The Game is On!

03

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The team proposes the UN-Habitat inspired street-led approach, focusing on infrastructure and mobility, water and sanitation, regeneration and development, to be led by an independent NGO called the Dharavi Reinventing Institute comprising public authorities, consultants, residents and entrepreneurs. Streets are upgraded first and a hierarchy of squares as spaces for public amenities will be created along these streets, followed by an incremental upgradation of the houses. The proposal is to be financed by selling large blocks of land and moving residents into two-third of their present area. The jury found the proposed densification unworkable and while it appreciated the idea of street-led slum upgrading, the illustrations were judged to be overly unrealistic.
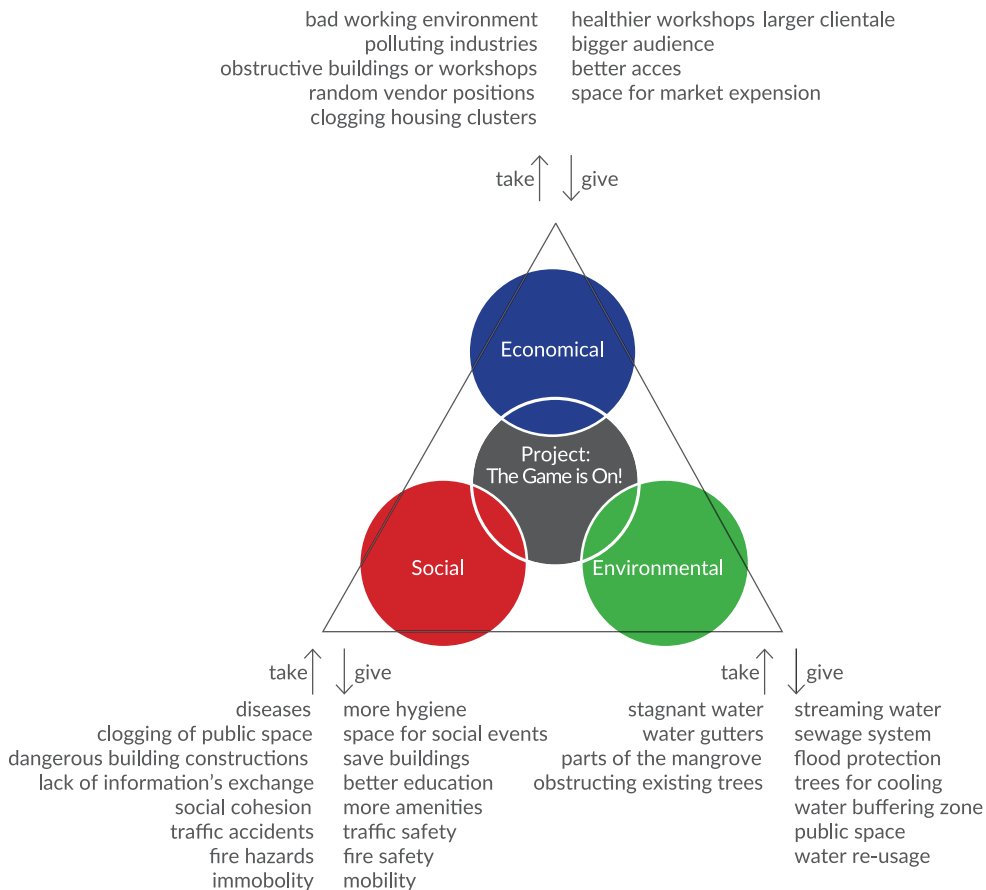
PREMISE

An analysis of government policies to organise Dharavi, marks top-down planning strategies combined with the energy of bottom-up development. Distinguishing Dharavi as an island of poverty does not work.

New models for slum upgrading require a paradigm shift: slums as deprived neighbourhoods that are an integral part of the overall city system, but spatially segregated and disconnected due to limited networks of streets and open spaces, need to be reintegrated into the city by investing in the common good and upgrading public spaces, and gradual redevelopment would be facilitated.

This proposal builds on the premise that 'streets' are the natural conduits to connect Dharavi with the region and metropolitan network of Mumbai.

The strategies and projects that evolve must be defined within a participatory process - a game that involves different players with a framework to guide the process.

bad working environment   healthier workshops larger clientale
polluting industries   bigger audience
obstructive buildings or workshops   better acces
random vendor positions   space for market expension
clogging housing clusters

take↑ ↓give

Economical

Project:
The Game is On!

Social   Environmental

take↑ ↓give   take↑ ↓give

diseases   more hygiene   stagnant water   streaming water
clogging of public space   space for social events   water gutters   sewage system
dangerous building constructions   save buildings   parts of the mangrove   flood protection
lack of information's exchange   better education   obstructing existing trees   trees for cooling
social cohesion   more amenities   water buffering zone
traffic accidents   traffic safety   public space
fire hazards   fire safety   water re-usage
immobolity   mobility

This diagram was developed for UN-Habitat to promote the street-led approach for upgrading slum areas. It offers a format to organise the participatory process.

Develop a qualitative public realm to open up Dharavi, and to connect it with its surroundings.

Street-led approach to slum upgrading

GUIDING PRINCIPLES

Three strategies for a street-led approach:

Regeneration and development
Water and sanitation
Infrastructure and mobility

These are guided by the following principles:

- Improve understanding of negotiation processes and the capacity to negotiate;
- Improve understanding of the complexities of upgrading and the different and sometimes conflicting interests of inhabitants;
- Illustrate the tension between the public and the collective, and between the public and the private;
- Reach an agreement that is acceptable for everyone and obtain best scenario that benefits everyone.

Streets connect Dharavi with the city. Upgrading the common public space, connects various neighbours, businesses and economic activities with each other.

Connecting to the City: Urban development

Integrate a water system in the streets that controls the fluctuation of the river, provides clean water and improves sanitation facilities.

Connecting to Mithi river: Resilient water system

GOVERNANCE

A multi-stakeholder institute called Dharavi Reinventing Institute is proposed.

The institute will guard the project objectives and is responsible for fund raising. It will be supported by United Nations of Development Programme (UNDP). A Project Management Office (PMO) will be opened to bring together all stakeholders, including government, inhabitants of Dharavi, entrepreneurs of Dharavi, developers and investors.

