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# Int. Conf. on "Env. Audit- Concerns about water pollution"

Principal Director of Audit Scientific Departments



## Pollution of urban rivers and water bodies



# IndoGerman Environment Programme



ASEM: Joint program of the German Technical Cooperation and the Indian Ministry for Environment and Forests

## Thrust Areas

Cross Cutting Issues:  
Climate Change  
• Human Resources Development



**Sustainable Urban Environment**



**Sustainable Industrial Development**



**Sustainable Consumption and Consumer Protection**



**Sustainable Environmental Governance**

**Support to JNNURM**



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# ASEM supported cities



Nashik:  
Population\*:  
1,076,967

Raipur:  
Population\*:  
699,264

Kochi:  
Population\*:  
1,138,413



Shimla:  
Population\*:  
174,789

Varanasi:  
Population\*:  
1,202,443

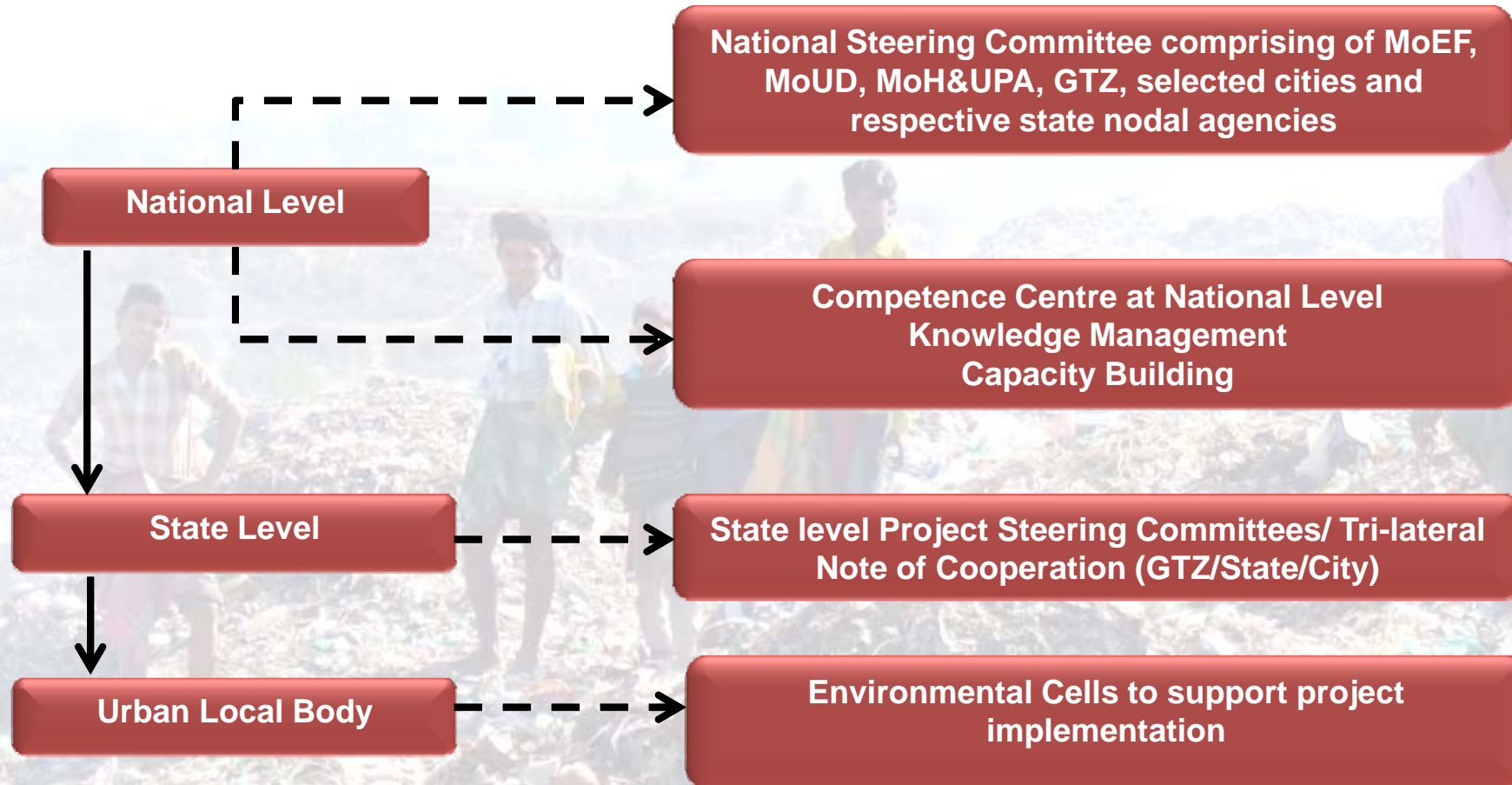
Tirupati:  
Population\*:  
227,657

*\*Census 2001*



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# ASEM steering structure







Pro-Poor Issues

Intervention	Urban Local Body
<i>Municipal solid waste Management</i>	All Municipal Corporations
<i>Sustainable Urban Transportation/City Mobility Plan</i>	Shimla, Raipur and Kochi
<i>Waste water management</i>	Raipur, Nashik, Shimla
<i>Water supply</i>	Shimla and Nashik
<i>Mandatory reforms including e-governance</i>	All Municipal Corporations
<i>Clean Development Mechanism (CDM) support</i>	All Municipal Corporations
<i>City Sanitation plans</i>	All Municipal Corporations



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## Key issues



**Comprehensive planning on State and City level**

**Mechanism to eradicate domestic pollution caused by cities and towns**

**Un-served areas in large scale metropolis as source of pollution**

**Understanding ecology in river development context**



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# River Conservation -a multi-layer and multi-stakeholder task-





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# European Water Framework Directive



## Prime objectives:

to ensure protection of all waters, with the objective of good quality

to cover all impacts on water, regardless of their origin, and to provide a single coherent management frame

to ensure mandatory public participation

to use economic instruments in support of environmental objectives

sound long-term basis for political, technical and financial decisions at all





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## Design of a functional body

