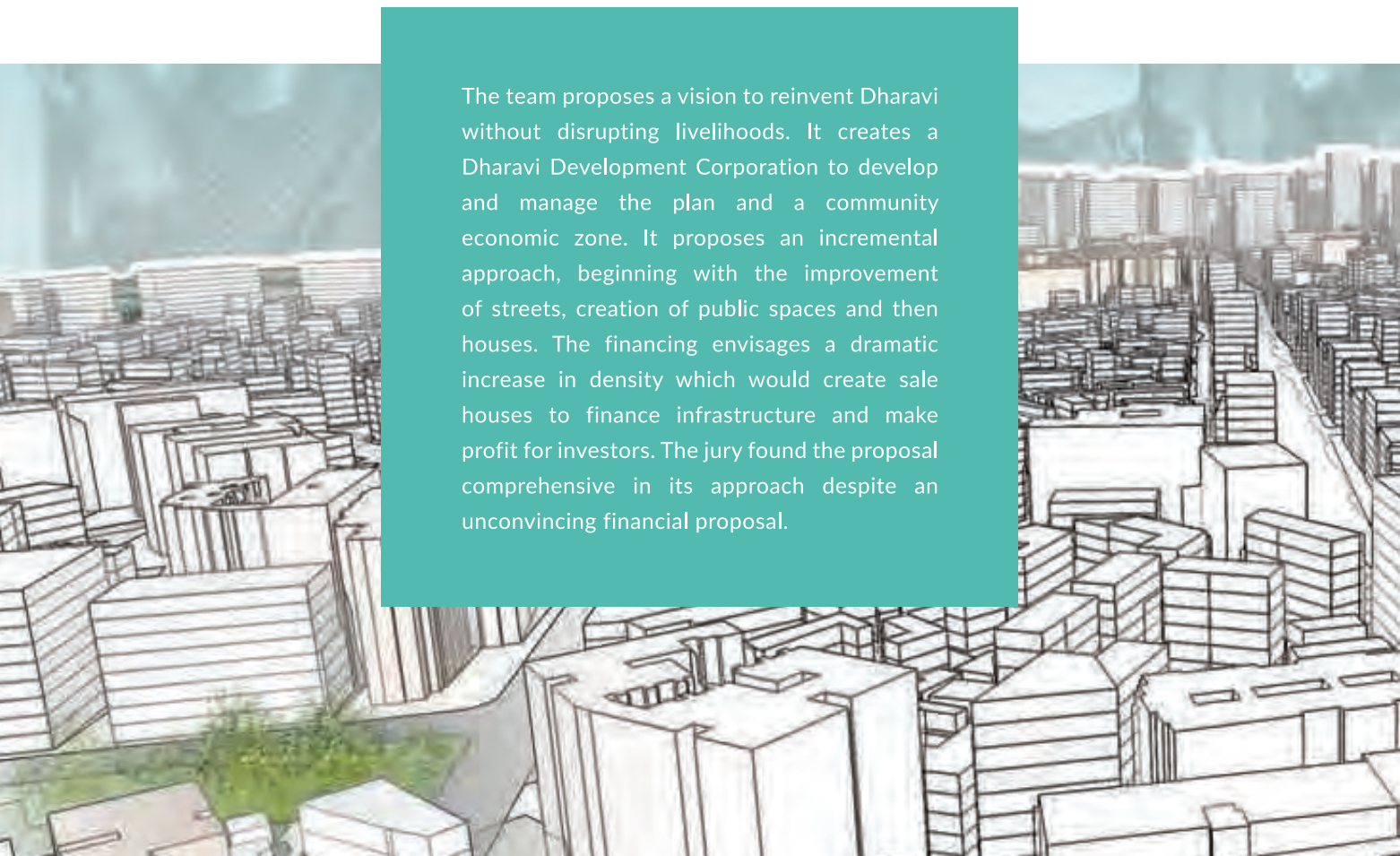


# Naya Dharavi

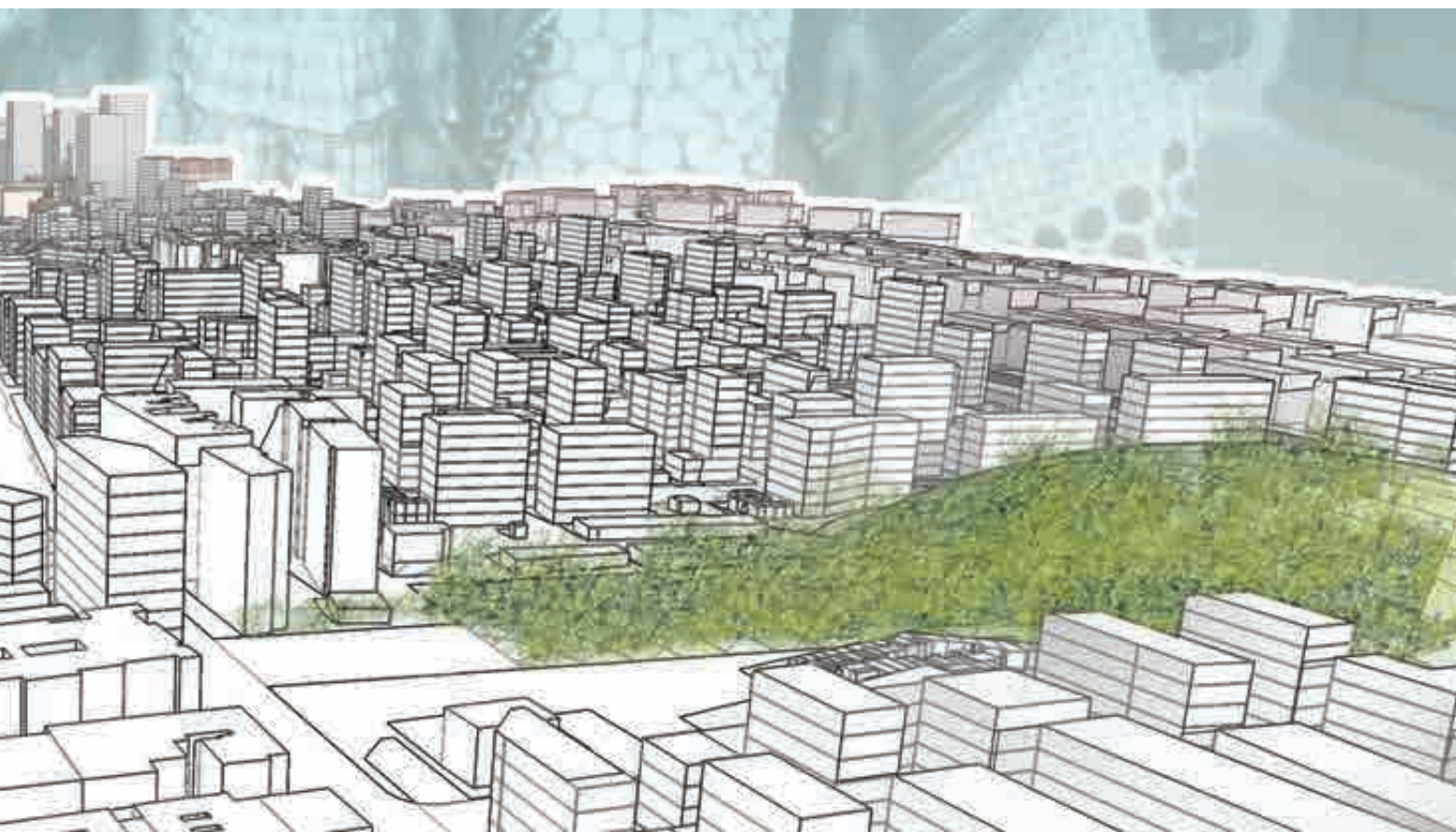
## 08

### HONOURABLE MENTION

Dr. Sujata Govada, Dr. Essy Baniassad,  
Ng Cheuk Yee John, Prasoon Kumar,  
Widemar Spruit, Ruffina Thilakaratne,  
Suvarna Apte, Fiona Waters, Adolf Tragler,  
Felix Thomas, Ravi Govada, Kalpesh Narkhede,  
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Arun Govada, Nick Lau, Kristen Saul,  
Nikita Verma, Patrizia Bucciarelli, Mathew Heo

The background of the page features a detailed architectural rendering of a dense urban development, likely a housing project. The buildings are depicted in a sketch-like style with fine lines and shading, showing a variety of heights and forms. A prominent teal-colored rectangular box is overlaid on the center of the image, containing white text. The overall scene is set against a light, hazy sky, suggesting an urban environment with a focus on verticality and density.

The team proposes a vision to reinvent Dharavi without disrupting livelihoods. It creates a Dharavi Development Corporation to develop and manage the plan and a community economic zone. It proposes an incremental approach, beginning with the improvement of streets, creation of public spaces and then houses. The financing envisages a dramatic increase in density which would create sale houses to finance infrastructure and make profit for investors. The jury found the proposal comprehensive in its approach despite an unconvincing financial proposal.