Responsibilities:
- Managing the projects
- Leading the projects
- Bringing together all parties and their expertise
- Updating the multi-stakeholder institute
- Managing the financing
- Implementation of the project
- Regulation and legalisation
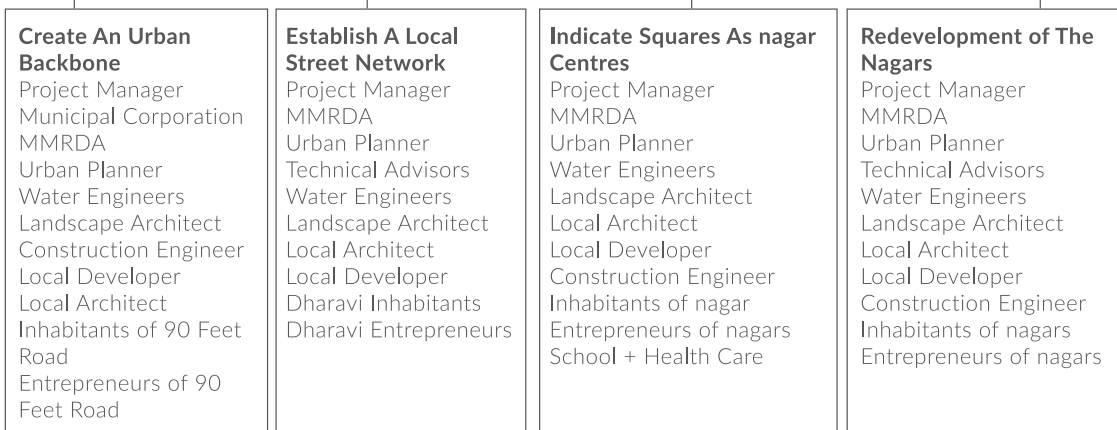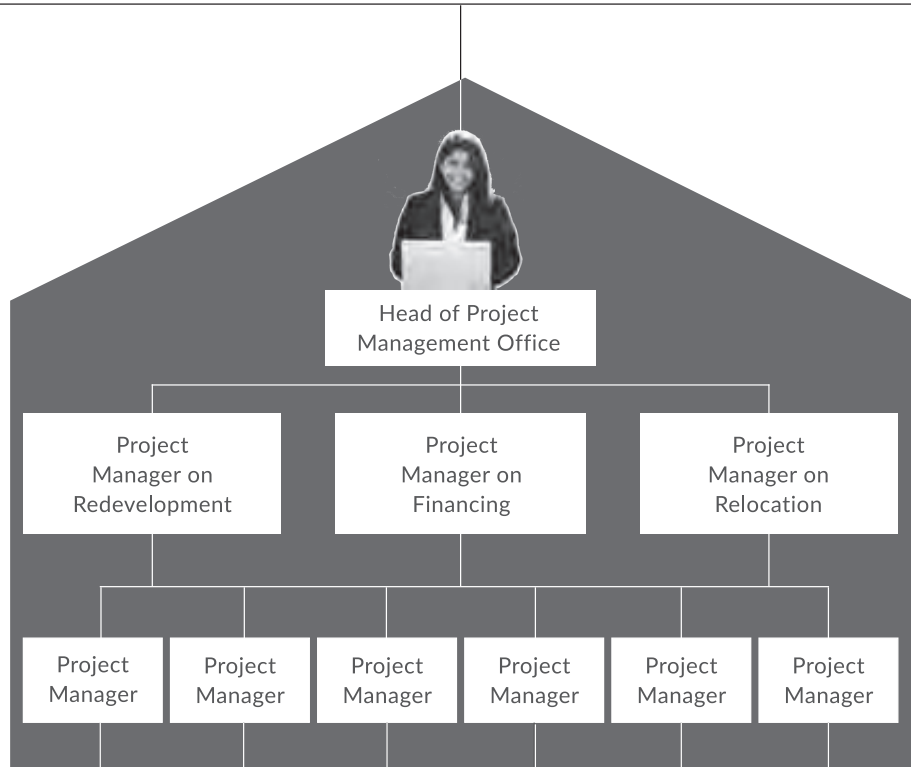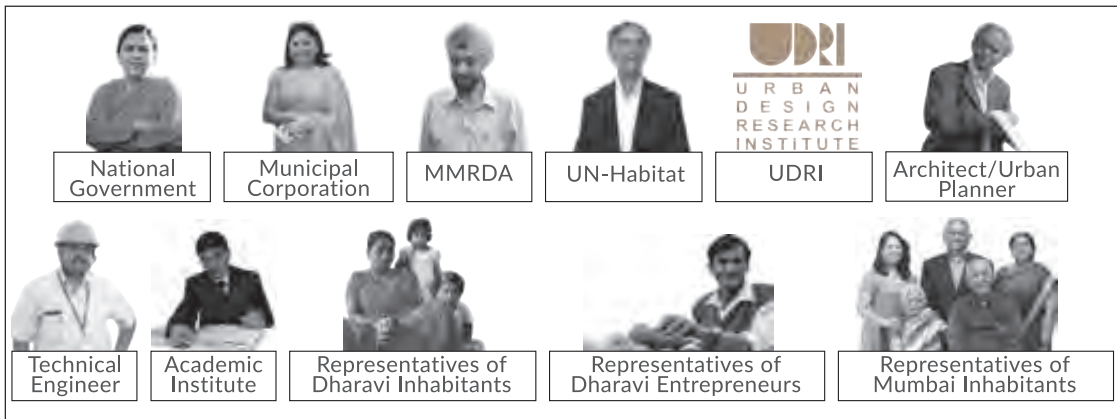- Relocation

Other Responsibilities of the PMO :
- Public Relations of the project
- Communication with inhabitants
- Communication with external parties
- Making information accessible

Dharavi Inhabitants
Project Management Office
Street-Led Game
Government
Developer

The Project Management Office will be located at 90 Feet Road, the new backbone of Dharavi

Enlarge Mithi River Bed
Project Manager
National Government
Municipal Corporation
MMRDA
Water Engineer
Academic Institute on Water Management
Landscape Architect
Advisor Ecology Environment

Large Scale Developments
Project Manager
Municipal Corporation
MMRDA
Technical Advisors
Architects
Urban Planner
Representative of Dharavi Inhabitants
Representative of Dharavi Market Vendors

Make Dharavi Part of Mumbai
Project Manager
Municipal Corporation
MMRDA
Urban Planner
Traffic Engineer
Developer
Technical Advisors
Landscape Architect
Construction Engineer
Inhabitants of 60 Feet Road
Entrepreneurs of 60 Feet Road

National Government	Municipal Corporation	MMRDA	UN-Habitat	UDRI	Architect/Urban Planner

Technical Engineer	Academic Institute	Representatives of Dharavi Inhabitants	Representatives of Dharavi Entrepreneurs	Representatives of Mumbai Inhabitants

Head of Project Management Office

Project Manager on Redevelopment	Project Manager on Financing	Project Manager on Relocation

Project Manager	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager

Create An Urban Backbone
Project Manager
Municipal Corporation
MMRDA
Urban Planner
Water Engineers
Landscape Architect
Construction Engineer
Local Developer
Local Architect
Inhabitants of 90 Feet Road
Entrepreneurs of 90 Feet Road

Establish A Local Street Network
Project Manager
MMRDA
Urban Planner
Technical Advisors
Water Engineers
Landscape Architect
Local Architect
Local Developer
Dharavi Inhabitants
Dharavi Entrepreneurs

Indicate Squares As nagar Centres
Project Manager
MMRDA
Urban Planner
Water Engineers
Landscape Architect
Local Architect
Local Developer
Construction Engineer
Inhabitants of nagar
Entrepreneurs of nagars
School + Health Care

Redevelopment of The Nagars
Project Manager
MMRDA
Urban Planner
Technical Advisors
Water Engineers
Landscape Architect
Local Architect
Local Developer
Construction Engineer
Inhabitants of nagars
Entrepreneurs of nagars

FINANCE

Identifying Fund Clusters

In order to get an overview on possible sources of finance, the proposal lists out all possible means of local and national sources for each of the six proposed themes and projects. Shortages are proposed to be supplemented with foreign investment. In general, sources of funding could include Public Private Partnerships, Corporate Social Responsibility, Development Banks and Foundations.