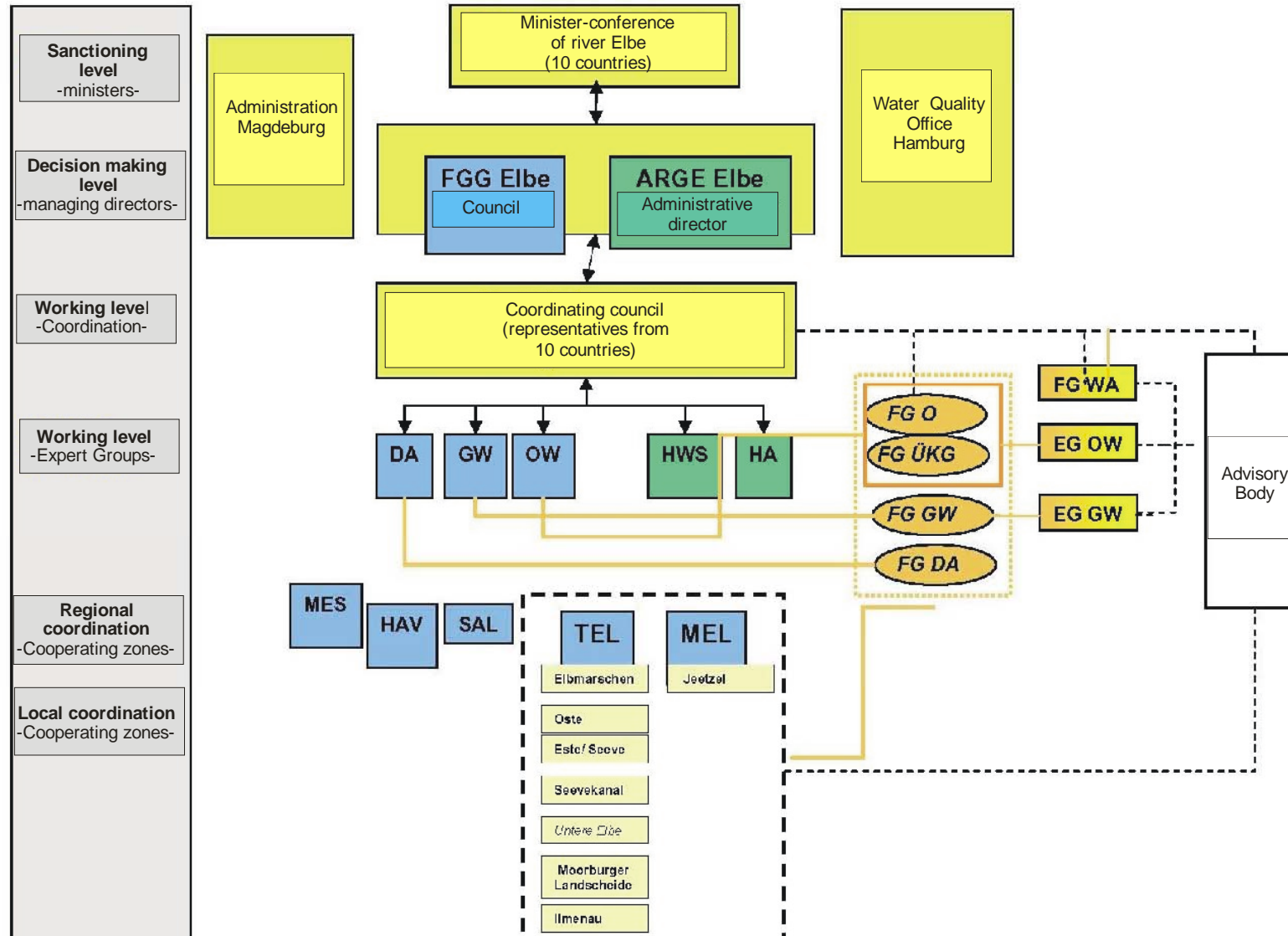


States must appoint a competent **Authority** to coordinate the implementation of the Directive within it. One competent authority may act as a coordinating body for other competent authorities, in which case some form of “**river basin committee**” might be envisaged to act as a