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Asia Water Forum 2022
8–11 August 2022 • Online

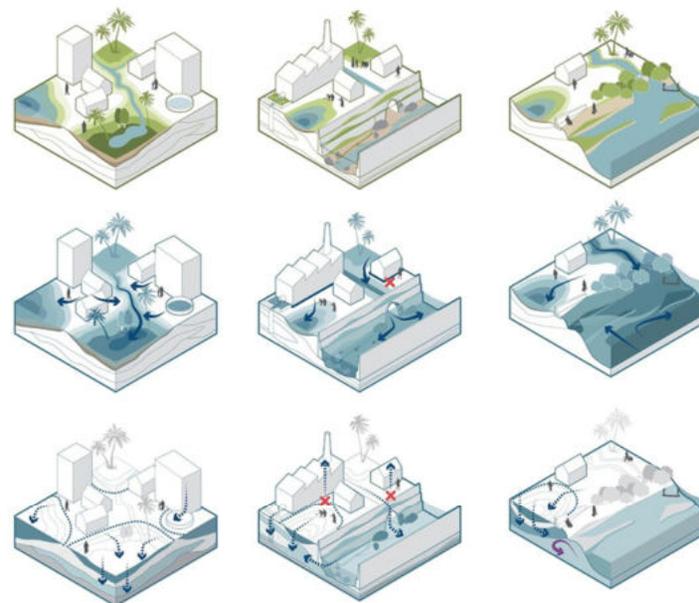


Focus Area: Water as a sustainable resource

Session Title: Nature-based solutions and integrated perspectives

Schedule: 11 August 2022 (Thu) | 9:00 a.m. - 10:30 a.m. (GMT+08)

MAINSTREAMING NATURE-BASED SOLUTIONS IN INDIA'S CITIES



Chennai | Bengaluru
New Delhi | Boston

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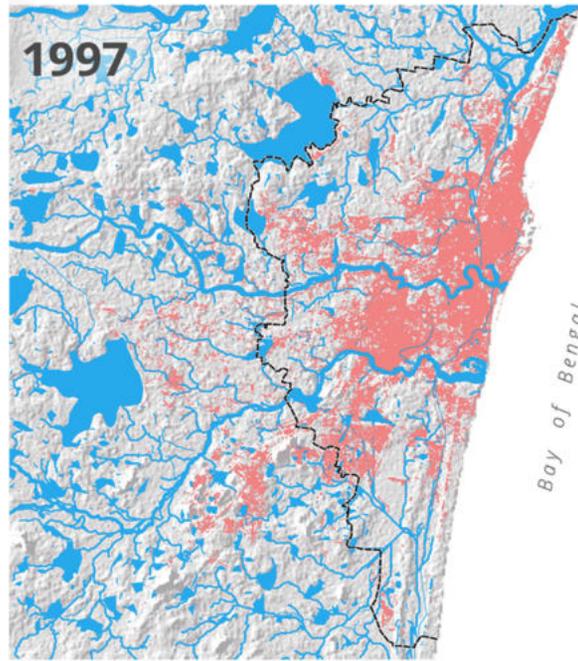


OBJECTIVE: To mainstream NBS approaches to promote climate resilience in India

Key Climate risks in India

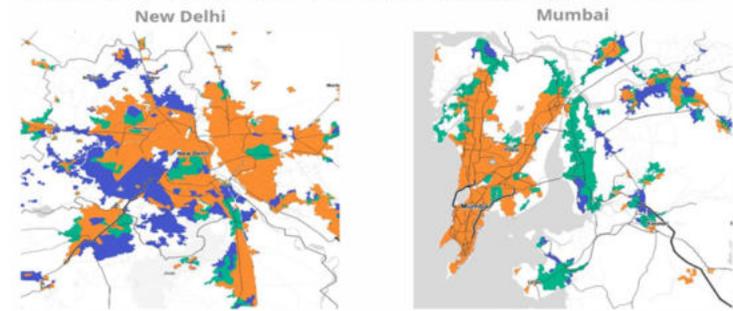


Exacerbating risks due to the nature of urbanization in India



India's Urban Sprawl

Understanding how Indian cities have grown using land use data for 1985, 1995 and 2005. Source: Earth-Data ORNL, DAAC