Part of the profit and rent is proposed to be reinvested in projects for the slow organic development of the rest of Dharavi.

> We turn the pressure generated by the locked soil value and turn it into a quick implementation of public functions, amenities and flood protection.

Who Is Involved In The Funding of The Projects ?

- KFW, Entwiklungsbank Frankfurt - for water system and sewerage system
- Funds for Smart Cities Development – for developing transport facilities
- Investors and banks, Public Private Partnership, Developers
- National government, NWCP, Ministry of Environment and Forests, The World Bank
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- Gates foundation with, MMRDA, Profit from land sold in Sub-project 1, Exploitation tax from Sub-project 1, SDI, IAY, IHDSP, ISHUP, SJSRY, UPFI,SNP,
- National government, MMRDA, Profit from land sold in Sub-project 1, Exploitation tax from Sub-project 1, SDI, IAY, IHDSP, ISHUP, SJSRY, UPFI, SNP, Micro financing
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- National government, MMRDA, Profit from land sold in Sub-project 1, SRA, Indira Awas Yojana (IAY) – for improving dwellings of urban poor
- Funds for Smart Cities development – for the bridges

Room for the Market: Large scale developments provide district facilities

Controlled unlocking of soil value through allocation of commercial development near Mahim and Sion Stations by the Government. This would temper the market pressure to enable a gradual redevelopment of the vast majority of Dharavi territory. At the same time it would seize the current pressure to create public facilities for the whole district.

Through the linkage of these developments to city-scale networks, this could be the first urban connection of Dharavi with Mumbai and should stimulate the cultural mix between Mumbai's business activities and Dharavi's entrepreneurs. This initiative is combined with the construction of two bridges that strengthen the access and connection between Dharavi and its surrounding areas.

High-end developments generate profit and an exploitation tax that can be reinvested into other projects in Dharavi. Investors can build high-rise apartments and commercial offices according to some simple rules.


Around 360 % FAR

Around 500 % FAR
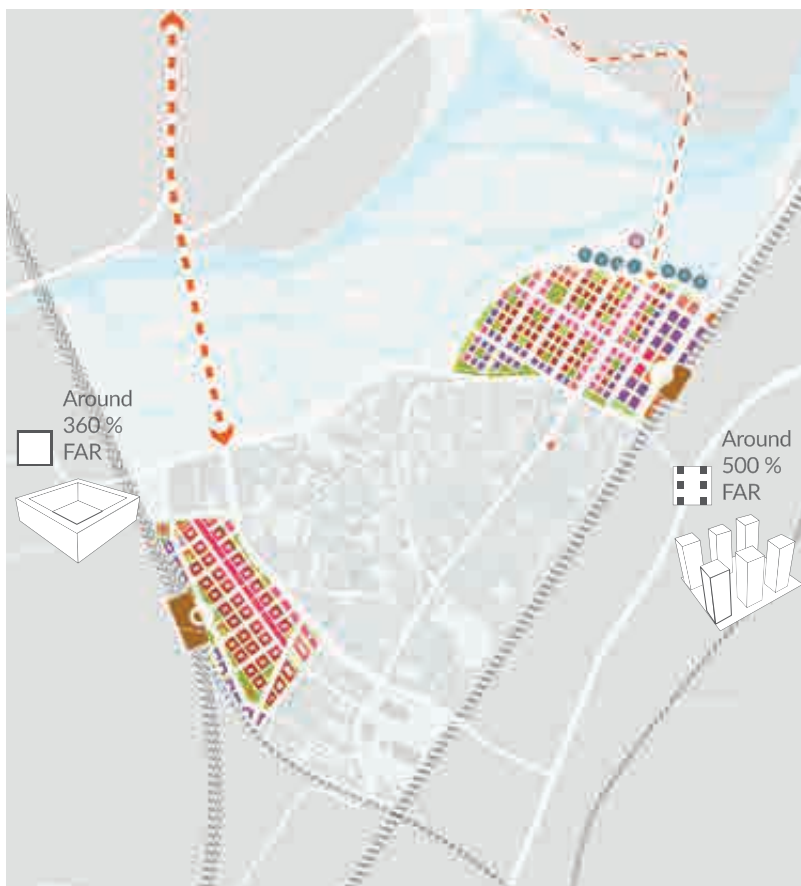
Bridge
Train
Buildings
Mangrove
Park
Garden
School yard
Public green
Sport
Water
Train station
Long stay
Offices
Hospital
Hotel
Housing
Commerce
Education
Market
Hospitality
Theatre
Library

PLANNING

These strategies are based on prioritising streets. It is the key to ensure that strategic choices are made and that the streets selected for improvement or implementation, initially are the ones that are likely to bring the best outcome in terms of development opportunities, poverty reduction, optimisation of land use and generation of wealth as a result of increase in property values.

The strategies are integrated into a dynamic public space framework, controlling the different themes within a participatory process.