## PREMISE

Dharavi is a dynamic and entrepreneurial melting pot in nature. The various informal interactions that take place, create a uniquely distinct combination of not only economic livelihood for its residents, but also a significant contribution to the economy of Mumbai, and the world. Dharavi's key resources are land and people. However, these contributions are in part the result of poor environmental, working and living conditions.

### **Economic Contribution**

Dharavi is one of the most vibrant and entrepreneurial economies in India. Though the majority of its operations work within the informal economy, it is estimated that Dharavi contributes between USD 500 million to 1.5 billion per year in economic output.

### **Contribution to Global Supply Chains**

Dharavi is fully integrated within local, regional and global supply chains. Products and services such as plastics and paper recycling created in Dharavi are used in the day to day functioning of Mumbai's economy. Increasingly, Dharavi's products are being exported internationally through initiatives such as Dharavimarket.com and Dharavi Brand.

### **Labour Force**

One of Dharavi's most important assets is its workers. Dharavi's residents provide Mumbai with an important source of construction workers, labourers, cleaners, drivers, secretaries and cooks which are an integral part of Mumbai's service sector.

### **Land Ownership**

The greatest challenge for the financial and implementation strategy is land ownership.

### **Morphology**

Dharavi is a mix of informal settlements with the formal, a result of redevelopment under SRA.

### **Density**

Dharavi is also a place of extreme population densities. With a population of 500,000 the density is 2,272 people per hectare.

