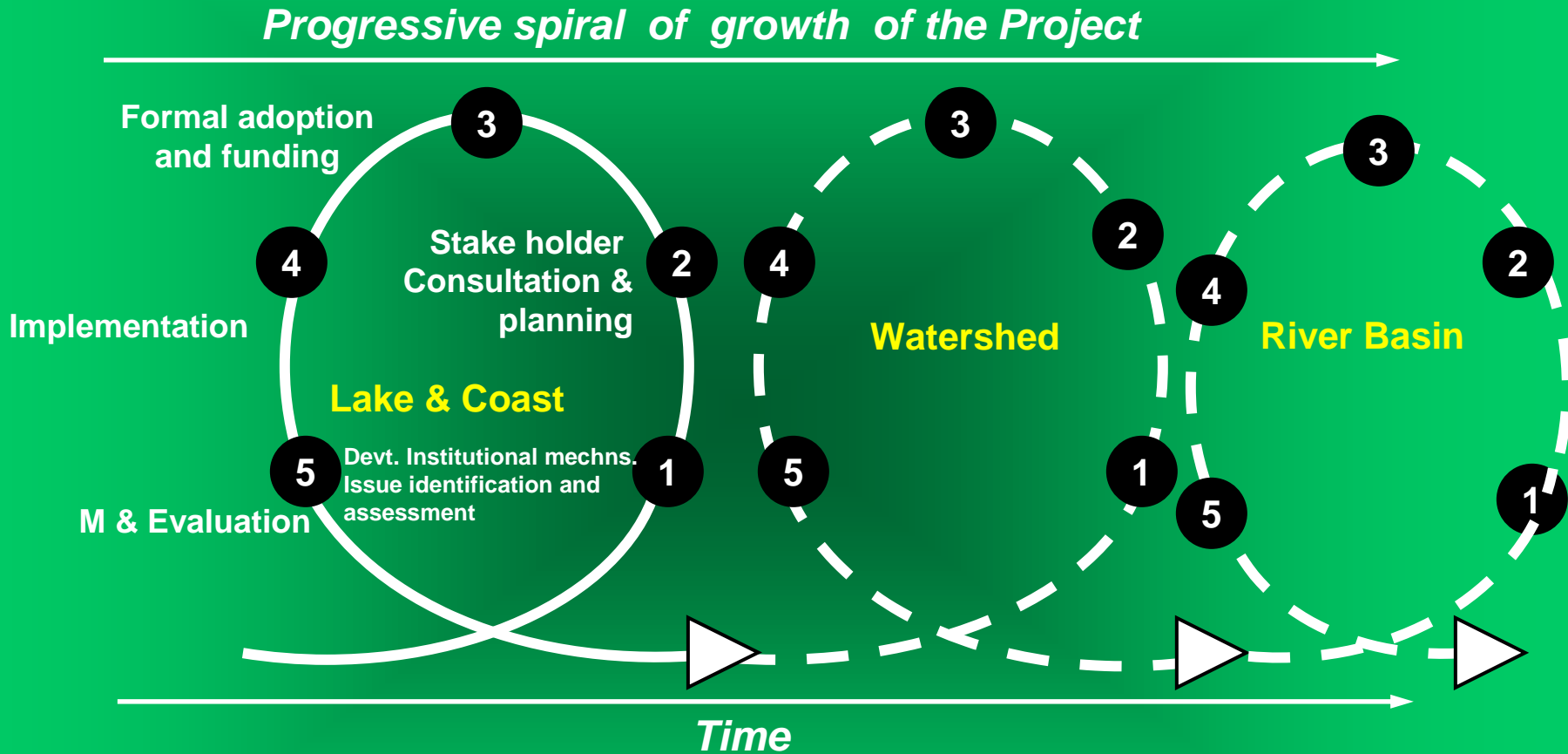
- Wide stakeholder consultation.
- Key targeted studies to understand the complex ecosystem and to trace out the root cause of degradation.
- Connect science to the social values, institutions and ethos of local community.
- Adaptive management planning based on science.
- Ecosystem approach to restore the ecological integrity and functionality of the lake through wide consultative process.
- Integration of the watershed in the management of the lake with micro watershed as a functional ecological unit with facilitation of community level institution to manage the resources.
- Strong institutional coordination and strategic partnership.

