

ECO - MOBILITY GUIDELINES

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Chapter 1: Introduction to Eco Mobility

Explains what Eco-Mobility is and builds the case for using the city's storm water drainage network, a massive untapped resource, to create a city-wide network of alternative routes for pedestrians, cyclists and other NMT users, thereby providing inter-modal connectivity for the BRT and Metro. In doing so, also proposes creating a system of ecological corridors in the heart of the city.

1) Introduction

- a. **What is eco-mobility**
- b. Status of the document
- c. Who should use the document?
- d. How to use the document?

2) Background / Case building – the need for eco-mobility

- a. Using the untapped resource of the city's storm water drainage network
- b. Present modal share / connectivity to Metro and bus [Non Motorised users (NMU) audit]
- c. Creating an extensive network of alternative routes for pedestrians, cyclists and other NMT usage – the need and benefits
- d. Last mile connectivity – Metro, Bus
- e. Creating a system of ecological corridors in the heart of the city – an open space masterplan
- e. **Definitions of terms used**

Chapter 2: Eco-Mobility Masterplan

A comprehensive Eco-Mobility Masterplan will be prepared which will, through the linear connectivity offered by the natural drains, connect the existing public spaces and green areas of city. This will help create a connected 'open-space masterplan' to allow for better visibility, integration and utilization of all public greens. It will deliver a route map of alternative routes for pedestrians, cyclists and other NMVs for both quick and leisure routes.

Different typologies of drains (based on their profile and capacity, ecological value (criteria to be decided), overall location within the nallah system, landscape and built form character, position within the mobility hierarchy etc) will be identified on the masterplan.

The Eco-mobility Masterplan

A comprehensive eco-mobility masterplan will be prepared which will include:

- Intermodal connectivity for the BRT and Metro. In particular, last mile connectivity to facilitate maximum no. of people to use public transport comfortably and safely. NOte
- time-saving shortcuts to enable modal shift for short distance travel such as school drop-offs and daily shopping needs
- a network of alternative routes for both quick and leisurely trips
- a city-wide network of **biodiversity(x) ecological corridors** and public open spaces along the nallahs, creating a massive recreational and ecological resource
- an integrated yet decentralised system for surface water drainage and water waste treatment and management

Ingredients for creating the masterplan:

1. Major Drains and Minor Drains Network
2. **Watershed Map**
3. MRTS Routes and catchments
4. BRT network
5. Interchange Points
6. Cycling Plan (IIT Delhi / Geetam Tiwari)
7. Landuse map
8. Existing open space / green network
9. Existing monuments/ places of interest along the corridors

Issues to be resolved to successfully implement the masterplan *(to be split across individual chapters)*

i) Design issues

- a. Lack of direct access (negotiating level differences)
- b. Lack of safety/ perception of safety (creating 'places' and providing necessary facilities)
- c. Odour and quality of water flowing through (creating a pleasant environment)
- d. Ground recharge**

ii) Implementation issues

- a. Landownership – legal / illegal (encroachments). Edge conditions are encroached or inaccessible
- b. Phased delivery
 - i. Interface between an eco-mobility corridor and not – can the masterplan be delivered only sequentially (upstream to downstream)?
 - ii. making sure this does not discourage usage due to limited connectivity in initial phases
- c. Inter-departmental coordination/working
- d. Lack of awareness of this natural network and sense of ownership

iii) Management issues

- a. Who maintains what? Possible funding issues?
- b. Increasing usage
 - i. creating an information bank (route maps with approx walking/cycling times; connectivity to Metro maps; metro times schedules)
 - ii. Assistance – wardens to guide/help create feeling of safety in initial months

Chapter 3: The Guidelines - Solutions and steps

This section will include technical guidelines for Mobility and Urban design, Decentralised Sewage Treatment methodologies, Ecological Design and Storm Water Management and Water and Soil quality standards.

Procedural guidelines could also be set out for reclaiming land from encroachments and for public engagement.

1) Creating Connectivity (and delivering quality places)

- i) Creating connectivity across hierarchy of modes (Metro-Bus-Cycle-Ped)
- ii) Multimodal Interchange
- iii) Negotiating level changes (sectional design). Must consider disability access
- iv) Nallah design
- v) Provision of amenities inc. cycle parking**

2) Creating safety

- i) Eyes on the Street
- ii) Round the clock activity (balancing impact on biodiversity)
- iii) Edge conditions - No walls, creating transparent edges (balancing transparency with preserving the nallah)
- iv) Lighting (balancing impact on biodiversity)
- v) Multiple uses

3) Creating fresh water flow in nallahs

- i) Sewage Treatment and **pumping stations** / Solid Waste Management
- ii) Stormwater Management / **Watershed map**
- iii) Ecology and wetlands
- iv) Working Landscapes (and creating publicly accessible parks)

Note: Include guidelines for debris dumping. Must not be dumped back in the nallahs. A designated dumping site?

4) Reclaiming land from encroachment (process to be followed)

- i) Slum Up gradation/Rehabilitation – **not only slums**
- ii) **All encroachment**

5) Involving the public (process to be followed)

- i) Awareness
- ii) Participation
- iii) Involvement

Chapter 4: Implementation and management

Appropriate implementation and management strategies are critical for the long-term success of the eco-mobility corridors and could impact design. We propose to review and present appropriate implementation and management models which also look at incentivizing other user groups such as local communities, cooperatives and trusts to get involved.

We will also explore possible revenue generating opportunities that could benefit stakeholders and communities.

1) Implementation

- a) Implementation models – other than PPP?
- b) Incentives for communities to go for
 - a. Eco-Mobility
 - b. Zero Discharge Development
- c) Possibility of a economic model that generates revenue streams from waste/water management? Could local residents (Community trusts and cooperations) take advantage?

2) Management and maintenance

- a) Management models (PPP, Private, Trust/Co.operatives, municipalitie)
- b) Management / maintenance regimes