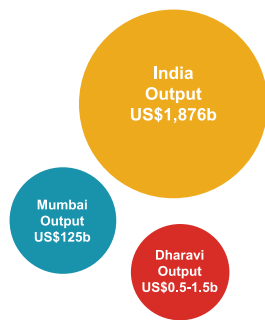
### **Community Profile Analysis**

A brief profile reveals the lack of toilets, a mix of communities and castes, various occupations and the politics in three areas of Dharavi: *Rajiv Gandhi Nagar*, *Chamada Bazaar* and *Kumbharwada*.

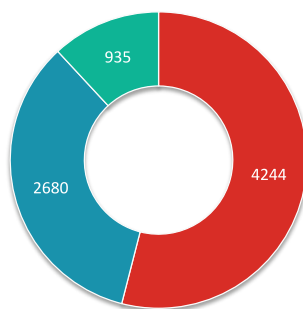
### **Redevelopment Plans**

The current Government plan is a top-down approach that will result in wholesale redevelopment and large-scale uprooting of social networks, people's employment and livelihoods. Any positive change requires low to medium, but temporary, disruption. Some people or businesses may have to relocate in the interim but will maintain the opportunity to be within the larger Dharavi community.

*Naya Dharavi* is a potential framework that offers a higher standard of living for all the residents that ensures and maintains their economic livelihood by building on the strategic location of Dharavi and entrepreneurial nature of its people. The aim is to create a Naya Dharavi that provides opportunity for the community with proper infrastructure and economic clusters to function well within, yet one that is well integrated with the surrounding areas and can truly become an integral part of Mumbai.

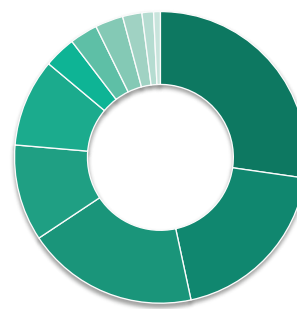


Dharavi economic contribution



Dharavi business by type

- Commercial
- Other Uses
- Industrial uses



Industrial businesses in Dharavi

- Leather products excluding tanning
- Textile and textile products
- Rubber and plastic products
- Food products
- Electrical goods
- Other mfg & repair industries-services
- Metal products
- Tobacco
- Wood products and funitures

### Strengths

- Self-made people, strong sense of community, multi-generational, hard working, enterprising in nature.
- Self-built and flexible development, sense of ownership.
- NGO support, social networks, community participation.
- Strategic location, high potential land value.
- Education, awareness, moving up the social ladder.
- Recycling hub, leather, textiles, food and other industries offering economic livelihood.
- Integrated workspace, close to ground.
- Human scale, compact development, walkable.
- Sense of identity, vibrant.
- Economic contribution to the city.
- Close proximity to Mahim Creek.

### Weaknesses

- Poor living and working conditions.
- Lack of basic infrastructure and utilities.
- Hazardous industries and pollution.
- Traffic congestion, pollution.
- Severe risk of flooding and environmental problems.
- Severe public health hazards.
- Lack of interaction between community and Government.
- Lack of community facilities, public space, open space.
- Isolated position
- Poor built quality of structures.
- Lack of legal status for many people.

### Opportunities

- The micro-entrepreneurial environment can be leveraged for upward mobility – to be unlocked with infrastructure improvement.
- A Community Economic Zone (CEZ) could unlock productivity through financing mechanisms.
- Strategic location is a long-term asset.
- Existing co-operative developments could be further enhanced.
- Regularise and expand recycling hub.
- Technological innovations could improve living and working conditions in Dharavi.
- The function as an incubator could be enhanced.
- Adjacent mangrove and nature as conservation areas, integrated with Dharavi.
- Innovative concepts in transportation and preserve walkable networks.

### Threats

- Government plan is seen as pressure to move people and livelihoods out of Dharavi.
- Proximity to Bandra Kurla Complex poses redevelopment pressure.
- Land ownership issues.
- Legacy of SRA's piecemeal redevelopment.
- Legacy of poor construction ill-suited to the needs of the people.
- Low-lying land poses continued risk of flooding and environmental problems.
- Lack of interaction between community and government
- The dense morphology means difficult emergency access

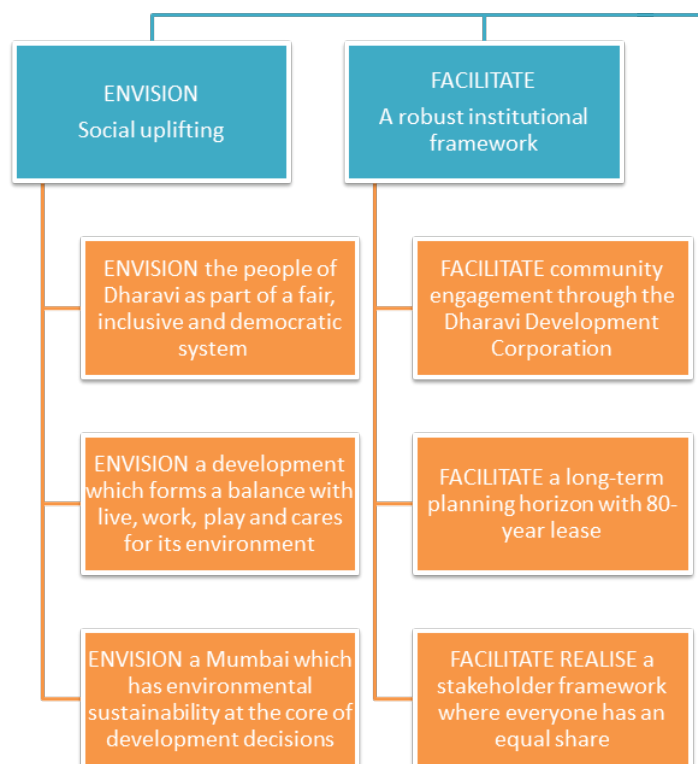
## GUIDING PRINCIPLES

Based on the SWOT analysis, this proposal focuses on health, legal status, industriousness, human dignity, sense of community.