Successive adaptive planning

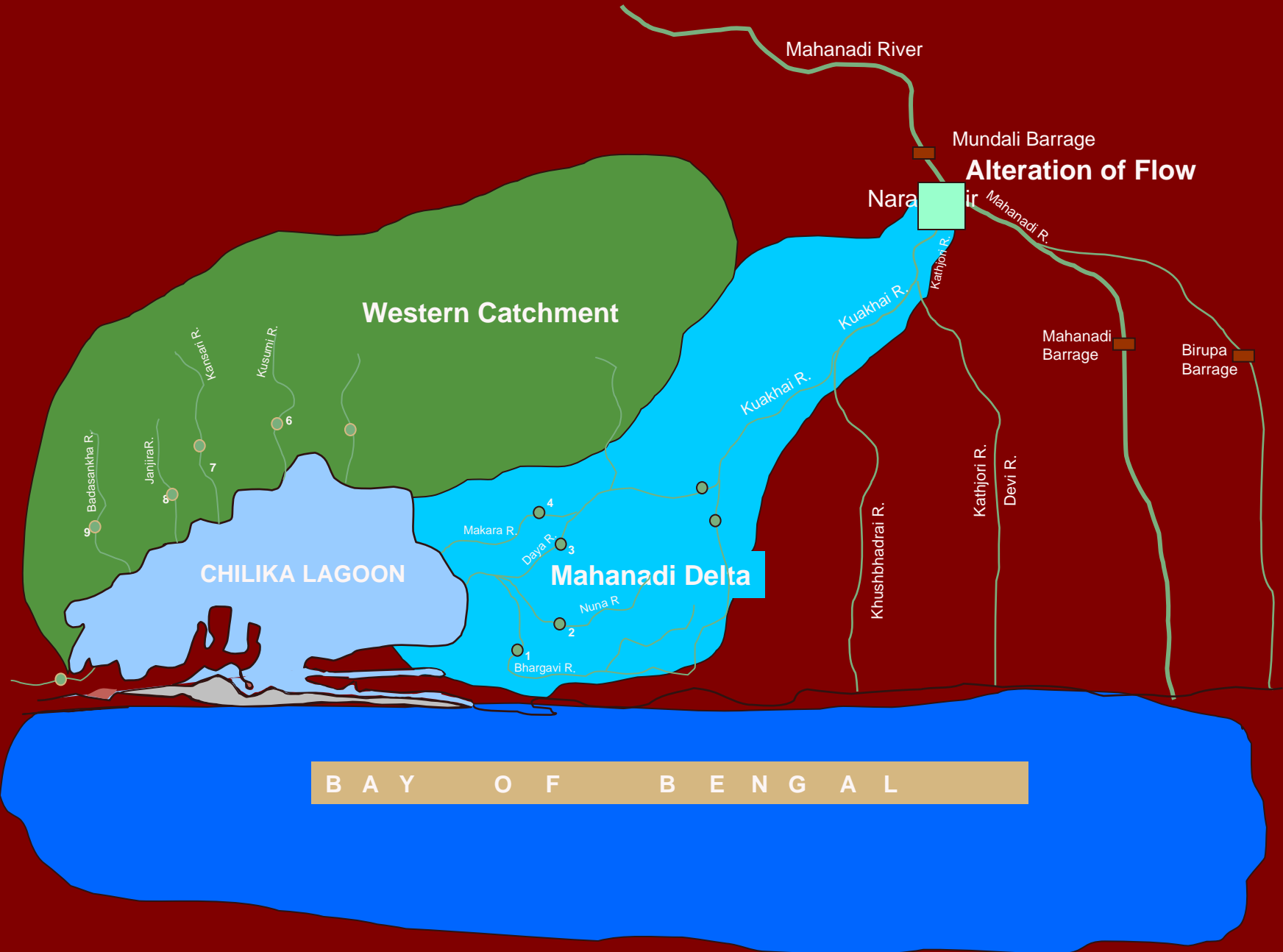
- The first phase included the; restoration of the lake by re-establishing the flow regime with the Bay of Bengal, pilot project for micro-watershed management with capacity building and empowerment of the resource users through facilitation of the grass root level institutions.
- In next phase the pilot project up-scaled to some 13 more micro-watersheds in the drainage basin.
- It is envisaged to expand the management to the River basin scale.