focus for management of the basin. The competent authority is responsible for producing the **River Basin Management Plan** (or Masterplan) for that basin.



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# Design of a functional body

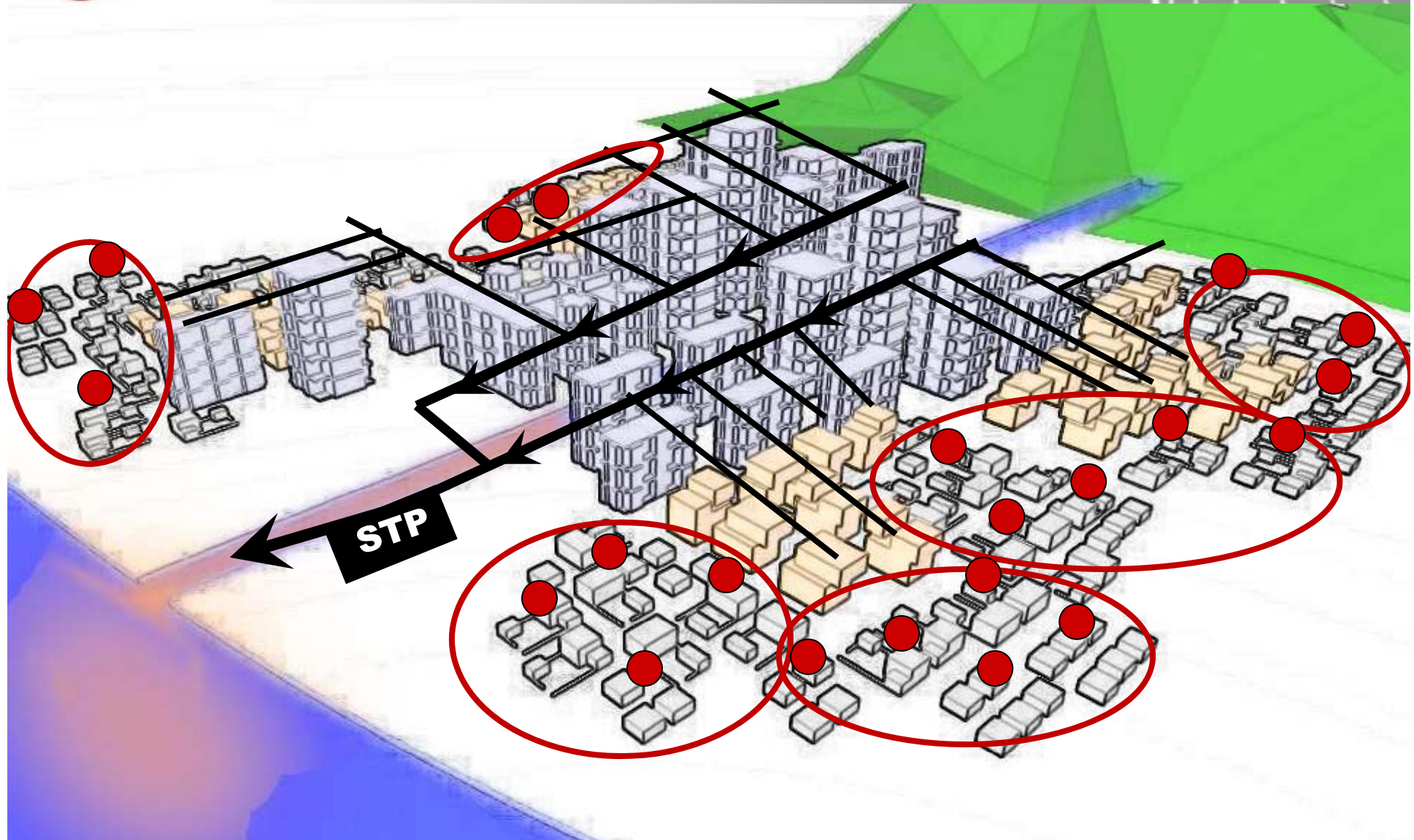
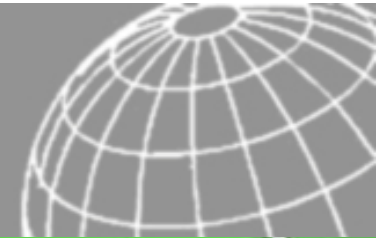