In particular, the **guiding principles** are:

1. Adopt a collaborative, place-making and sustainable development approach so that innovation and green infrastructure are the backbone to the development.
2. Residents and key stakeholders should be a part of the process.
3. Create a walkable, pedestrian and transit oriented development.
4. **All** residents need homes regardless of a cut-off date. A range of affordability for housing provision per family.
5. A range of affordable housing is required.
6. Solution space for any high-rise and high-density development should be limited to certain key nodes and core areas.
7. Basic needs and sanitation should be upgraded as needed.
8. Integrate and upgrade community facilities and a well-designed landscaped open space network.
9. Incorporate an educational hub to create awareness among the people of Dharavi.
10. Highlight art and culture throughout with opportunities to showcase Dharavi's heritage.
11. Industries and economic livelihood should be enhanced and improved with higher standards.
12. Restore the environment by converting the local mangroves into a nature reserve.

The proposed framework adopts a sensitive, place making and sustainable approach, keeping in mind the following:



Five pillars of Naya Dharavi

### Dharavi's informality is one of its treasures

The complexity of relationships and needs in Dharavi can only be addressed by the involvement of a plurality of actors.

### Diversity of Interventions

The Master Plan aims to be a framework within which many possible approaches are possible, including a mix of market driven development, Government funding and smaller scale interventions driven by people.

### Delivery versus Partnership

#### Government as support

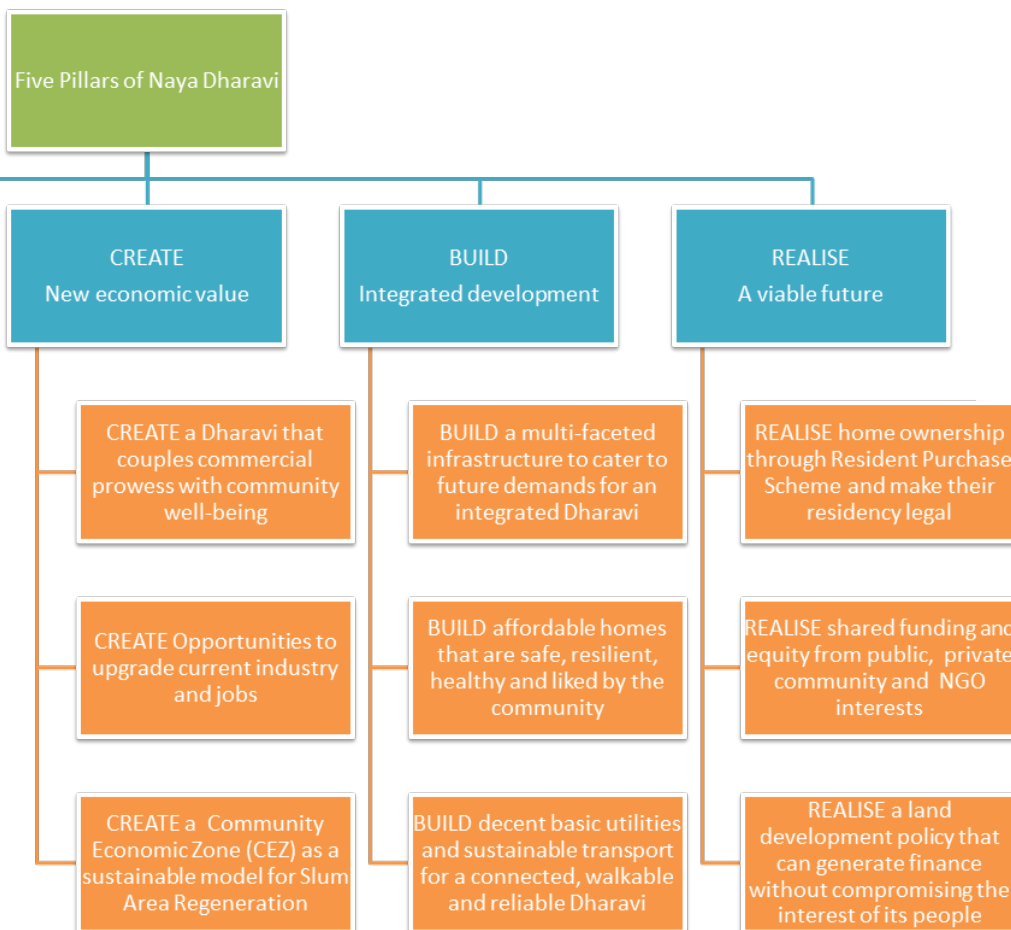
Role of the Government is to guide the process within a framework of regulations and incentives.