As the driving force for gradual redevelopment, the framework defines six sub-projects.
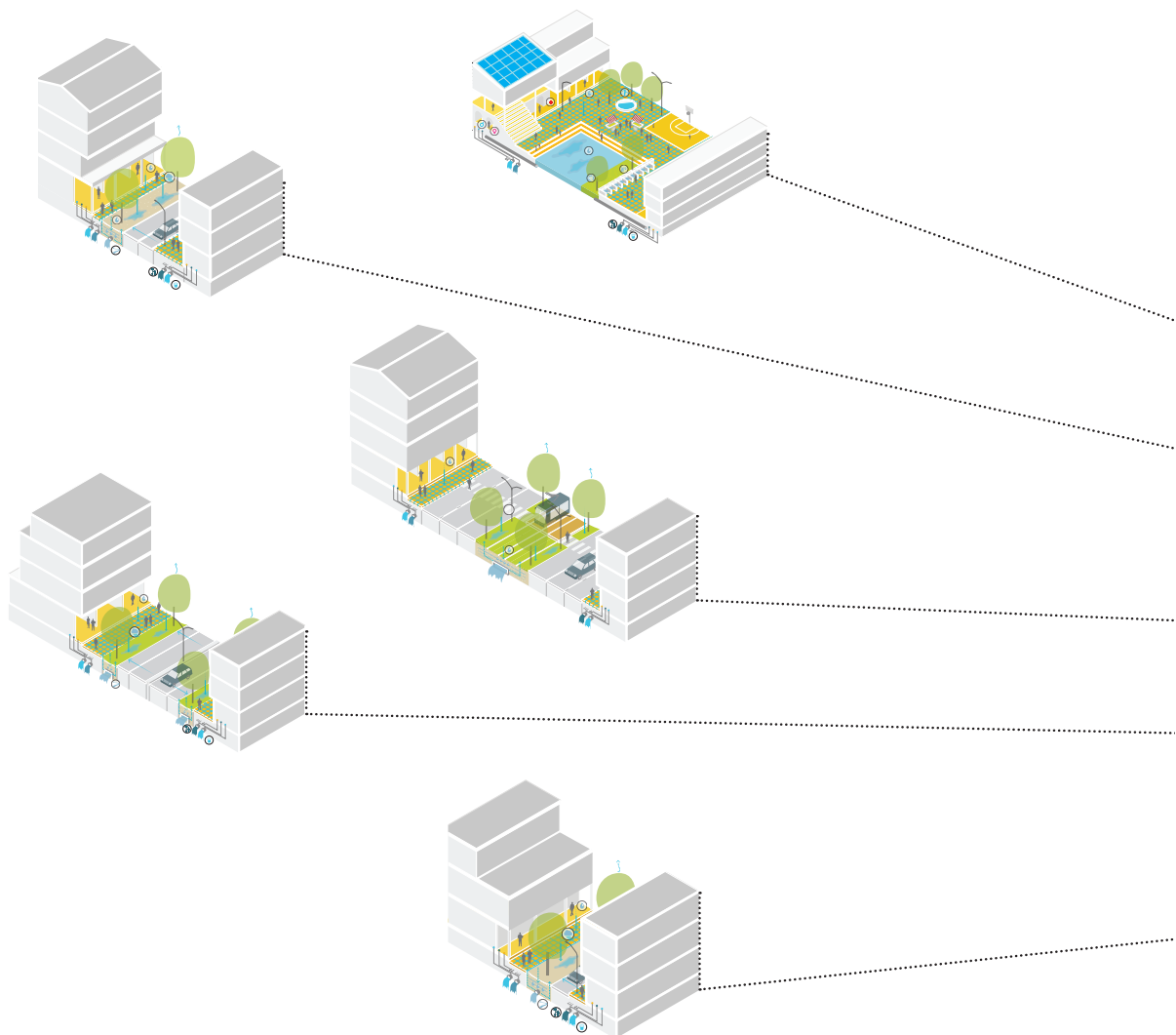
1. Turn external forces into qualities

- Enlarge Mithi river bed for flood protection
- Large scale developments

2. Make Dharavi part of Mumbai

- Upgradation of 60 Feet Road
- Drain water to river
- Connect Dharavi to new Urban Development

3. Create an urban backbone

- Upgradation of 90 Feet Road
- Create a circulating water network
- Connect Dharavi to new Urban Development