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# Example 1: Sanitation

- from centralized to combined solutions-

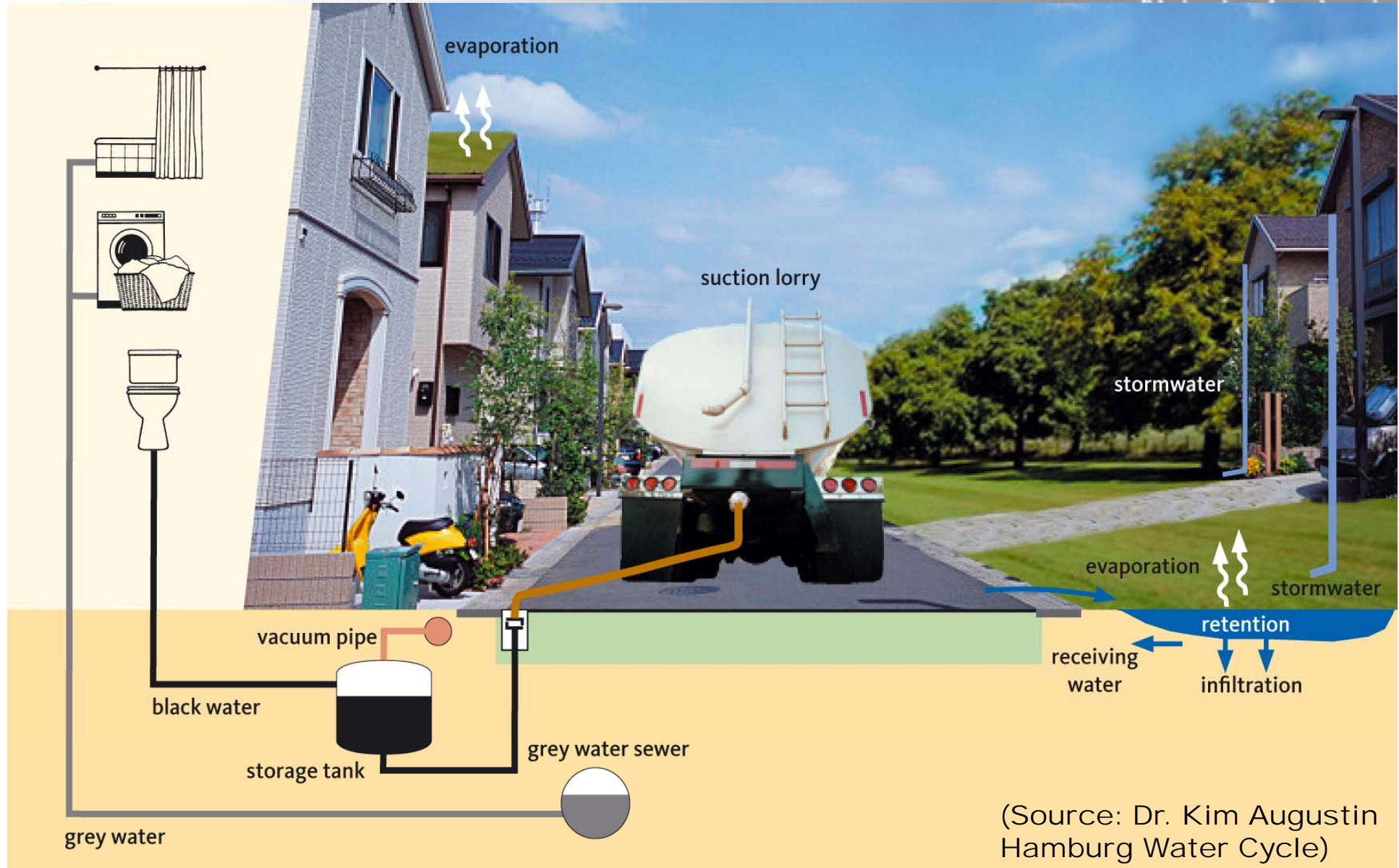