VISION: Addressing climate change through nature-based solutions

Key Principles

1. Protect

Green Ecosystems and Water Bodies from Encroachment or Pollution



2. Restore

Ecological Functions of Degraded or Polluted Landscapes



3. Enhance

Coastal, Riparian, Wetland Ecosystems with Hybrid Infrastructure



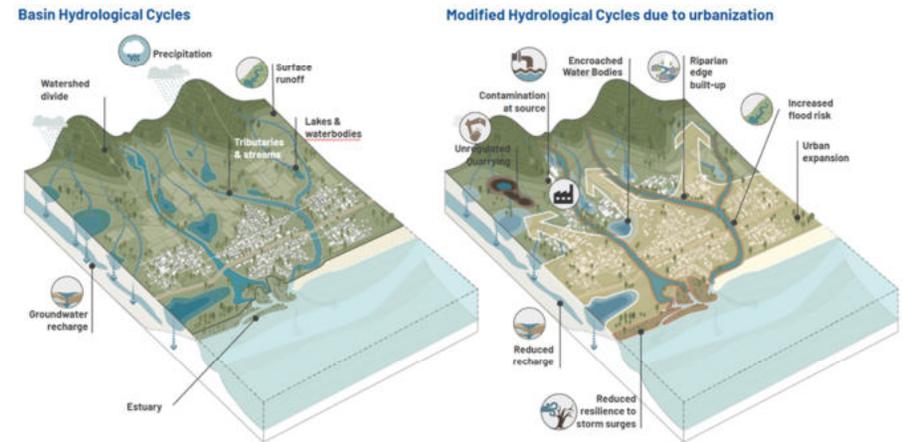
4. Construct

Blue-Green Infrastructure in open spaces, streets, and buildings



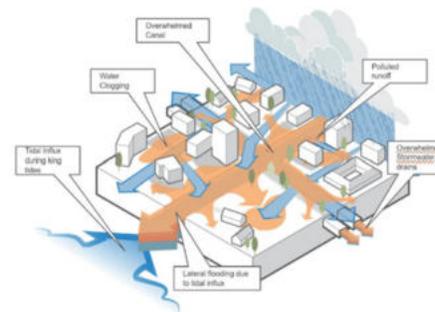
Key Approaches

By promoting strategic basin planning and water-sensitive urban design

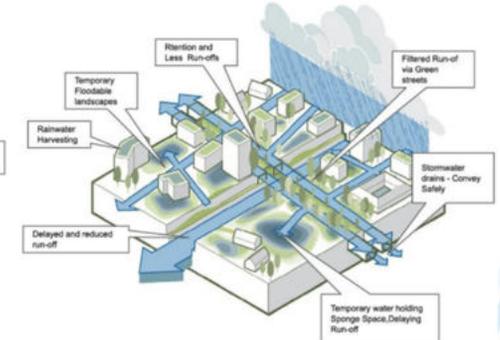


By mainstreaming blue-green infrastructure planning and implementation in Indian cities

Gray Approach: Flushing stormwater as fast as possible through pipes and channelized canals or streams