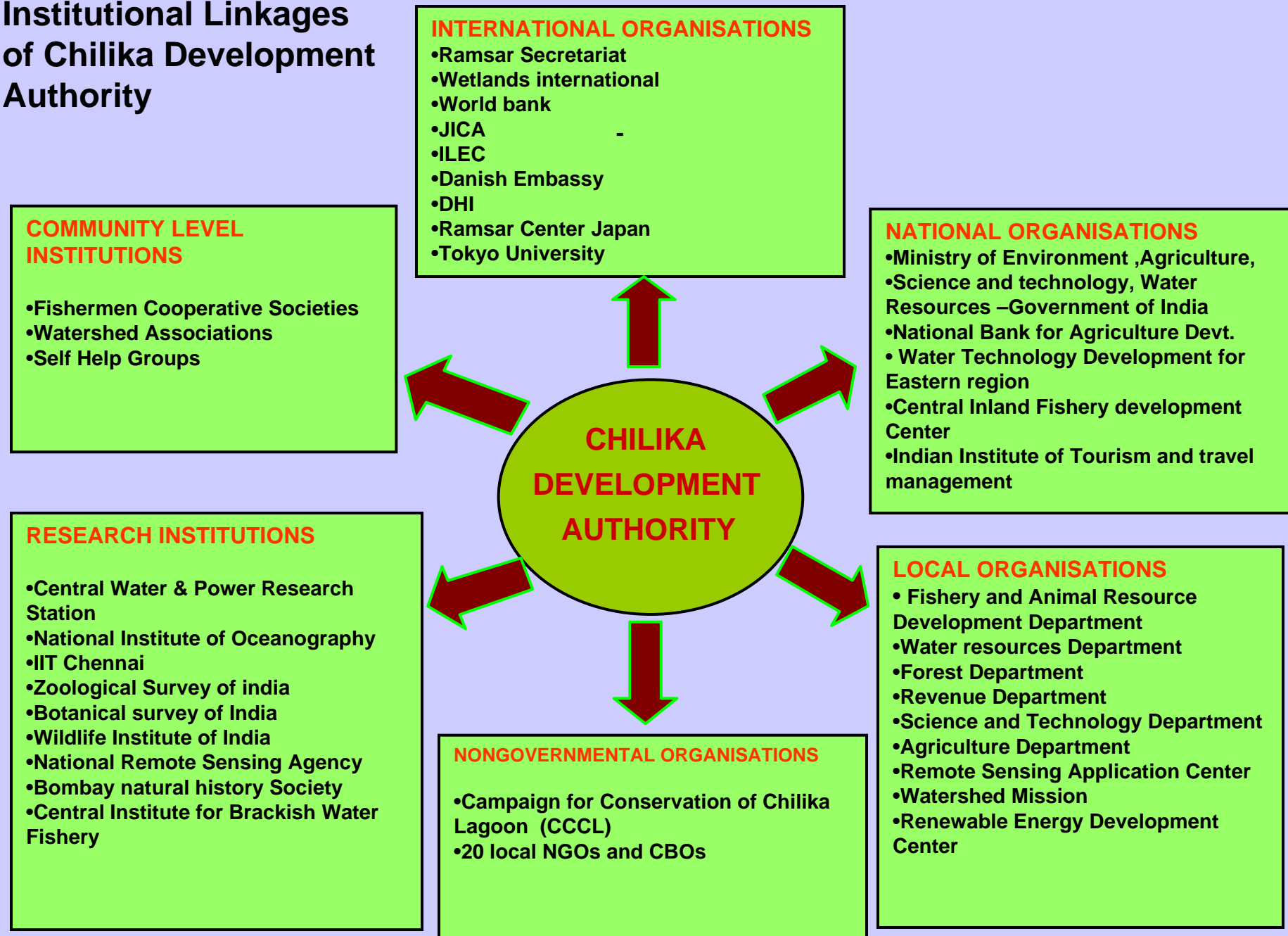
A Strategic Process Adopted for Restoration