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# Decentralization of wastewater disposal for unserved areas



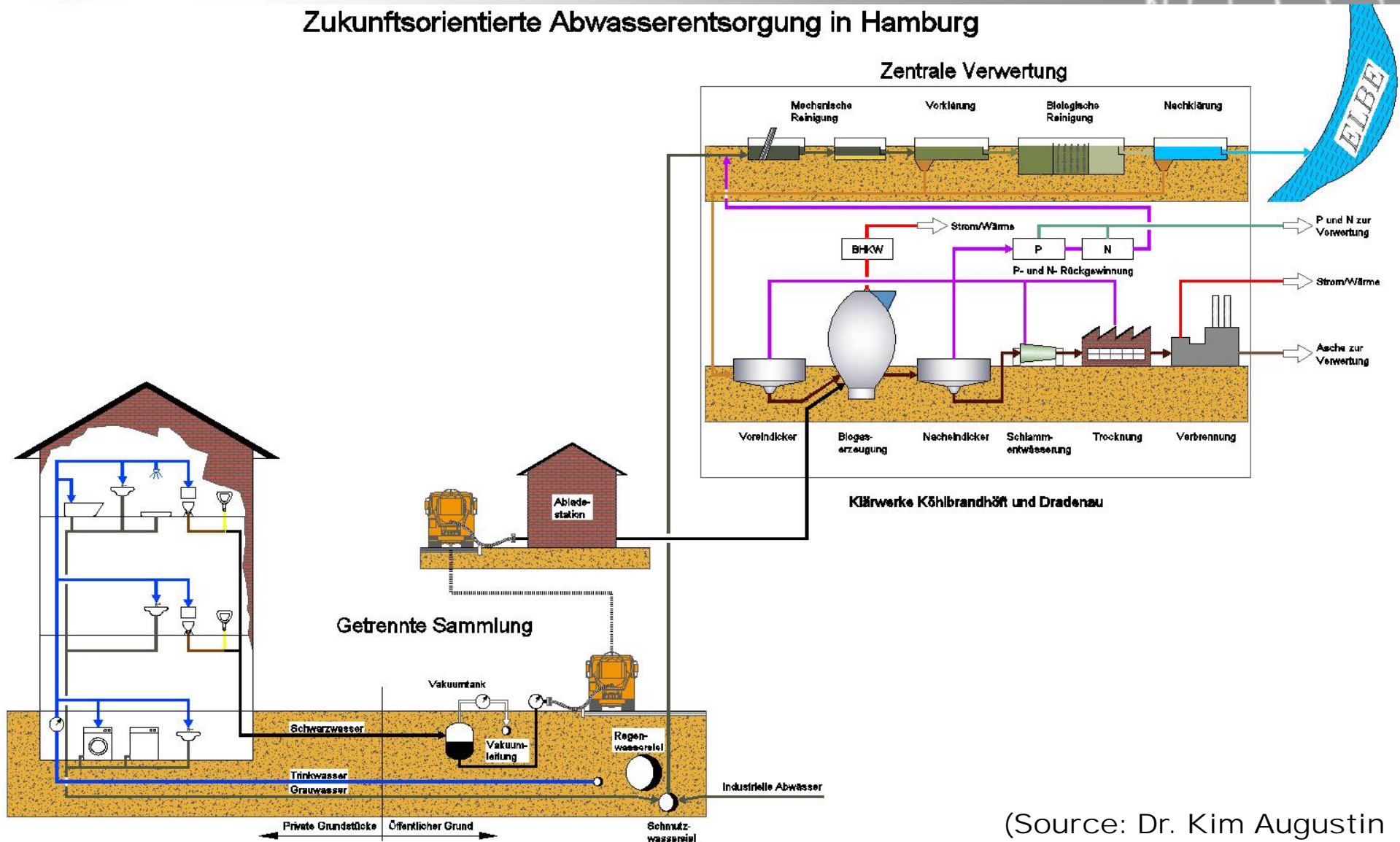
(Source: Dr. Kim Augustin Hamburg Water Cycle)