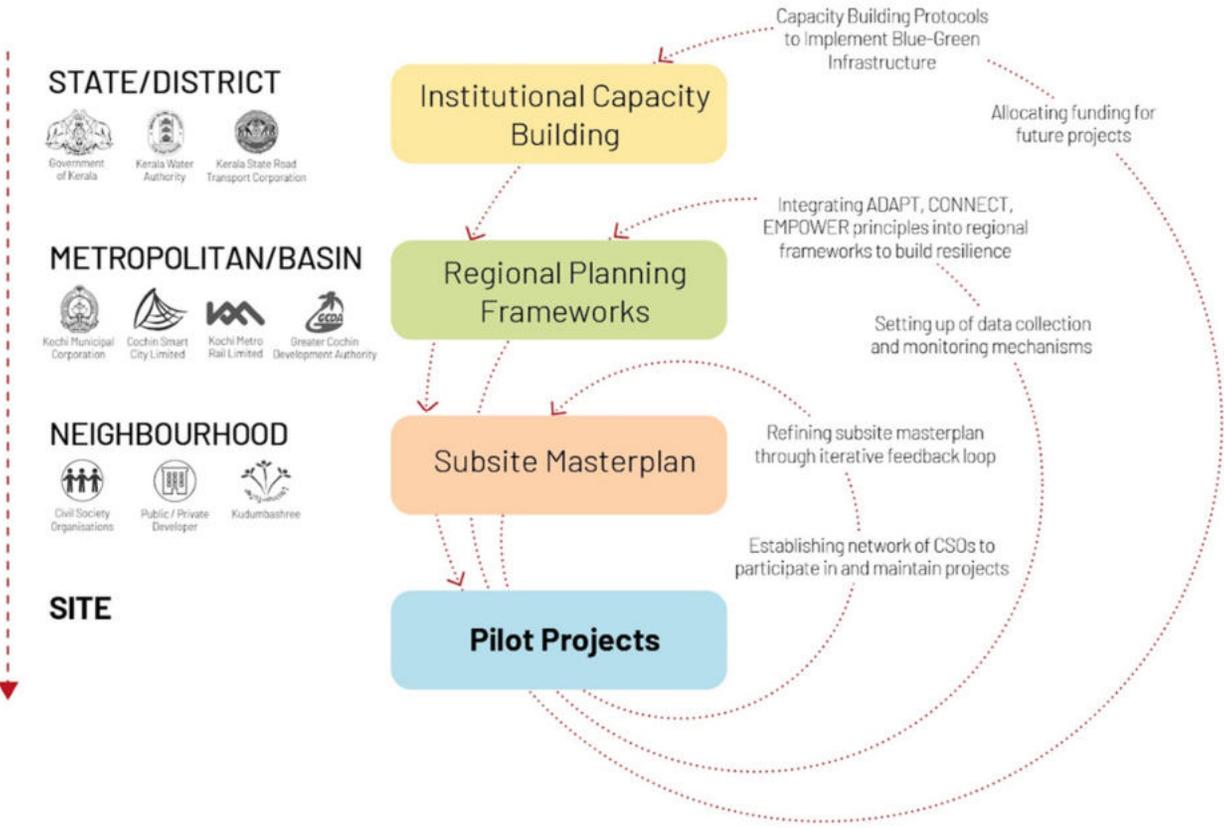


Blue-Green Approach: Delaying, storing and filtering runoff in dispersed open spaces, naturalized streams, or streets before flowing into stormwater network



THEORY OF CHANGE: How we are integrating nature-based solutions through planning, design and advocacy projects across multiple scales

- Sponge Handbook, Chennai**
- Adyar River Basin Vision: Chennai**
- Mullassery Precinct Sponge Framework: Kochi**
- MG Road and KMC Park: Kochi**
Kilambakkam Climate Park: Chennai
Marutha Nagar Biopark: Coimbatore

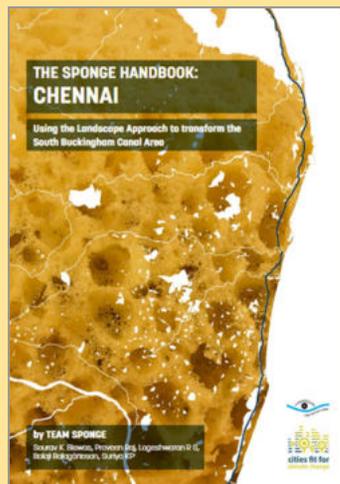




CASE STUDY 1 : Tools for policymakers to integrate blue-green infrastructure into urban infrastructure delivery