### Incremental Upgrading

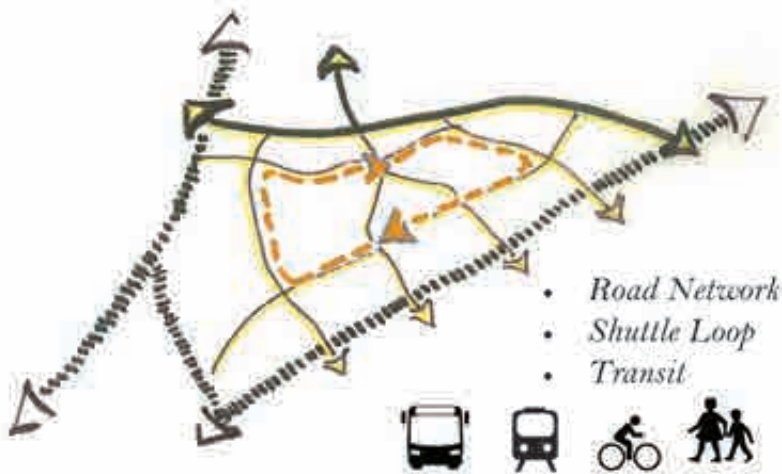
Long term strategy approach aimed at creating a mix of spontaneous and planned improvement.

### Fine-grain Approach

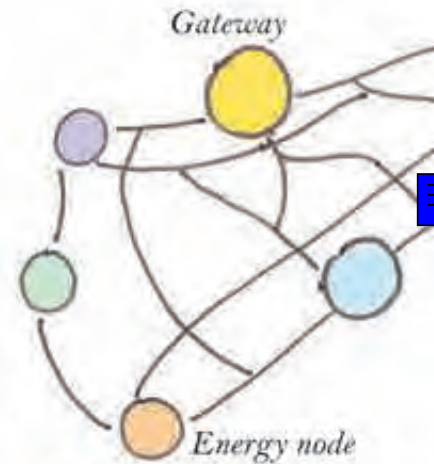
Local interventions coordinated with local community.



### Increasing permeability and connectivity



### Integrated



### Connecting larger open urban resource



#### Integrated development

1. Road network and hierarchical road network
2. Public transportation, rail, and shuttle bus loop
3. Walking and cycling
4. Mixed use, nodes, and gateways
5. Basic utilities, water, waste and electricity

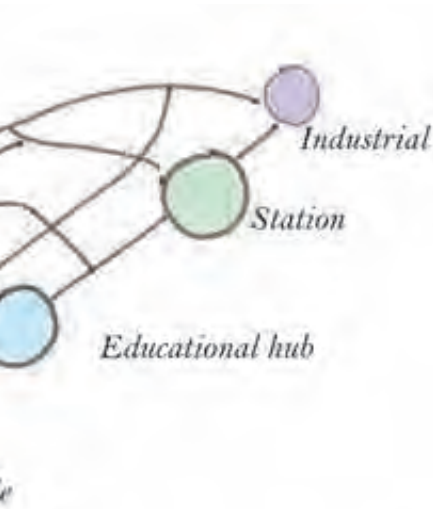
#### Financial viability

1. Residential/ industrial shared funding
2. Private/ public funding
3. Private/ public equity
4. NGO and community
5. Cooperative financing

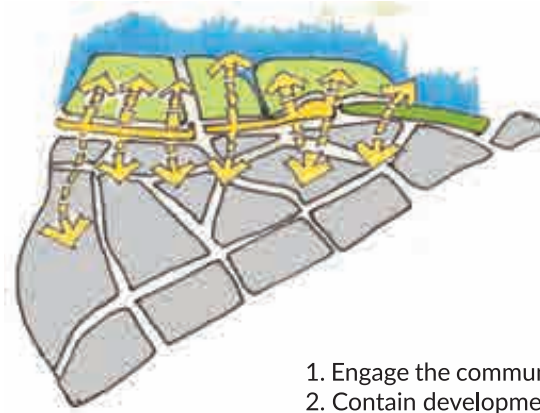
#### Environmentally sustainable

1. Green infrastructure/ network
2. Recycling industries
3. Sustainable models for living
4. New basic infrastructure: water, Drainage, sewage, and air quality
5. Mangroves restoration

## development



## Edge development - promenade



1. Engage the community
2. Contain development
3. Generate activity
4. Restore ecology



## Engage stakeholders



### Institutional framework

1. Community Economic Zone
2. Dharavi Development Corporation
3. Resident Purchase Scheme
4. Long-term plan and horizon - 80 year lease
5. Multiple stakeholder involvement

### Social uplifting

1. Education
2. Legal status and ownership
3. Engagement and awareness
4. Employment opportunities
5. Affordable housing



# GOVERNANCE

It will be crucial to form a Dharavi Development Corporation (DDC). Members of the DDC will comprise of residents (30%), Government (30%), private sector (30%) and NGOs/Other (10%).

The DDC will be tasked with developing and managing the Dharavi Regeneration Plan for the next 86 years as the land will be leased for a period of 80 years to residents and interested investors.

Stakeholder mapping should be used to assess how the interests of those stakeholders should be addressed in a project plan, policy, program, or other action.

These groups should be the focus of stakeholder efforts and represented in governance and decision making bodies. They should also be regularly engaged and consulted throughout the process.