Lake → Watershed

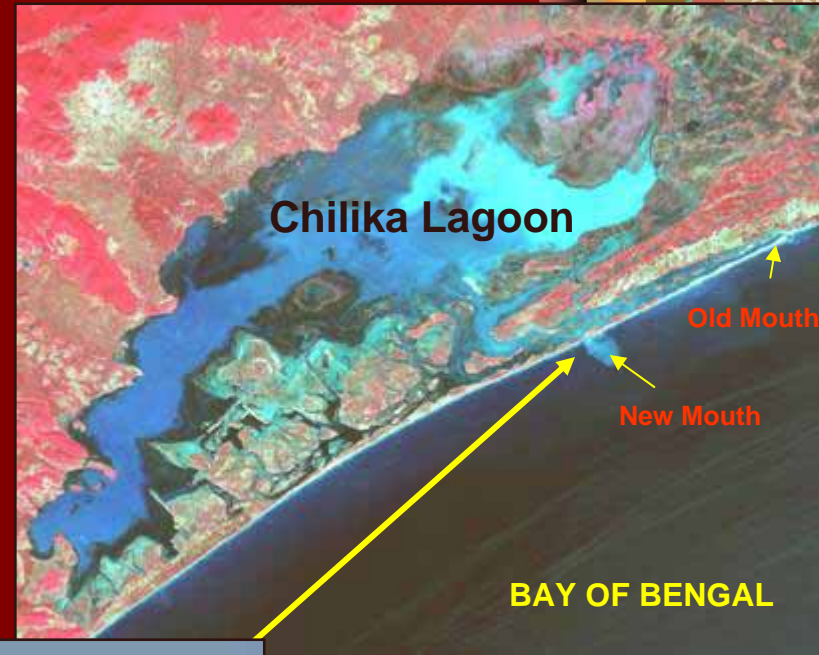


Institutional Linkages of Chilika Development Authority



Improvement after hydrological intervention

- **Eight fold** increase in annual fish and prawn landing
- Avg. increase of income of fishermen by **1000 US\$** per annum after opening of the new mouth.
- Increase in salinity flux by **40%**
- Increase in tidal flux by **45%**
- Improvement of sediment flushing
- Quick discharge of flood water
- Decrease of invasive species by **162 sq km**



Opening of the New Mouth

Lake basin Scenario



- Assessment revealed that land degradation in the drainage basin resulted in **enhanced silt flow into the lagoon** and triggered **poverty, due to low productivity.**
- The **depletion of natural resources and loss of their productive capacity** had imparted huge cost on the local communities.
- The **poor were the first and most directly and adversely impacted** due to land degradation resulting in declining agricultural productivity.

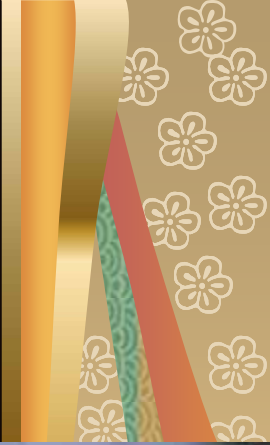
Participatory management of watershed with a “sustainable rural livelihood” approach.