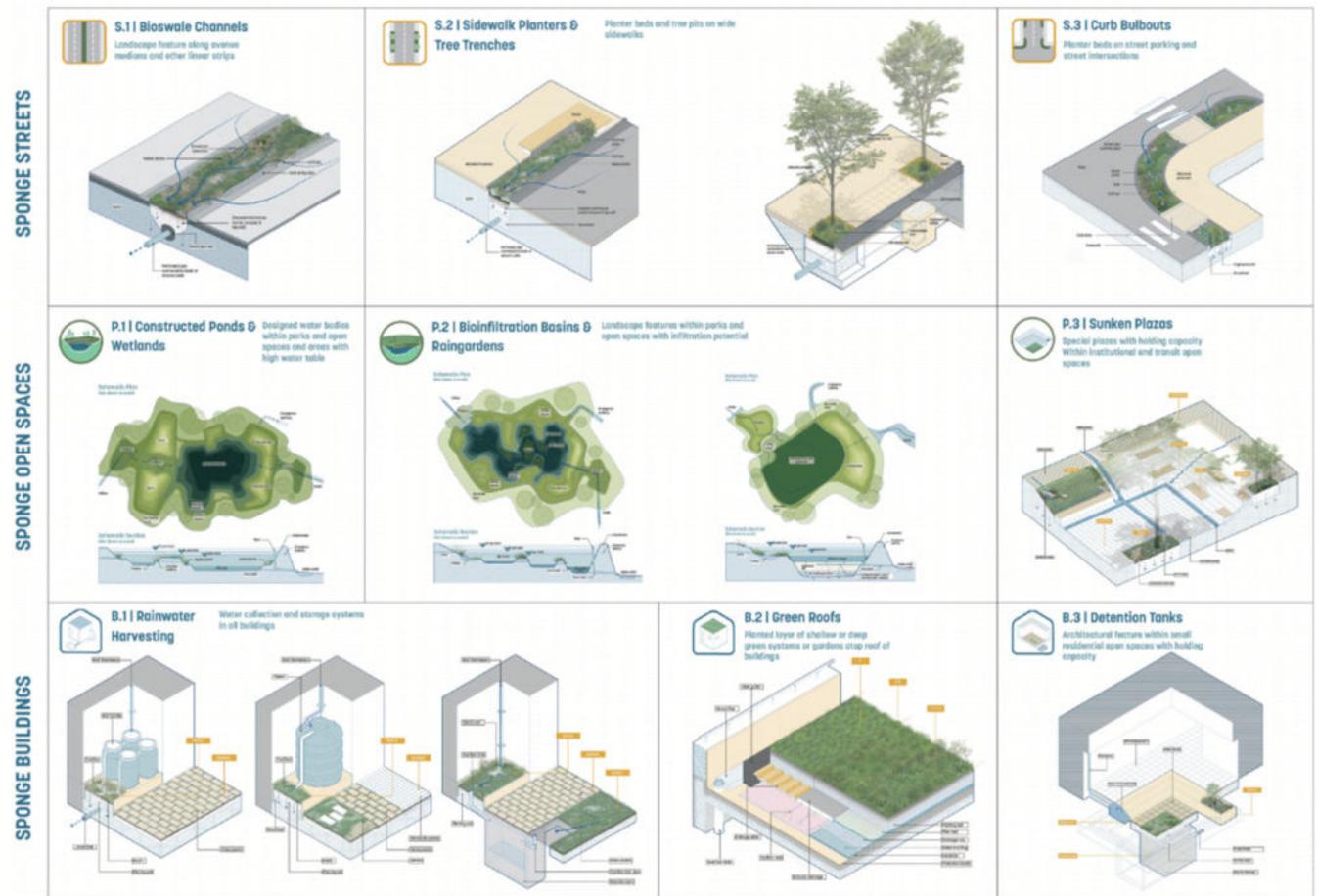
Sponge Handbook, Chennai

Handbook for policymakers and planners in Chennai to promote NBS infrastructure and the basin planning approach for the South Buckingham Canal with multiple co-benefits