# FINANCE

The greatest challenge for a financial and implementation strategy is land ownership. In many parts of the world, the Government hypothecates land at low or zero market value for a specific period of time, as their contribution to meet social, environmental and economic objectives. The land revenue forgone is anticipated to be recouped through greater taxes from economic growth or gained indirectly through increase in values in neighbouring areas etc. This financial strategy assumes that private land is purchased by the Government and together with publicly owned land is hypothecated to the Dharavi Development Corporation. Costs of construction will be borne by developers or utility service providers.

The Dharavi Development Corporation will be able to fund the redevelopment of Dharavi with minimal social disruption.

The DDC will sit at the centre of all fund flow and through specific funds; residents and business owners will rent their dwellings and premises, or buy them over a period of time. Utilities will be provided by third party companies and paid for through user charges. The DDC offers Governmental control while allowing capital to flow swiftly through to those in need. Through these mechanisms, the people of Dharavi can work towards a better future for themselves and Dharavi.

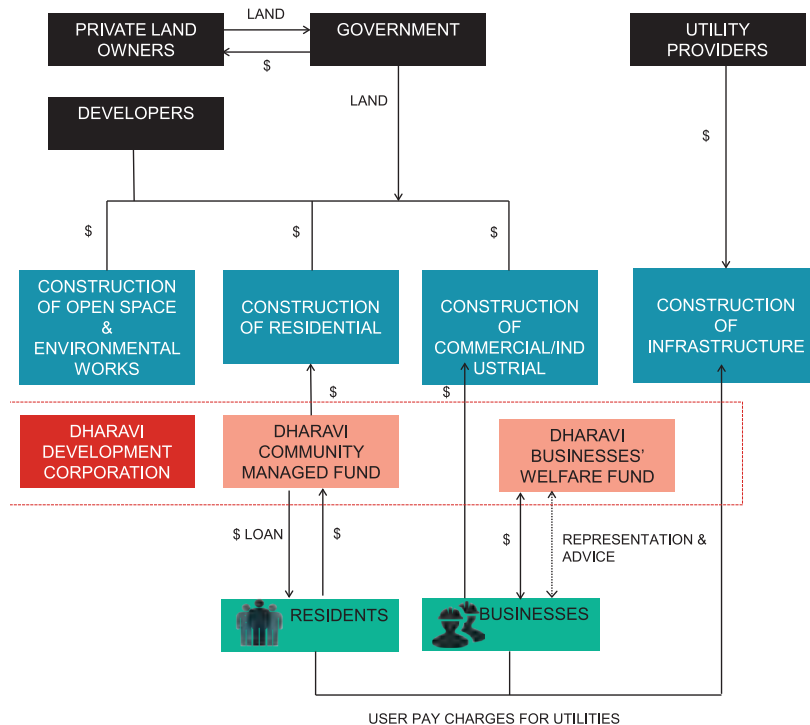
Lease Term : 80 years  
Plan Term : 2014 + 86 = 2100

### Parties Involved :

- (30%) Residents
- (30%) Government
- (30%) Private sector
- (10%) NGOs/Other

### Investment Types :

- Residents: Cash + kind
- Government: Land
- Private sector: Cash
- NGOs/other: Cash + kind



Mumbai has some of the highest housing rents in the world with rents at INR 30-70,000 per month (USD 492-1,148). In comparison, Dharavi provides more affordable housing with its wide range of rents - some estimates suggest rents are as low as INR 85 (USD4) through to rents which are more competitive with the surrounding Dharavi areas at INR 5,000 to INR 10,000 a month (USD82-164).

Household incomes in Dharavi range from almost nothing through to INR 18,000 per month. However, most households earn less than INR 5,000 a month (USD 82) which is much lower than the typical monthly income for residents of Mumbai which is more than INR 12,000 (USD 197).

The Dharavi residential proposals will combine adequate incentives for small scale private sector developers to build appropriate dwellings and a purchase scheme mechanism funded by the developer to enable people to afford their home.

Dharavi residents are not 'one size fit all' in terms of affordability. The proposed scheme will embrace affordability, choice and flexibility:

- A. Those who can afford can buy if they want,
- B. Those who can't afford or prefer not to, can rent
- C. Others can choose part rent, part buy and/or gradually buy as affordability changes.



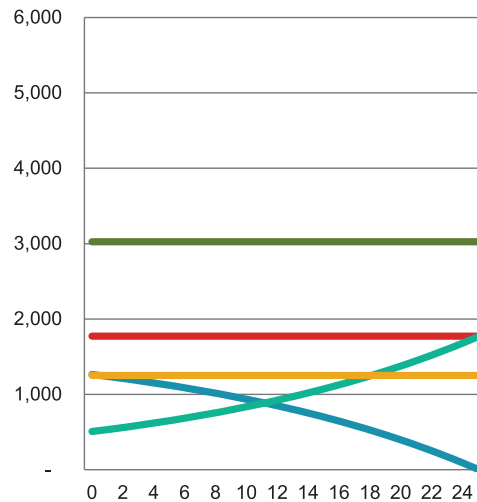
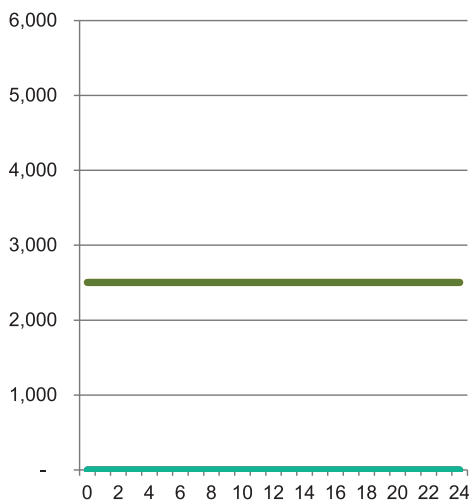
**Low Income Households**  
 <Rs.5,000 income/month