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# Innovative solution for sewer free wastewater treatment concept

## Zukunftsorientierte Abwasserentsorgung in Hamburg



(Source: Dr. Kim Augustin Hamburg Water Cycle)





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# Example 2: Riverfront Development - from engineering design to eco-restoration-



## GENESIS OF THE POONGA

The Government of Tamil Nadu has from 1997, been contemplating the creation of the Adyar Poonga. The Project initially envisaged the creation of an eco park to restore the ecological balance and raise public awareness on environmental issues. However realizing the larger ecological impact, the Government initiated an ambitious project to include and encompass the edge restoration of the Creek and Estuary as well, covering about 358 acres.

To effect the above, the State Government vide G.O.Ms.No.117 Municipal Administration and Water Supply, dated 11.10.2006, formed a Trust, headed by the Chief Secretary, under the name of "Adyar Poonga Trust" inter alia with the objective of developing, maintaining and serving an eco park by name "Adyar Poonga" and to create such other systems for the restoration of the Adyar Creek and the Estuary area.

The Board of Trustees, by a resolution dated 21.11.2006 appointed the Tamil Nadu Urban Infrastructure Financial Services Ltd., Chennai (TNUIFSL) to identify and engage necessary consultants in the preparation of a concept/master plan, detailed planning and to invite competitive bidders for the development of the Rs 100 crore Eco-park.

Accordingly M/s.Pitchandikulam Forest Consultants, based in the international township of Auroville, which is recognized internationally for its ecological works, were appointed as consultants for developing a Master plan and other related activities. Pitchandikulam Forest Consultants are collaborating with several reputed specialist Consultants like Centre for Environmental Studies, Anna University, Idea Design (Cochin), House of Consultants, (Bangalore), Aurore (Auroville), SDA (Auroville), SCD India Ltd. (Chennai), Ceres (Australia) amongst others in the fields of Water Management, Environmental Education, Flora and Fauna habitat mapping, Social Impact Studies, Alternative Technology, Architecture and Landscaping.



Satellite image of Adyar area



Photographs of Adyar Estuary and Creek, 2004



INTRODUCTION

ADYAR POONGA TRUST

**AN ECOLOGICAL MASTER PLAN FOR ADYAR POONGA, CREEK & ESTUARY**  
PART 1- ADYAR POONGA ( 58 ACRES )

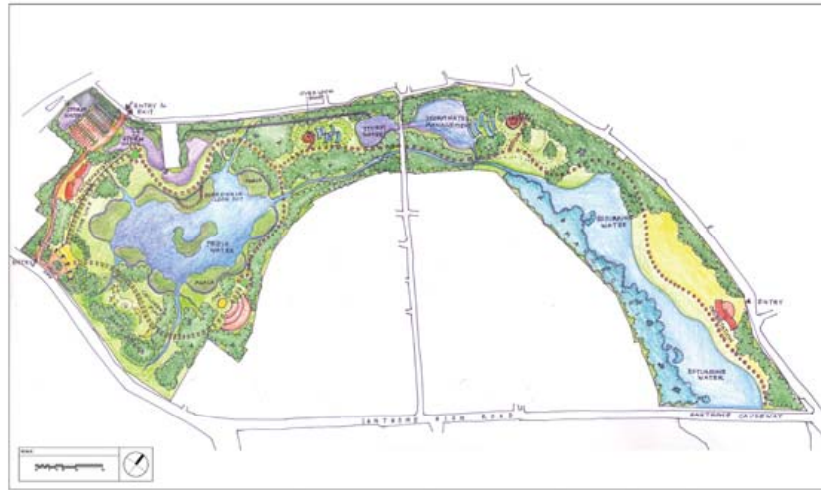
LEAD CONSULTANTS :  
PITCHANDIKULAM FOREST CONSULTANTS  
AUROVILLE





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# Adyar Poonga Eco-restoration project Chennai



### CONCEPTUAL STAGE 3

This plan looked at the Conservation and Ecological Restoration as governing principles of the project, thus limiting the arrival and orientation zone to a small fraction of the site's area and keeping the larger area of the site less disturbed by activities. Considering the heavy traffic on Greenways Road, this plan proposed only an entry and drop off from this road and exit through T P Scheme Road to the R K Mutt Road.



