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Eco-Restoration
Adyar Creek Eco Park

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THE COROMANDEL COASTAL REGION

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The Coromandel Coast refers to the stretch between Point Calimere, near the delta of the Kaveri River in the south, to the mouths of the Krishna River in the north along the Bay of Bengal.

The coast is home to the East Deccan dry evergreen forests, which run in a narrow strip along the coast. It also has extensive mangrove forests along the low-lying coast and river deltas, and several important wetlands that provide habitat to thousands of migratory and resident birds.

Land use

This part of Adyar predominantly has mixed use residential and institutional zones. A concentrated city-level commercial development is coming up on the Quibble Island facing Srinivasapuram.

Settlement Pattern

Housing areas mostly consist of lower and upper MIG residential districts, with a considerable share of HIG housing. LIG, EWS & slum areas are found in Srinivasapuram & Raja Grammni Thottam.
PLANNING CONCEPTS

Ecological Restoration of the Creek & Estuary

The first step towards ecological restoration is to define and secure the edges of the creek and estuary from the surrounding urban development activities. The best method to secure the edges is to bring public watch and ward by providing public access to these edges. Once the edges are protected, restoration of these edges with mudflats, mangroves and other appropriate habitats would follow.

An Urban Walkway on the Waterfront

An urban walkway is proposed along the edges of the creek abutting the Quibble Island. The walkway will provide an opportunity for people to enjoy the spectacular view of the creek and estuary.

On the other side of the creek, the walkway will follow the edges of Foreshore Estate Loop Road, Srinivasapuram Housing Colony as well as the beach, connecting public spaces and institutions such as ecological interpretation centers, marine aquarium etc.

ADYAR ESTUARY

The Adyar Estuary is a shadow of its former self. Surveys have revealed only a limited number of species. Some are shown below.

There is still life in Adyar Estuary and because of this there is still hope.

ESTUARINE ECOSYSTEM

An estuary is a transition zone between freshwater and seawater. As such it is perpetually in a state of flux as it is influenced both by the tides and floodwater. Due to this unique characteristic, it is the place that is most affected by anthropogenic factors - for example, all sewage and pollutants upstream settle on the substrate and cannot be flushed into the sea due to the incoming tidal action (except during the monsoons) and due to the formation of sandbars. The state of an estuary is a valuable indicator to the state of a waterway, and the biodiversity it contains is crucial in determining the health of this ecosystem.

All these indicators of environmental health would return if only we work together to clean up the ecosystem.

Many of the species shown below are of economic value. Sustainable harvesting of these bioresources is the ultimate indicator of ecosystem restoration success.
In the master plan it was proposed that focused research would be carried on in the **Adyar Watershed Restoration & Research Institute (AWRI)**, which would be situated in the Green Centre, adjacent to the Poonga.

A Vertebrate diversity survey report of the Adyar wetland complex from Chembarampakkam till the estuary, was conducted.

**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.
BASELINE DATA COLLECTION WAS COORDINATED BY CES, ANNA UNIVERSITY. STRUCTURES WERE ERECTED TO MEASURE THE INFLOW OF THE GREY WATER AND SEWAGE.
ECOLOGICAL RESTORATION PLAN

Zone 1 - This is essentially a stormwater retention and infiltration zone. The periphery of this area is composed of earth berms covered with TDEF vegetation. The zone also includes a few freshwater ponds.

Zone 2 - This is a stormwater discharge area. Clean passage for stormwater is proposed by rebuilding the Karpagam Bridge. It is proposed to reuse the large amount of debris dumped in this area to create hillocks on either side of this zone. TDEF vegetation would cover the banks of the stormwater channel.

Zone 3 - This is a brackish water wetland zone connected directly to the creek and estuary. Mudflats naturally occur in this zone. Mangroves and mangrove associates will be planted here. The water quality of the creek and estuary need to be greatly improved for successful intervention in this area.

TROPICAL DRY EVERGREEN FOREST (TDEF)

This is a forest type found along the Coromandel Coast from Vishakapatnam to Point Calimere. Historically it existed only as a narrow belt approximately 40km along the coast. In the Poonga Master Plan, TDEF planting is mostly concentrated around stormwater retention pond, in the dry areas.

Although it is impossible to restore the Poonga, Creek and Estuary to its former pristine state, bio intervention can convert the poonga space into an ecologically significant and sustainable one, and also mitigate many of the problems in the larger creek and estuarine region. The process has to start with the phased eradication of Prosopis juliflora; implementation of a water management plan and the deepening of existing waterlogged areas to create a stormwater reservoir and finally the introduction of appropriate floral biodiversity.
**HILLOCKS**
Within the geographic region granite hillocks occur on bedrocks of charnockite. The variation of species on these hillocks vary distinctly from the apron around their base. The species on the hillocks are akin to the species of the Eastern Ghats.

**GRASSLANDS**
Along the Coromandel Coast, grasslands are found interspersed with wetlands and tropical dry evergreen forests, forming a distinct ecotone. In the poonga, the grasslands are areas that add biodiversity to the wetlands and TDEF systems.

**PONDS**
These are in fact small standing bodies of water. Along the Coromandel Coast such ponds are found near the paddy fields separated from the larger water systems. In the poonga 3 small freshwater ponds are proposed.

**REEDS & MARSHES**
Reeds and marshes are essential to maintain the ecological balance of the storm water retention area. They provide protective edge habitat supporting a large number of species.