- Pay only rent
- Rent subsidies available from Dharavi CMF if required



**Medium Income Households**  
 Rs.15,000 income/month

- Access to loan to own 50% of property and rent remainder
- 100% of loan from DCMF
- 25 year loan
- 5% interest rate



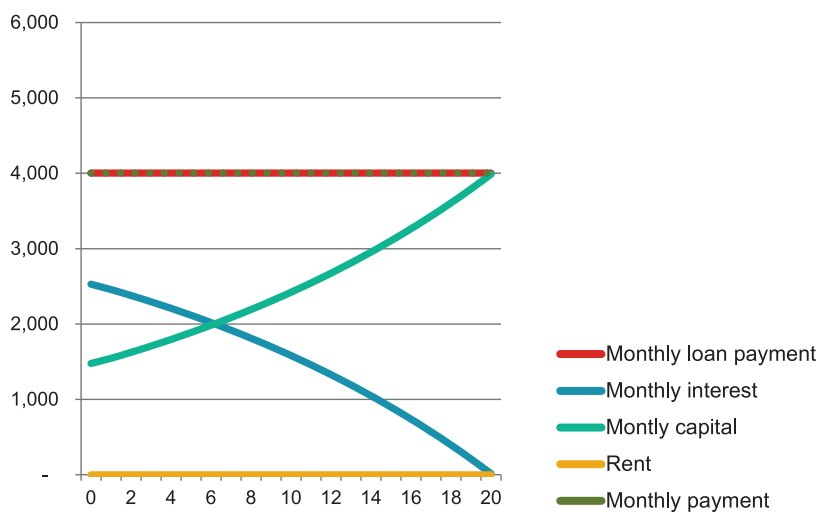
Principles of the Dharavi Residential Purchase Scheme:

1. Will be operated and managed by a Dharavi Community Managed Fund which will lend money to households.
2. Will sell or rent dwellings at market value (excluding land costs).
3. Developer will build dwellings (with a profit margin) at a cost of INR 13,000-16,000/sq m The Dharavi Community Managed Fund will lend 0-80% of principal at terms of 15-25 years. Interest rates varies on monthly household income with households with less INR 5,000 per month charged 2.5% interest and households with more than INR 5,000 per month income charged at 5%. Alternatively at 20% rental subsidy can apply to low income households.



**High Income Households**  
 >Rs.15,000 income/month

- Access to loan to own 100% of property
- 100% of loan from DCMF
- 20 year loan
- 5% interest rate



## PLANNING

A framework is proposed to collaboratively envision incremental changes to the urban fabric. The proposal is the tool to coordinate and study the infrastructure work that require a direct investment.

### Incremental Upgrading

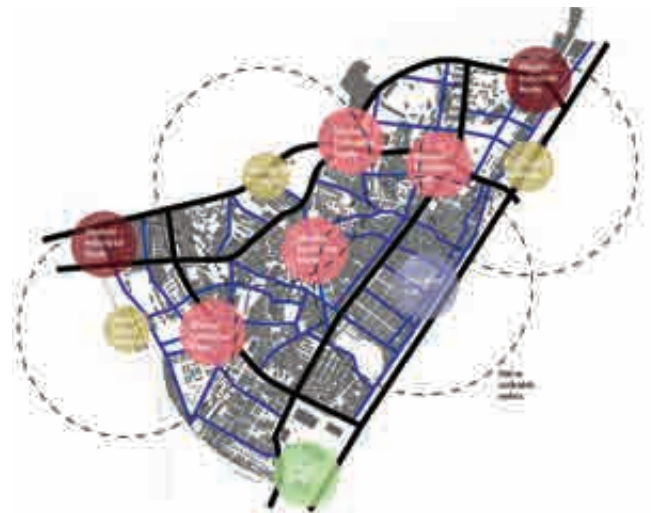
The goal of the master plan is an incremental upgrade of the city environment guided by the local community, coordinated by the Government and combined with market driven interventions and public investment.

The incremental upgrade concerns these topics:

- The density of the building environment and the distance between buildings.
- The quality and safety of the buildings.
- The number and size of amenity spaces such as public gardens, squares, cultural centres, etc.
- The liveability of the environment in terms of mobility, social interaction, level of pollution and sense of dignity and participation for residents.

### Integrated Development: Nodes and Clusters

Dharavi's current clustering of industries has many benefits, for example businesses can easily share knowledge, raw materials or employees, and buyers can more easily compare goods and products. The proposed plan will retain the idea of clustering and proposes to reinforce a focus on recycling and sustainable development. These nodes will be used as catalysts for transformation and new economic development.



Proposed activity nodes and clusters





Proposed master plan



### Hierarchical Road Network

The purpose is to guide the city towards a model where there is a clear hierarchy between spaces of different functions and where the built environment reflects this hierarchy. Along big roads, buildings will be taller, traffic faster and more intense. Within the different sectors, roads get smaller, the traffic is reduced and the building height decreases, down to the inner areas where traffic is mostly pedestrian and buildings are kept between ground plus 3 to 4 storeys.