- The drainage basin of the lagoon that spreads over 4000 square kilometres was the **logical starting point for management actions** of the lagoon.
- The environmental flow assessment provided necessary clues regarding the **significance of the freshwater flow from the drainage basin to maintain the ecological integrity of the lagoon.**
- The large-scale silt flow from catchments (**0.4 million cubic meters**) was identified as the most detrimental for the lake ecosystem.



Contd...

- The drainage basin management programme is conceived as a long-term participatory process to achieve an **environmentally, economically and socially sustainable management of water resources.**
- The basic approach adopted has been to **facilitate and create an enabling environment, through capacity building of the community, community based organisations and NGOs to develop strong and efficient grass root level institutions.**
- **Community level institutions and equity issue were made central** to the Integrated Watershed Management.



Watershed Association (Watershed level institutions for sustainable management of resources)

- **Watershed Association** at each micro watershed are the key institutions to manage the natural resources and ensure equitable distribution of the benefits.
- All adults from the micro-watershed villages are members of the **watershed association**.
- The general body of the association constitute a drafting committee to draft the by-laws.
- The watershed association then constitutes the watershed committee with fair representation from the landless, socially weaker section and adequate women representatives.
- The watershed associations are also registered under Societies of Registration Act.



Micro planning (Village level resource management plan)

- The **micro-plan** for each micro watershed formulated blended with local indigenous knowledge and appropriate experts' input, for optimum utilization of the natural resources in a sustainable manner .
- To ensure the involvement of the community and sustainability, the committee ensures that the **community share a part of the cost of the treatment towards the watershed development fund** which is utilised for maintenance and further improvement of the watershed assets created .
- The **watershed association and the user groups** has been able to efficiently implement the micro-plan in consultation with the community.



Women Participation

- The **Watershed Association** takes the lead in integrating women from all communities into the mainstream by way of empowerment through **Self Help Groups** and their active participation in the watershed management.
- The women of the community benefited in a special way through the formation of the **women self-help groups (SHG)** and **capacity building training for skill improvement**.
- Through a **micro-credit mechanism**, the members of the SHGs adopted income-generating activities to supplement their family's income.
- **By working to earn for themselves, the women empowered themselves against the prevailing social taboo, now they are better placed to take the decision on financial matter**



Conflict resolution

- The WA could very effectively resolve the longstanding village level social conflicts and differences of opinions within the micro-watershed area .
- Even the chronic inter-village conflict plaguing these non-descript villages for the **many years could be resolved amicably by the this local level institutions.**
- **The micro-watershed institutions became the model in the context of social integration.**



Good practices by watershed institution

- Participatory management of the watershed with **facilitation of strong grass root level institutions**; resulted in enhancement of productivity and poverty alleviation by efficient management and equitable sharing of natural resources .
- Participation of local communities **in planning and implementing management of natural resources and in sharing the responsibilities of decision-making has been key to the success.**
- The project is an **ecological success** in many respects, notably, there have been increased earnings from **land and non-land activities, reduced debt, conflict resolution** and social integration and **improved livelihood and food security leading** to further poverty alleviation, reduced environmental degradation and reduction in the silt load into the lagoon.
- The local community now lives in harmony, as is evident from a quote by villagers: **“we are now an extended watershed family and there is no question of discrimination.”**

Silver linings

- **Instilling stakeholders participation and facilitation of village level institutions**, i.e., from the problem identification stage to the restoration and management of the natural resources through capacity development and empowerment by way of local level institutions .
- **Working within existing sectors and overcoming the barriers that exist across**; through successful strategic partnership.
- **The capacity development and empowerment of the local community, community level institutions and the local NGOs** created an **enabling environment** for sustainable restoration and management of the lake and watershed resources.
- **Creating participatory management institutions** (including local people and NGOs) at the grass root level with a legal status, with a mandate, accountability to make decisions .