**MANGROVES & ASSOCIATES**
Mangroves and mangrove associates are considered to be globally endangered and hence their introduction to the park has high conservation value. Mangroves and mangrove associates that are tolerant to inundation and salt, are proposed to be planted in the eastern reaches of the park.

**INTEGRATING THE POONGA TO THE COASTAL WETLAND**
Wetlands are the fundamental component of a coastal landscape. The marshlands, mudflats, mangroves and associated flora & fauna are its components. These are dynamic water systems, which encounter constant interaction of freshwater and saltwater supporting a variety of species in various stages of their life cycle. Adyar creek is one such system, which the master plan proposes to revive and restore into a healthy example of a coastal wetland.
EDUCATION CENTER
PLAYING A SUPPORTIVE, EMPOWERING ROLE TO THE RESTORATION WORK

The Poonga Education Center will offer a series of nature programs designed to create awareness about the basic principles of Ecology and Biology while nurturing an appreciation for and understanding of the natural world. Participants will become familiar with plants and animals native to Chennai and learn about their interrelationships and how human activities affect the environment.

THE EDUCATION CENTER WILL FOCUS ON THE FOLLOWING GROUPS:

- SCHOOLS - KINDERGARTEN, PRIMARY, INTERMEDIATE AND HIGHER SECONDARY.
- ADULT EDUCATION - TERTIARY TRAINING FOR TEACHERS, ENVIRONMENTAL EDUCATORS, NGO AND COMMUNITY WORKERS.
- VOCATIONAL EDUCATION - LOCAL COMMUNITY MEMBERS, TRADE, HEALTH PROFESSIONALS.
- GENERAL VISITORS - LOCAL COMMUNITY MEMBERS, CHENNAI RESIDENTS, NATIONAL AND INTERNATIONAL VISITORS.
- PROFESSIONAL NETWORKS - ECOLOGISTS, SCIENTISTS, TRADITIONAL HEALERS, RELATED ORGANIZATIONS, TEACHER ASSOCIATIONS.

ENVIRONMENTAL EDUCATION PROGRAM

A centre for excellence in environmental and sustainability education
Education: Conducting on-site and outreach educational experiences for schools and community
Researches: Contributing to and researching the latest innovations in environmental education pedagogy
Awareness and Advocacy: Promote sustainable practices in energy and water use, afforestation and land use in the urban ecology context.

The education program will provide pathways for the local community to be actively involved in the restoration of the Adyar Ecosystem through certified vocational training and outreach programs. Long term volunteer programs will allow interested Chennai citizens, national and international visitors to participate in research, ecosystem restoration and maintenance.

Programs will centre on the following areas:
- Bioregional Studies
- Watersheds
- Land and Water
- Biodiversity
- Energy
- Waste recycling
- Organic Agriculture
- Water Ecosystem Exploration
- Energy Initiatives

During field visits participants will explore, examine and compare the fresh & marine water ecosystem. This highly hands-on experience will have activities like measuring pH, water temperature, dissolved oxygen and flow rate. Participants will also take an inventory of invertebrate species living in both fresh & marine waters.

School Programs
The programs are developed around a planned interface with the environment in the Poonga and an off site program in the schools for class work and de-briefing. The Adyar Poonga will serve as an open air classroom.
INSPIRING PEOPLE TO CARE ABOUT THE ENVIRONMENT

SITE INTEGRITY:
- The center is designed within an understanding of all aspects of the building's setting.
- It has been designed as separate spaces that form a whole by merging into the natural environment. The open and semi-open spaces forming the green connection between the various buildings. This has been done with a view to preserve all the trees and site.
- The buildings of the center are used as a sound barrier between the noisy vehicular road and the weekend eco-park.
- Retaining and enhancing existing site features such as the underground dam and existing contours.

LOW ENERGY / HIGH PERFORMANCE
- Buildings in the center combine elegantly simple electrical systems with climatic common sense to allow a working with — rather than against — the sun, wind and temperature in the area. Artificial lighting and cooling would only be used to supplement what nature already offers.
- PV panels on roof use renewable energy to meet a substantial fraction of the buildings energy needs.
- A double wall façade with air cavity reduces heat gain within the building.
- Windows and openings on opposite sides of the building enhance cross ventilation driven by prevailing winds. With openings at the top so main air can escape, while cooler air enters the building from openings near the ground.
- Reduced depth of internal spaces for optimal use of daylight to illuminate interiors.

MATERIAL EFFICIENCY
- The center utilizes materials that meet basic resource efficiency.
- Uses recycled content.
- Uses locally available finishing materials to reduce energy used in transporting materials.
- Uses materials that weather well with age and weathering without losing character or strength.
90 thousand seedlings of 172 Indigenous species have been planted.
Signs of Regeneration in spite of many adverse conditions
**Mangroves**

Mangrove associated fauna has migrated up to 500mts into the poonga

**Uca spp.**

The crab population associated with mangroves has considerably increased.

**Sesarma spp.**
Wetland Habitat Support

Ecological Monitoring
The benchmark survey at the master plan stage recorded only 13 species. With the improvement in water quality the count has gone up to 34.
Children’s Play Area
Arrival and Orientation Zone
Artworks
Artworks
Artworks
Artworks

Interpretative Exhibits
Interpretative Exhibits

Visit by Deputy CM
Planning solid waste management strategies with the residents of the surrounding area

Education

Poonga Visit

Organic Gardening
Students’ Fauna Survey

Education

Art from Waste

Puppetry Workshop
Workshop on traditional medicine with folk-healers

Education

Summer Workshop
CAMPAIGNS

Green Corner
Eco-Restoration
Adyar Creek Eco Park

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