CLIENTS

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) | Gov't Departments of TN



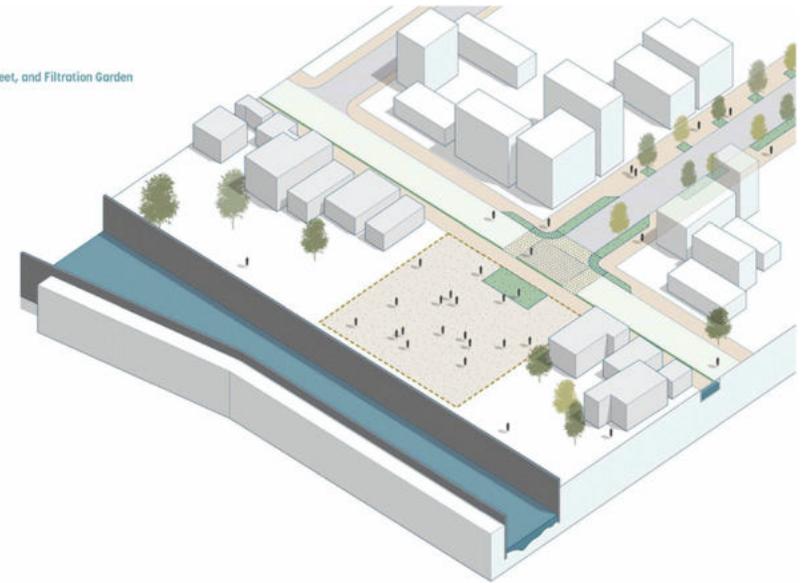


CASE STUDY 1 : Tools for policymakers to integrate blue-green infrastructure into urban infrastructure delivery

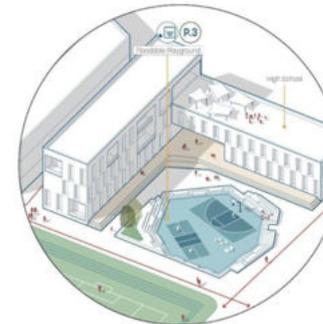


Short-Term Projects

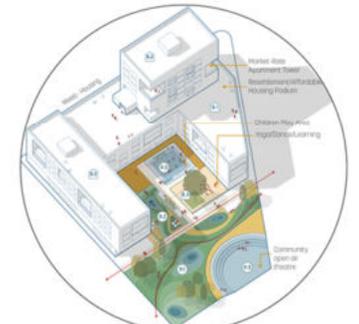
Sponge Street upgrades, Interceptor Street, and Filtration Garden



Regrading an Existing Park to a Sponge Park



Redesigning a school playground to a sponge playground



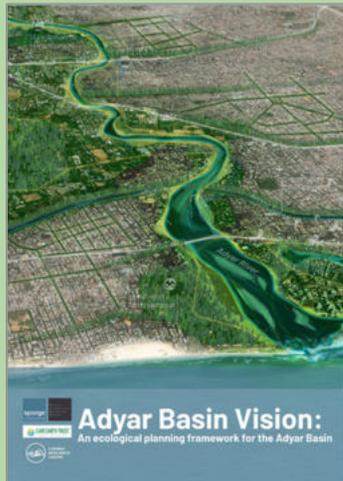
Sponge Open Spaces within Residential Courtyards



CASE STUDY 2 : Integrated basin planning approaches

ADYAR BASIN VISION, CHENNAI

An ecological vision for the Adyar river that can influence long-term metropolitan planning frameworks and identify short/medium-term strategic pilot projects.



COLLABORATORS:
Care Earth Trust, PLUS

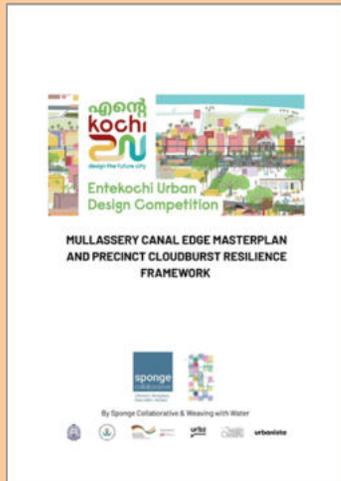




CASE STUDY 3 : Precinct-level Sponge frameworks

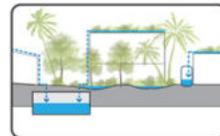
SPONGE FRAMEWORK FOR MULLASSERY CANAL, KOCHI

Waster sensitive framework for the mullassery canal that introduces sponge streets, open spaces and buildings into the urban fabric for flood mitigation.