4. Establish a local street network

- Infiltrating water network
- Connecting local economies and communities

5. Indicate squares as *nagar-centres*

- Sanitation hubs
- Concentrated nodes for facilities and services

6. Redevelopment of the nagars

- Participatory processes and collaboration

PHASING

Projects

Processes

1. Turn External Forces Into Qualities

Plan-making process to
enlarge Mithi river bed

Plan-making large scale developments	Implemen

2. Make Dharavi Part
of Mumbai
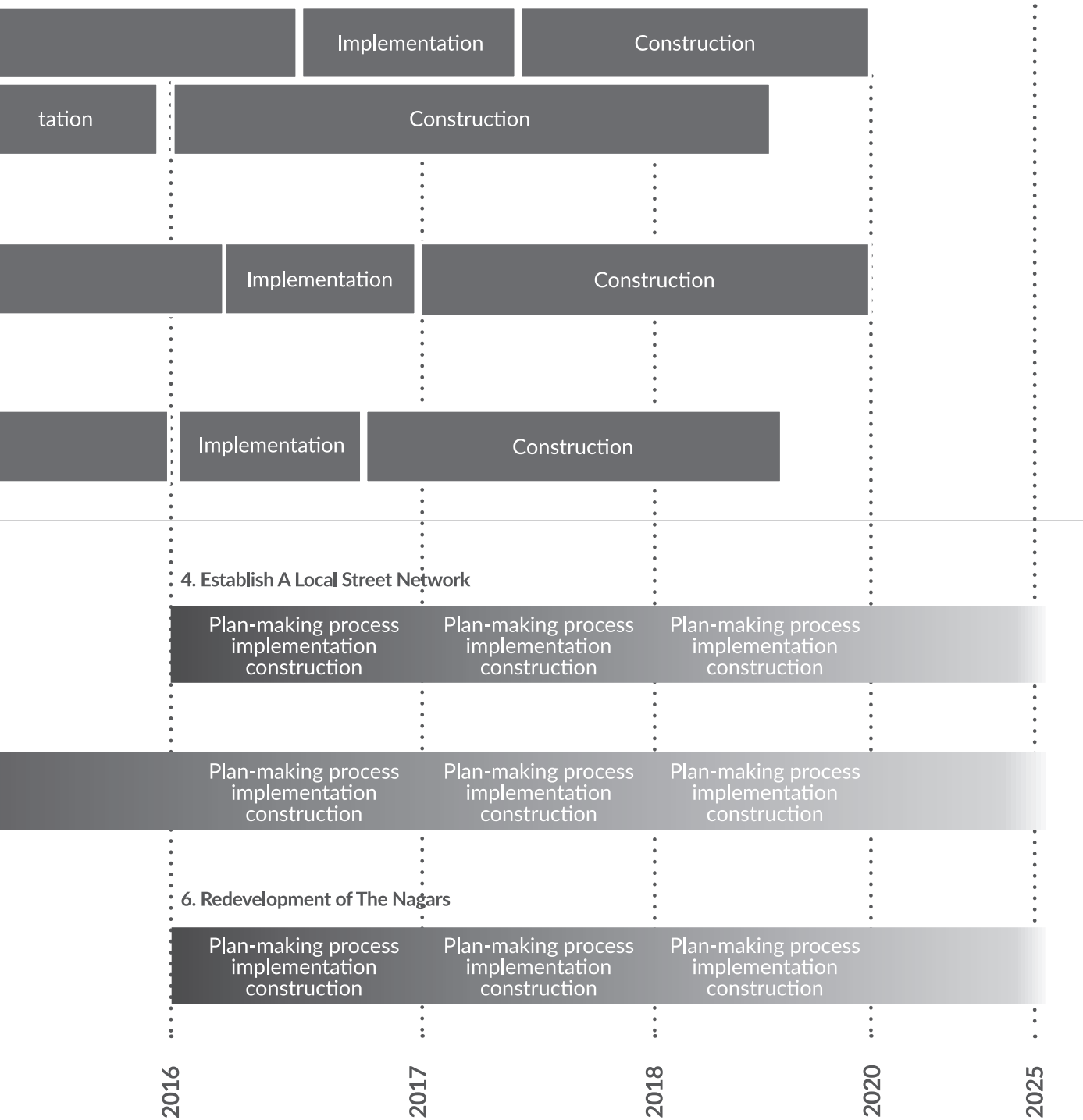
Plan-making process
60 Feet Road

3. Create An Urban
Backbone

Plan-making
process

5. Indicate Squares As
Nagar Centres
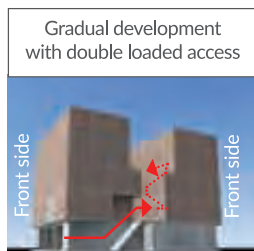
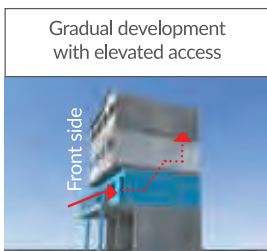Plan-making process
implementation
construction

2015

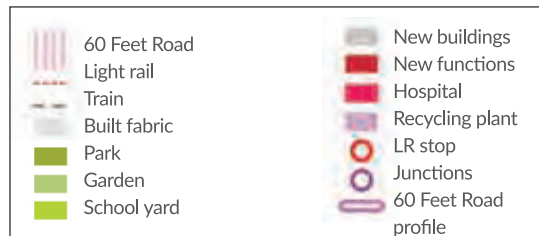| Implementation	Construction

tation	Construction

Implementation	Construction

Implementation	Construction

4. Establish A Local Street Network

Plan-making process implementation construction	Plan-making process implementation construction	Plan-making process implementation construction

Plan-making process implementation construction	Plan-making process implementation construction	Plan-making process implementation construction

6. Redevelopment of The Nagars

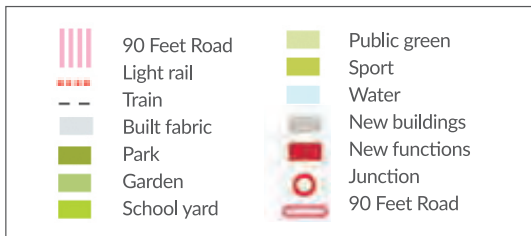| Plan-making process implementation construction	Plan-making process implementation construction	Plan-making process implementation construction

2016   2017   2018   2020   2025

HOUSING

Connecting Dharavi to New Urban Plots
The upgrade of 90 Feet Road marks a new edge for the building line, along which gradually new shops and residential buildings can be developed.

The upgrade of 60 Feet Road does not require any adjustments to the buildings, and can be initiated and executed by the Government. It offers a clear designation of private and public property, and a new red-line for gradual development along the street. It reinforces the mutual connection between the new urban quarters and the interweaving with the rest of Dharavi.
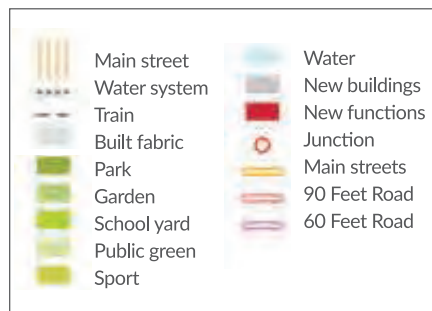

90 Feet Road	Public green
Light rail	Sport
Train	Water
Built fabric	New buildings
Park	New functions
Garden	Junction
School yard	90 Feet Road

60 Feet Road	New buildings
Light rail	New functions
Train	Hospital
Built fabric	Recycling plant
Park	LR stop
Garden	Junctions
School yard	60 Feet Road profile

Gradual development with elevated access

Front side

Gradual development with double loaded access

Front side

Front side

Future gradual development with an open plinth
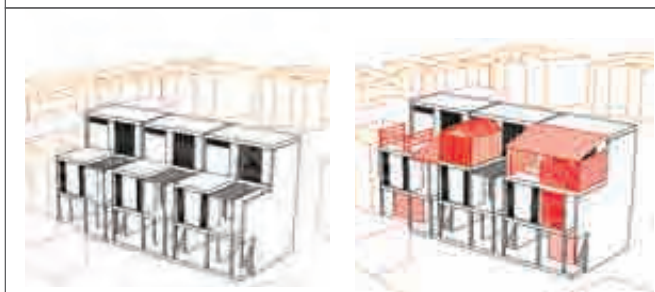
Connecting Local Economies and Communities

A new network will mutually connect all nagars, and relink 'inner' Dharavi with the 90 Feet Road and 60 Feet Road. Government and stakeholders collaborate to decide on the street prioritisation and connecting them through demolition and reconstruction. All residents are to be relocated within their own neighbourhood for denser and more qualitative buildings along the streets.

Redevelopment of the Nagars

Existing structures are used and upgraded where possible. But some of the existing infrastructure (built and public space) is not able to meet the standards, required by a normal neighbourhood. Therefore, the internal built fabric should be upgraded on block level, within the new framework of streets. This part of the regeneration is based on participatory processes and collaboration between different stakeholders.

Main street	Water
Water system	New buildings
Train	New functions
Built fabric	Junction
Park	Main streets
Garden	90 Feet Road
School yard	60 Feet Road
Public green	
Sport	

Self-service Schemes : Typologies, with open plinth, that expand over time are cheaper to initiate