### CONCEPTUAL STAGE 4

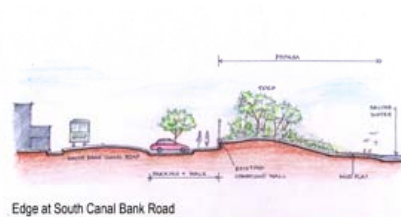
This plan clearly delineates various ecological zones and appropriate methods to introduce biodiversity. In this plan, the possibilities of developing a Poonga educational facility on the land abutting R K Mutt road were conceived. A design also was evolved for treating sewage from the adjoining metro water pumping station to produce most of the water needs of the park.



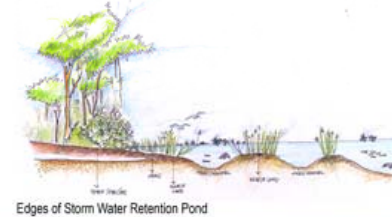
MASTER PLAN - CONCEPTUAL STAGES



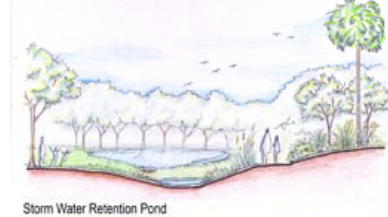
Edge at Karpagam Residential Area



Edge at South Canal Bank Road



Edges of Storm Water Retention Pond



Storm Water Retention Pond



ADYAR POONGA TRUST

## AN ECOLOGICAL MASTER PLAN FOR ADYAR POONGA, CREEK & ESTUARY

### PART 1- ADYAR POONGA ( 58 ACRES )

LEAD CONSULTANTS:

PITCHANDIKULAM FOREST CONSULTANTS

AUROVILLE

# Riverfront Development -ideas for transformation-



Before transformation: Edges of the creek piled with debris and accumulated waste, sewage flowing into the creek polluting the water.



Before transformation: Edges of the estuary taken over by Prosopis and floating garbage, heritage structures hidden.



After transformation: Edges of the creek restored with mangroves and mudflats, sewage inflows stopped, encroachments removed and water front walkway established.



After transformation: Boardwalk experiencing edges reestablished with mangroves and visible heritage buildings.

## IDEAS FOR TRANSFORMATION

Being a disaster prone area, the proposed waterfront walkway is to be constructed with durable natural materials capable of mitigating flood, storm etc. Accessibility and safety for children, old aged and disabled shall become the fundamental aspects of its design.

Various heritage structures such as Chettinad Palace, Brodie's Castle, and the ones in Theosophical Society would become visible from these walkways, which would improve the image of this heritage City. Boardwalks crossing over delicate natural edges would bring people closer to life in nature.



PLANNING CONCEPTS - 358 ACRES

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# Riverfront Development -ideas for transformation-



Before transformation: Debris dumping along the edges of Quibble Island, creek polluted with wastewater & garbage



Before transformation: Debris dumping along the edges of Quibble Island, overlooking encroachments in Srinivasapuram with edges covered by garbage



After transformation: Edges of creek restored with mudflats & mangroves, inflowing pollution is stopped, waterfront walkway is established.



After transformation: Walkway overlooking creek, restored with mudflats & mangroves, encroachments removed & Srinivasapuram is rebuilt

## IDEAS FOR TRANSFORMATION

Ecological restoration of the estuary and creek would be possible only when the waste water and sewage inlets are blocked and the dumping of debris and garbage is stopped. Most importantly the encroachments are to be removed.

Transformation of Srinivasapuram housing area, by rehabilitating the encroachers and rebuilding the housing with proper sewage and waste water management plan, is a crucial aspect for the practical manifestation of the restoration of the creek. Moreover, the access to the edges of the creek in Srinivasapuram must be completely protected to avoid further encroachments in the future.