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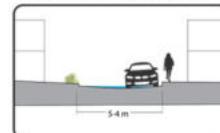
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) | Ministry of Housing and Urban Affairs, Govt. of India | Kochi Municipal Corporation, C-Hed



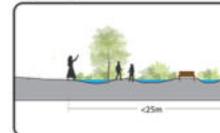
Sponge Buildings



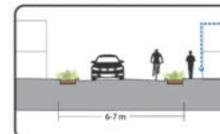
Central Sponge Spaces



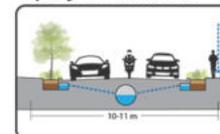
Sponge Collector Street



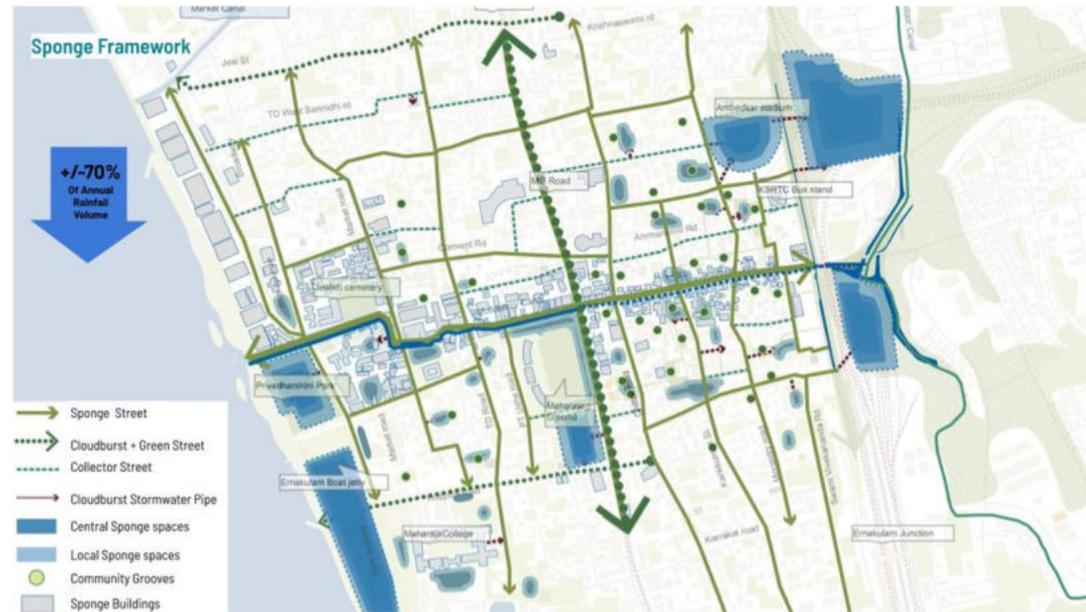
Local Sponge Spaces



Sponge Green Streets



Cloudburst + Sponge Streets



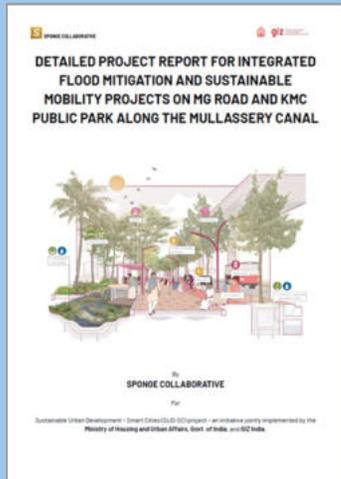
Left Source: NYC Cloudburst Resiliency Planning Study; Ramboll + NYC Environmental Protection | Top Source : Sponge Collaborative