Existing situation

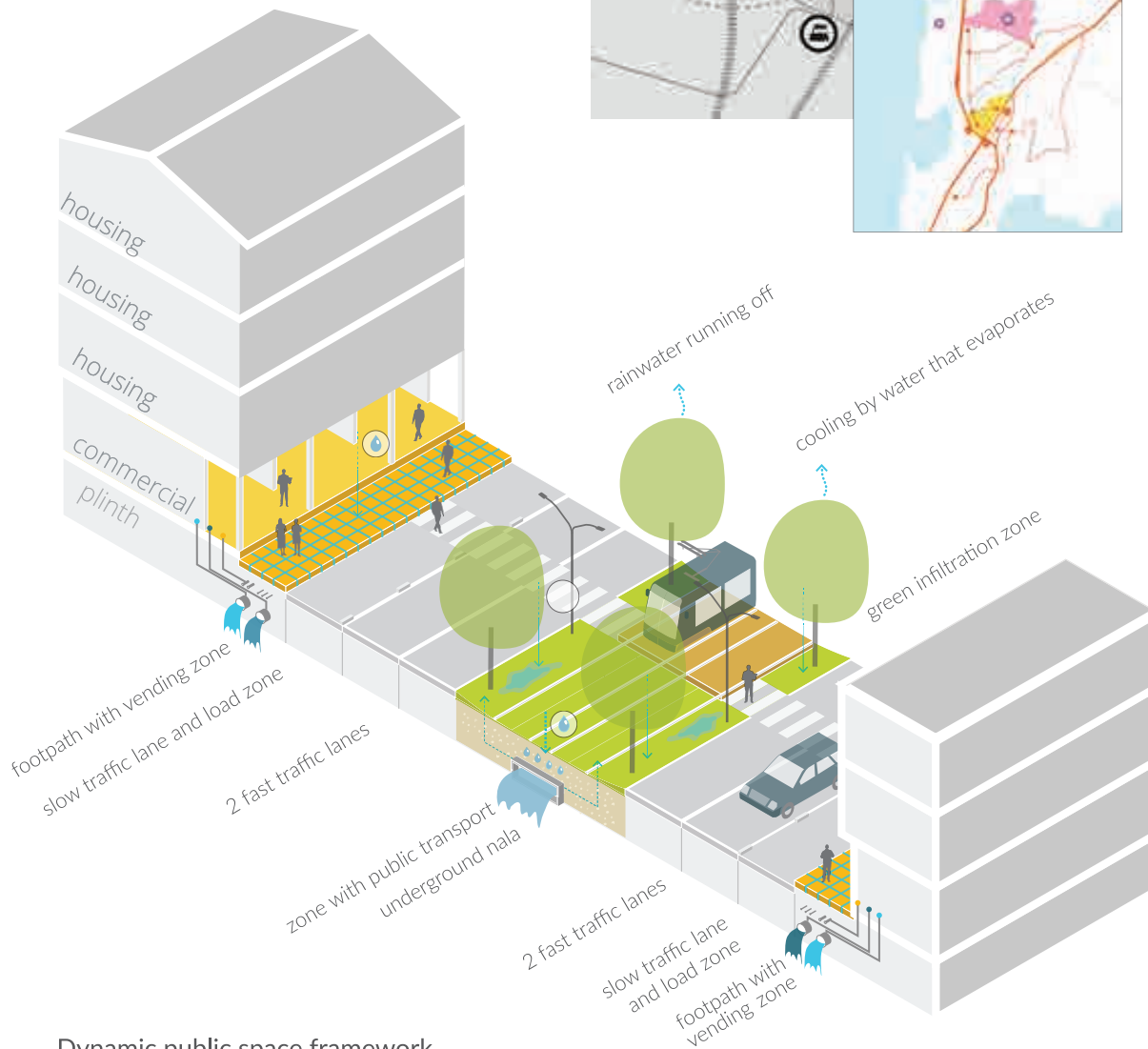Instant development

Existing situation

Instant development
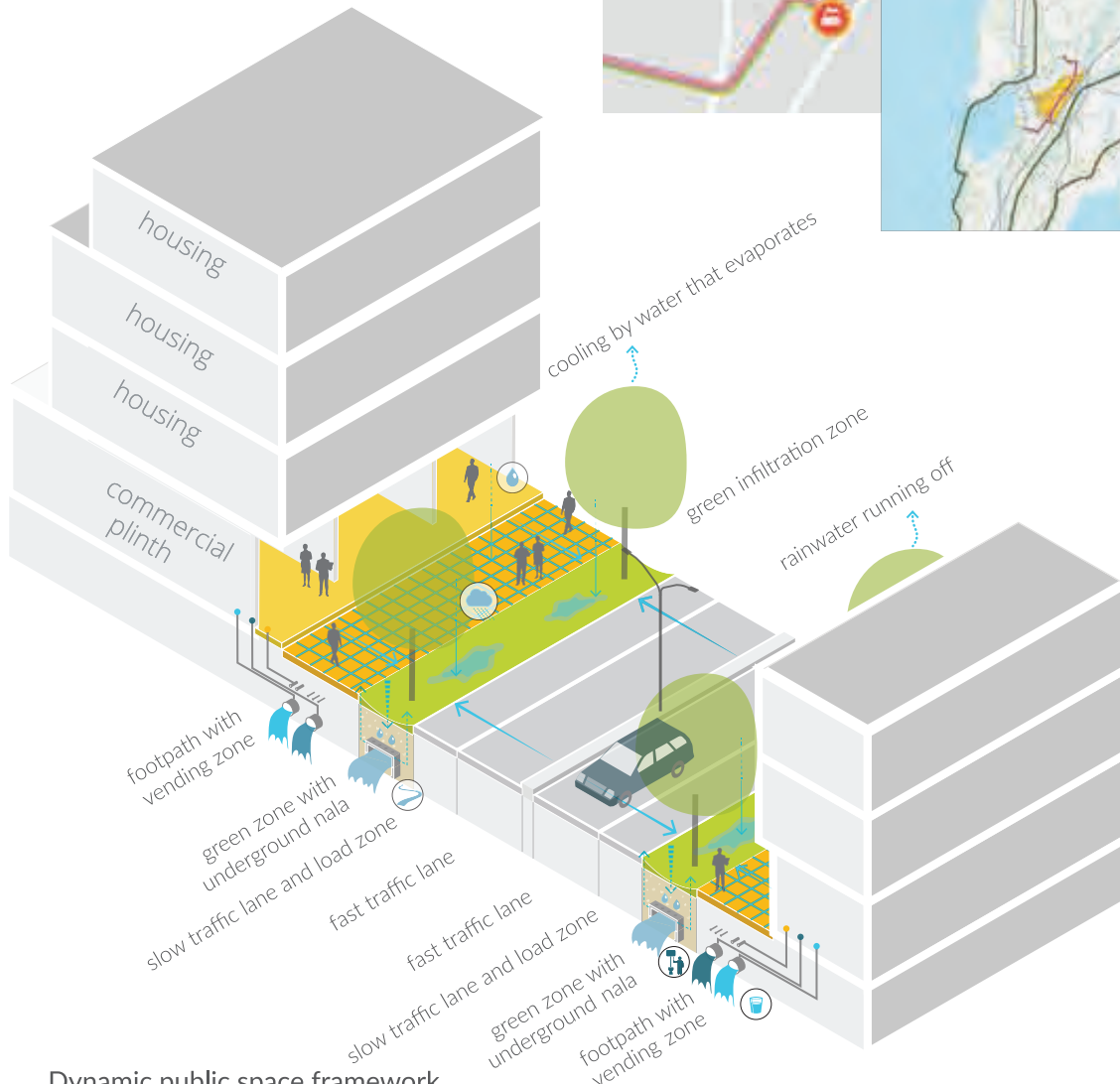
TRANSPORT

Making Dharavi a Part of Mumbai

The 60 Feet Road is currently used as main infrastructure connection through Dharavi. Within the existing profile, Government and stakeholders could collaborate to develop a new street section, organising parking, motorised traffic and pedestrian flows. Upgraded with a light rail, it can connect to the existing public transport facilities in Mumbai and via a new bridge to the Bandra-Kurla Complex and to the airport.