PLANNING CONCEPTS - 358 ACRES

ADYAR POONGA TRUST

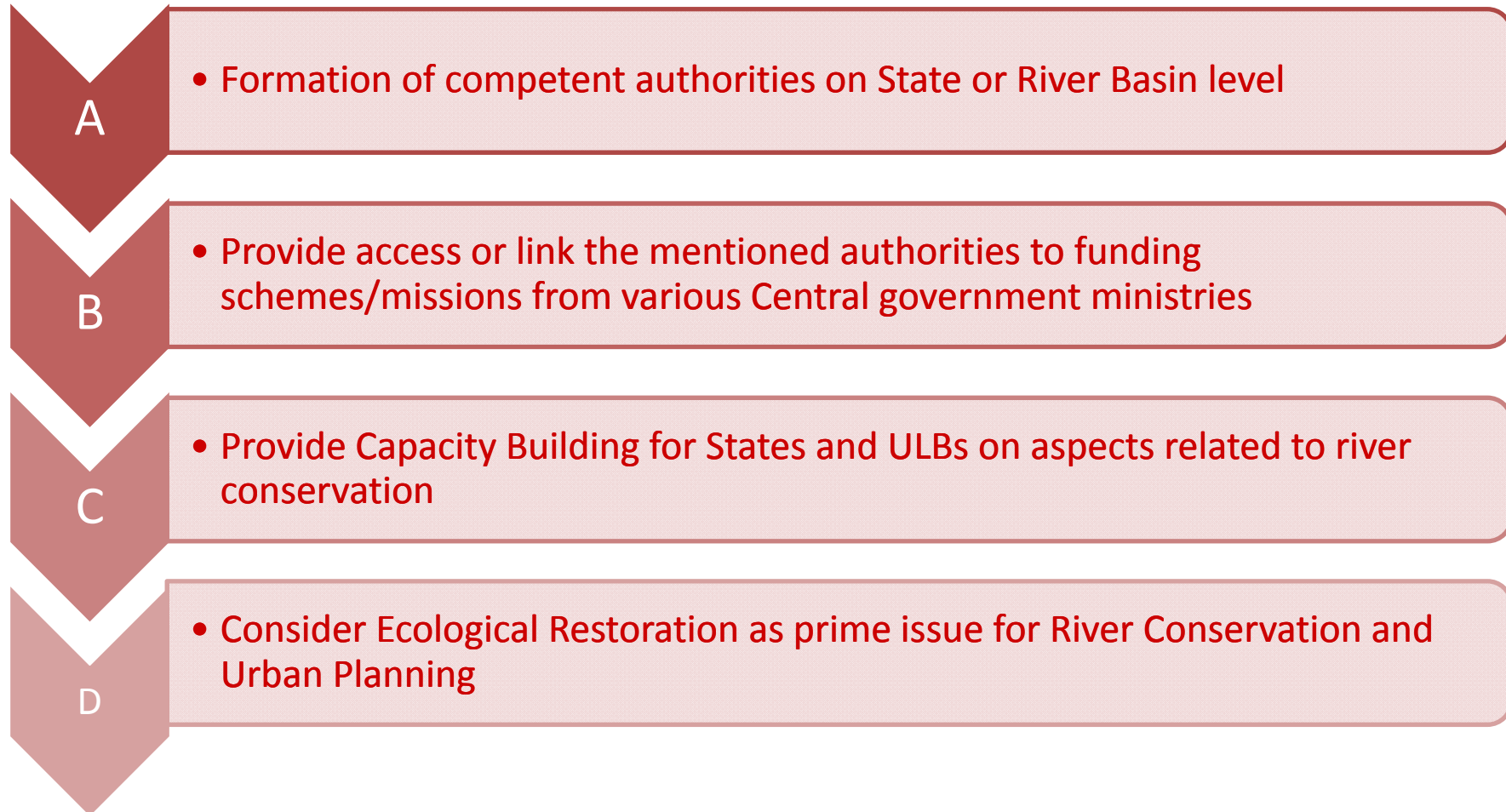
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# Considerations

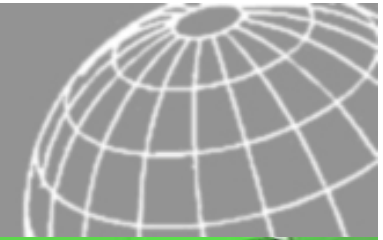






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# Green Cities -Water for Life-



# Thank You!



Ministry of Environment & Forests  
Government of India



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सत्यमेव जयते

Ministry of Housing and Urban Poverty Alleviation  
Government of India



सत्यमेव जयते

Ministry of Urban Development  
Government of India