CASE STUDY 4 : Sponge street and open space pilot

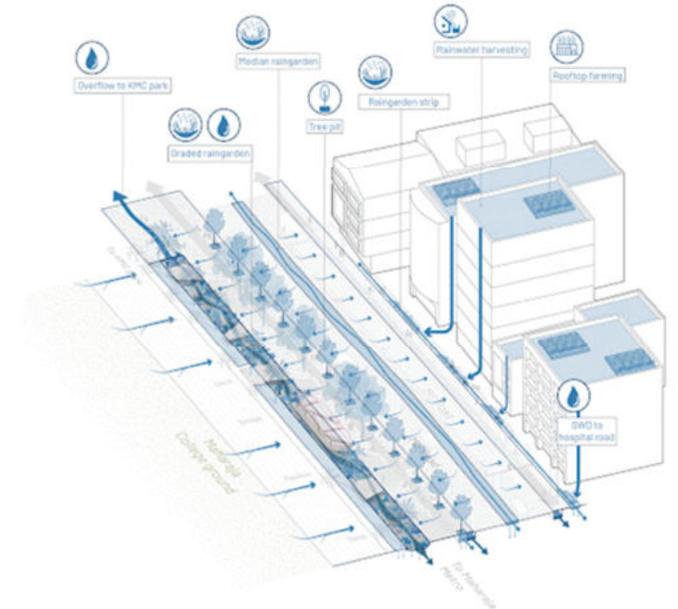
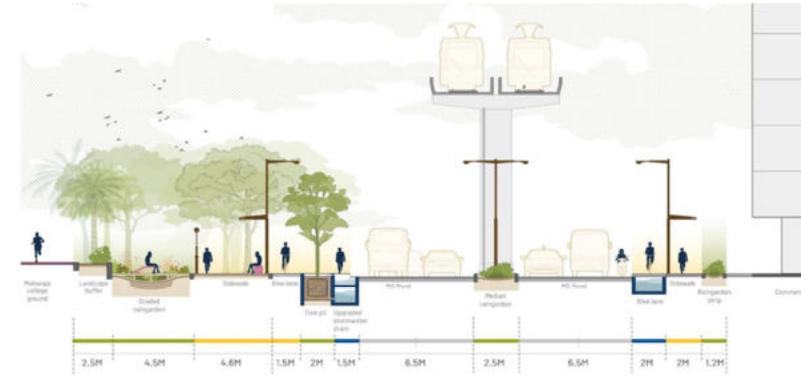
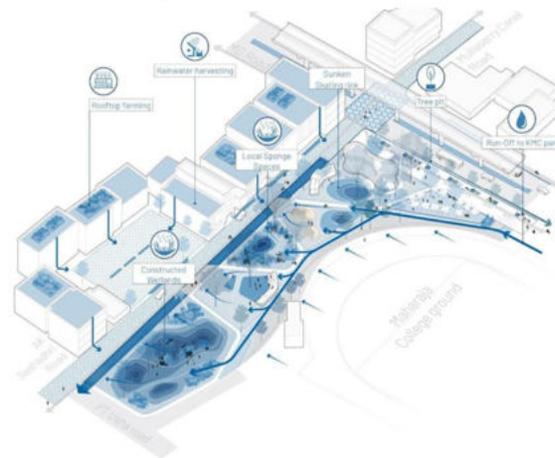
INTEGRATED FLOOD MITIGATION PILOT PROJECTS

Integrated flood mitigation and sustainable mobility projects on MG Road & KMC Public Park along the Mullassery Canal in Kochi, India.



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Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) | Ministry of Housing and Urban Affairs, Govt. of India | Kochi Municipal Corporation, C-Hed

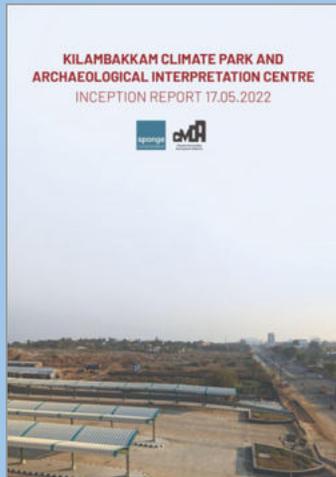




CASE STUDY 5 : Sponge Metropolitan park

KILAMBAKKAM CLIMATE PARK, CHENNAI

The Climate Interpretation park will demonstrate the importance of regional landscapes and nature based solutions to address climate change in chennai.



CLIENTS
Chennai Metropolitan Development Authority,
Archaeological Survey of India