rainwater running off

cooling by water that evaporates

green infiltration zone

housing

housing

housing

commercial plinth

footpath with vending zone

slow traffic lane and load zone

2 fast traffic lanes

zone with public transport

underground nala

2 fast traffic lanes

slow traffic lane and load zone

footpath with vending zone

Dynamic public space framework

Creating an Urban Backbone

90 Feet Road will be developed as a multi-modal green boulevard, making this street a better organised space, to enhance the possibility of social interaction and economic development. It forms the connection between Matunga station and the Bandra-Kurla business district.


cooling by water that evaporates

green infiltration zone

rainwater running off

housing

housing

housing

commercial plinth

footpath with vending zone

green zone with underground nala

slow traffic lane and load zone

fast traffic lane

fast traffic lane

slow traffic lane and load zone

green zone with underground nala

footpath with vending zone

Dynamic public space framework

Establish a Local Street Network

Prioritising existing streets and connecting dead-end streets into a hierarchic network improves the accessibility of the nagars. Naming of the streets will reinforce the identification of inhabitants with their living environment. Moreover it enables the different neighbourhoods to connect to higher level infrastructure in order to benefit from it.

As discussed earlier, a new network should be established by connecting all the nagars as well as by relinking inner Dharavi with the 90 Feet Road and 60 Feet Road. A prioritisation of the streets and how to connect them should be carried out through collaboration between the Government and various stakeholders.

Existing : Disconnected streets and alleys

Upgrade : Connect streets and create hierarchy

In return, better accessible living environments arise, and new street crossing nodes create interesting locations for businesses and retail development. The ambition to relocate all current residents within their own neighbourhood results in denser and more qualitative buildings along the streets.
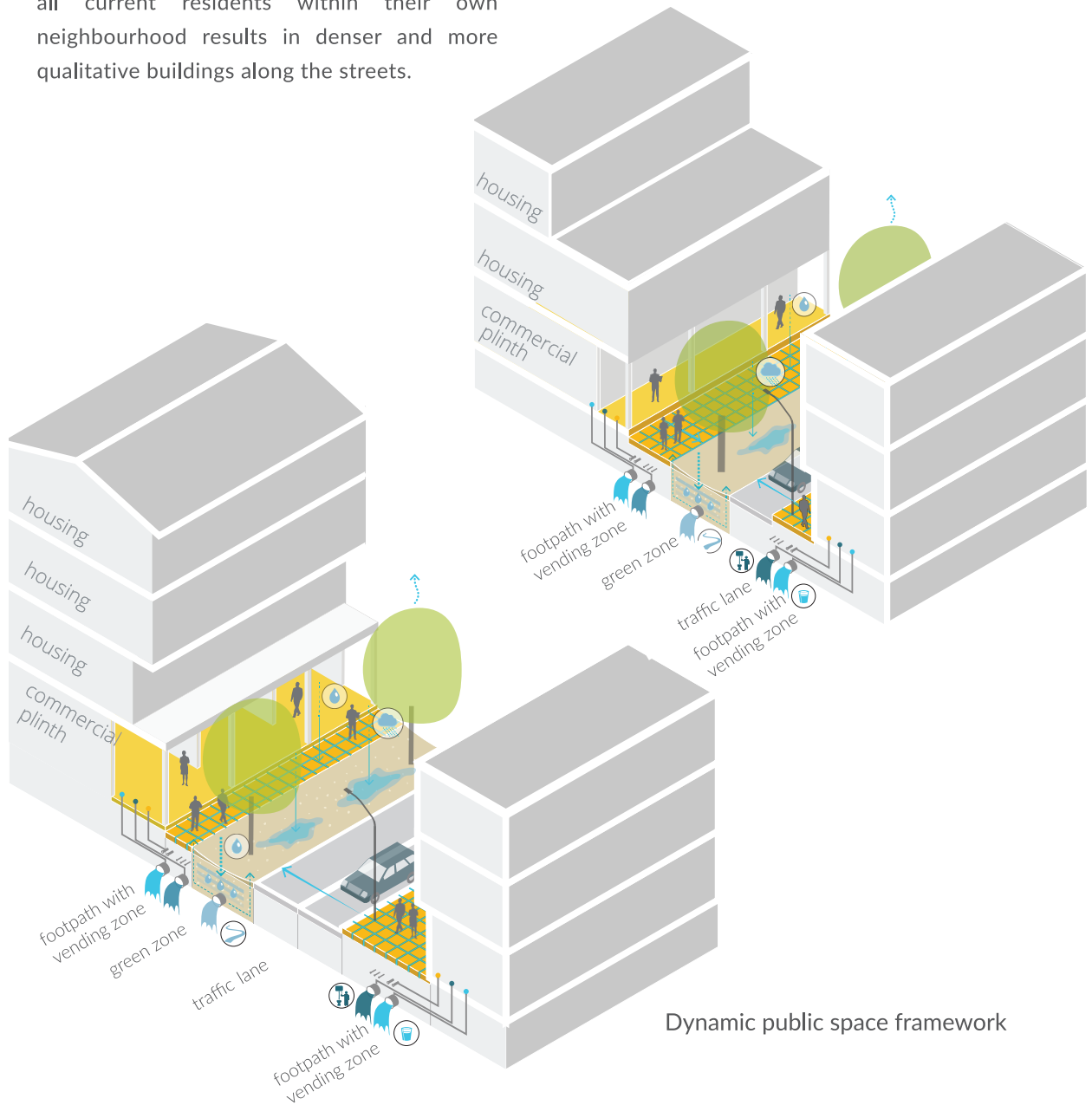
Dynamic public space framework

Effects :

- *Nagars* - communities mix
- Self-organising plinth
- Better access to *nagar* retail
- Chance on *nagar* collaboration
- Better access to *nagar* markets
- Home located workshop and office
- Higher density

- More public space
- More rent from housing
- Home businesses
- Food trading
- Better hygiene
- Buildings that can expand and grow over time
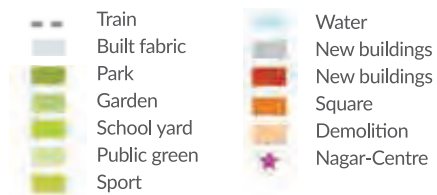- Separation of clean and dirty water

SOCIAL AMENITIES

Indicate Squares as Nagar-Centres

Creating a central place for each nagar offers a platform to reinforce their distinctive identity. They can be situated at the border or centre of the community, and are connected to the street network. Designed as flexible spaces, the squares provide a solution to the current shortage of open space within the communities.