CASE STUDY 6 : Sponge neighbourhood park

MARUTHA NAGAR BIOPARK, COIMBATORE

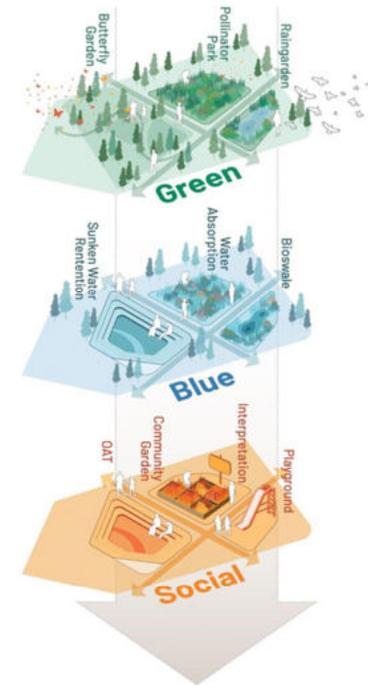
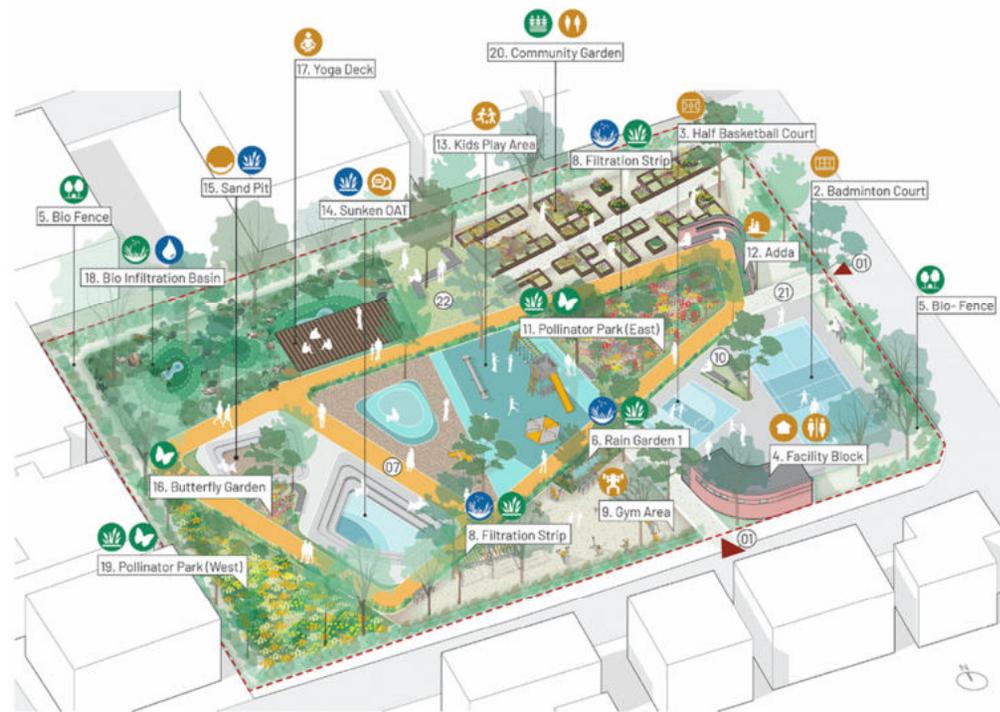
Reimagining open spaces for a Resilient Coimbatore - A Detailed Project Report for Marutha Nagar Bio Park.



CLIENTS

TU Berlin | Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) | Coimbatore City Municipal Corporation

ADB





Key Takeaways & Way Forward

- **Compelling visuals and storytelling** can be a powerful political tool to communicate risks and co-benefits of bundling nature-based solutions into infrastructure delivery
- **Integration of high-level visions with strategic pilot projects** that touch upon multiple priority areas are necessary for key stakeholders
- **Integrating spatial and non-spatial approaches** : Policymakers, planners, urban designers and engineers need to collaborate to integrate guidelines, plans, and infrastructure projects
- **Institutional Reform:** Design Manuals and Standards at National Level (CPHEEO), Regulations and Bylaws at Local Level
- **Capacity Building:** Updating Engineering Curriculum at National Level, Training for Municipal Engineers and Maintenance Personnel at Local Level
- **Inter-governmental and multi-scalar Coordination:** of blue-green infrastructure strategies and investments at metropolitan, municipal, and ward levels. **Inter-departmental Coordination:** for the integration of multiple systems for implementation and maintenance of blue-green infrastructure.
- **Procurement Reform:** Prohibitive qualifications for Municipal and Multilateral procurement for innovative firms in blue-green space competing against firms with decades of gray infrastructure experience. **Green-Blue Financing:** Unlocking new finance models including blended finance, public-private collaborations to finance the planning, design, implementation and maintenance of blue-green infrastructure