Concentrated Nodes for Facilities and Services

The squares facilitate the main social needs, host neighbourhood facilities and amenities, housing these in a new community centre. The commercial and social programs around the squares are closely related to the nature of each individual nagar.

A close collaboration between residents, stakeholders and government should be set up, to locate and develop the squares as reconstruction is involved to create open space.

Train	Water
Built fabric	New buildings
Park	New buildings
Garden	Square
School yard	Demolition
Public green	Nagar-Centre
Sport	

solar panels

water well

market facility

playground

social infrastructure:
education - healthcare -
sanitation
public space

collecting rainwater basin

green infiltration zone

washing place

public space
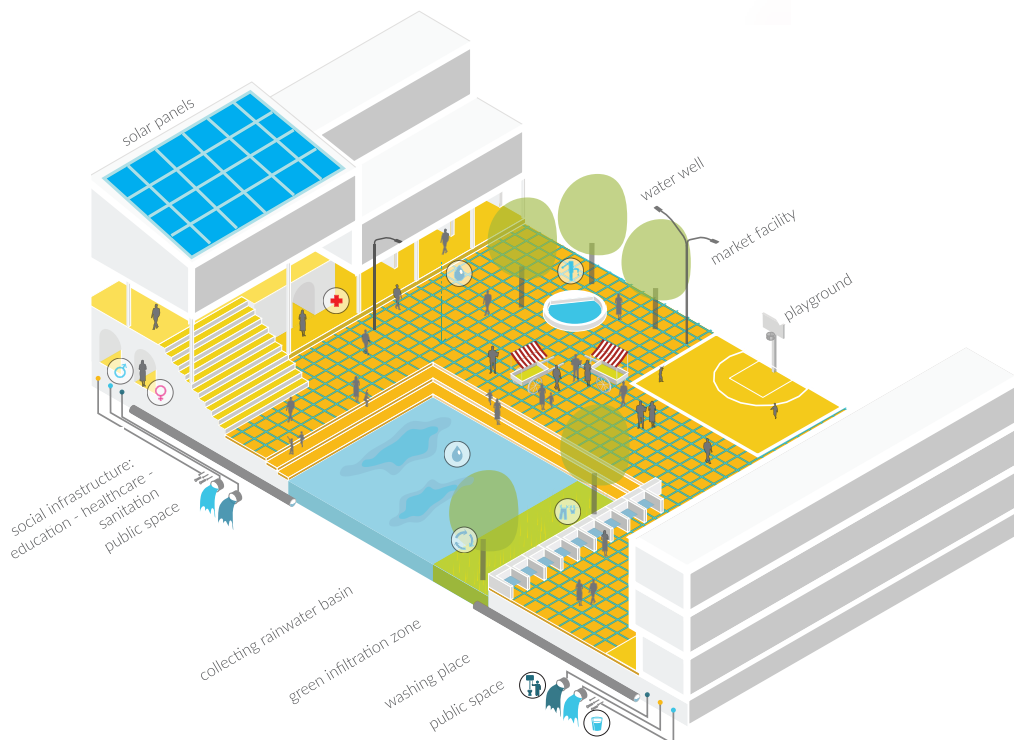
Existing situation

Street upgrade

Gradual development

SERVICE INFRASTRUCTURE

Drain Water to The River

The *nala* on 60 Feet Road can be rebuilt as an underground grey-water connection. It functions as the main drainage facility for Dharavi. Engineered wetlands cleanse the water before it flows into the Mithi River.

Create a Circulating Water Network

The 90 Feet Road could be used to connect the two nalas into a continuous water supply running through Dharavi, to avoid the current stagnant waterways. Incoming water will be cleaned in the purification plant.

Garbage Collection

The community must undergo an operation to remove the garbage. Garbage collection points are provided on the squares, and connected to the main streets. At night, the light rail line on the 60 Feet Road will be used as a cargo train, collecting all the garbage and transporting it to the 13th Compound – where everything gets recycled.

Infiltrating Water Network

Streets have infiltration zones to drain and slow down rainwater run-off to the river. They integrate an underground drainage network. This system transports the grey water and functions as storm water control in the monsoon season. The system is connected to the higher situated nala structure and the lower situated Mithi River. As such a constant flow of fresh water is ensured.
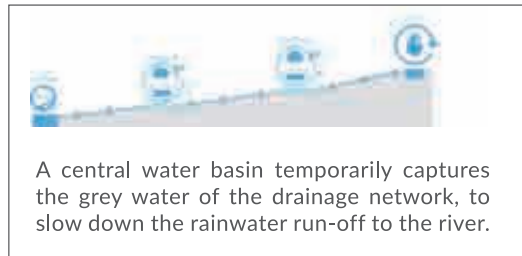
Sanitation Hubs

The squares function as separation mechanisms between blue, grey and black water.

A central water basin temporarily captures the grey water of the drainage network, to slow down the rainwater run-off to the river.

It's important to disconnect rainwater from the sewage system. With little purification this water can be used for cleaning and irrigation.
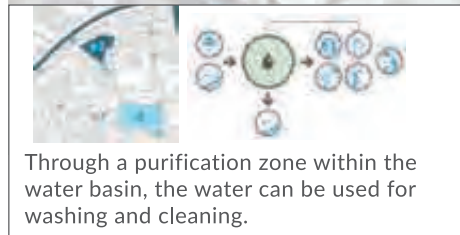
Through a purification zone within the water basin, the water can be used for washing and cleaning.
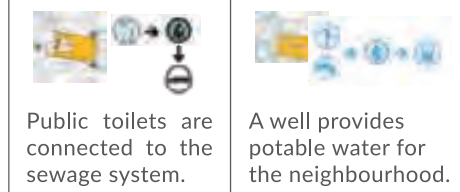
Public toilets are connected to the sewage system.

A well provides potable water for the neighbourhood.

Existing situation

Street upgrade

Gradual development

ENVIRONMENT

Enlarge Mithi river bed and create an engineered wetland for purification and recreation for flood protection.

By enlarging the space for the Mithi River, the capacity for the river can be increased. This prevents flooding in Dharavi during the monsoon and high-water periods. Transforming the mangroves into engineered wetlands offers the chance to connect this aim with cleaning and re-mediating the water of the Mithi River. As an extensive park it could function as a new recreational area, adding environmental values to Dharavi.

Existing : Mangroves and
Bridge Blocking Water Flow

Antler Creek :
Constructed Wetlands

Existing situation

Proposed development