### Zoning

The central idea is to favour a bottom-up approach in the central area of Dharavi and to create external areas where the planned, market driven approach is given priority. Therefore 2 zones are identified :

- Zone A: Central Dharavi – lower density, bottom-up approach based on sectors defined by classes of roads
- Zone B: Peripheral areas – high and medium-rise development

	Zone 1 (Low-rise)	Zone 2 (Medium-rise)	Zone 3 (High-rise)	Total
<b>Site area</b>	1,327,370	404,686	404,686	2,136,742
<b>Population</b>	350,000	75,000	75,000	500,000
<b>Unit size (sq m)</b>	30	40	50	40
<b>Cost (INR)</b>	450,000	720,000	1,000,000	2,170,000
<b>Residential units</b>	58,333	15,000	18,750	92,083
<b>Residential BUA</b>	175,0000	600,000	937,500	3,287,500
<b>Industrial BUA</b>	700,000	240,000	375,000	1,315,000
<b>Office BUA</b>	350,000	120,000	187,500	657,500
<b>Comm-Resi BUA</b>	525,000	180,000	281,250	986,250
<b>Community BUA</b>	175,000	60,000	93,750	32,8750
<b>Total BUA</b>	3,500,000	1,200,000	1,875,000	6,575,000
<b>FSI</b>	3	3	4.6	-
<b>Site coverage</b>	53%	30%	26%	36%
<b>No of Storeys</b>	5	10	18	-

Proposed land use distribution

## PHASING

Naya Dharavi is proposed to be developed in a phased manner over a 80 year lease. The policy framework and overall strategy will be finalised within the next 6 years including the formation of the Dharavi Development Corporation. The lease will begin in 2020.



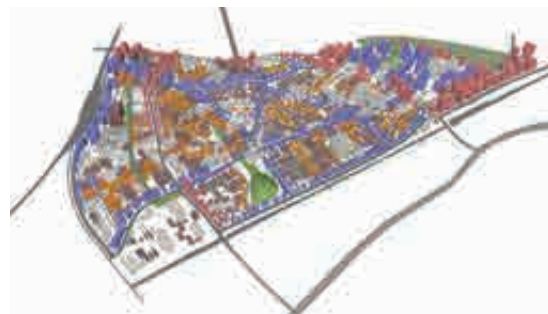
Phase 1  
2014-2020



Phase 2  
2021-2030



Phase 3  
2031-2050



Phase 4  
2051-2080





Existing road network analysis



Possible traffic network proposal



Cluster analysis



Proposed traffic network density



Neighbourhood scale development scenario: Phase 1: Public/private scheme and new infrastructure



Phase 2: Development along the R2 road network



Phase 4: Development along the R3 road network



Phase 3: Development around public space



Phase 5: Incremental upgrading of building stock of the existing informal settlement

## POLICY

The three building regulations help guarantee the development of Dharavi into a livable, functional settlement without losing its important characteristics.

### No Setbacks

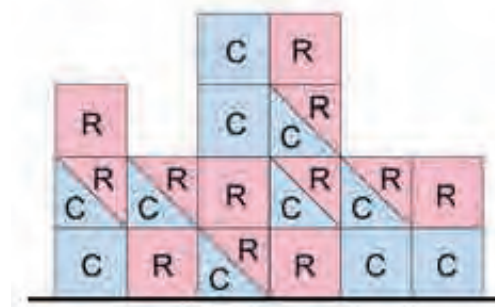
New developments should not have setbacks or private fenced areas as a part of the site. Avoiding setbacks will decrease disconnection from the existing urban fabric and reduce isolated compounds. This makes the ground level of the city completely walkable, providing continuous access to the commercial spaces at road level.

### Vegetation and Green Roofs

Vegetation and green roofs should be used to mitigate the effects of extreme climate. Big roads should be lined with trees and public squares with grass and bushes as well. Residents should also be encouraged to adorn private courtyards and terraces with flowers and vegetation for the same effect.

### Spatial and Functional Flexibility

It is important that the redevelopment schemes do not impose strict prescriptions of land use and location. The current adaptability of spaces within Dharavi and the high flexibility of construction should be integrated in future developments in order to maintain and guarantee existing mobility. Structures such as poles and beams allow for great flexibility that allows change when needed. This way, it is easy to split or merge adjacent units, or even open new horizontal or vertical access points. Different activities and industries should be allowed to mix in the same areas within the reinvented Dharavi - in buildings, rooms and beyond.



### Development Parameters

1. Existing population of Dharavi is 500,000
2. Per capita income of Dharavi is INR 5,000/month
3. Range of flat sizes to be provided are 30 sq. m, 40 sq. m to 50 sq. m max
4. The flat size is based on workers/ tenants, residents after cut-off date and residents before cut-off date
5. Optimum Land Use Distribution
  - a. Residential – 50%
  - b. Industrial – 20%
  - c. Office – 10%
  - d. Retail/Commercial use – 15%
  - e. Institutional/Community use – 5%
6. Prospective Land Coverage Requirements
  - a. Site coverage – 55%
  - b. Road footprint – 15%
  - c. Open space – 30%
7. Density is predominantly low to mid rise high-density
8. Low-rise – 4 to 6 floors (with ground and upper floor for work, retail, and community space)
9. Medium-rise, high-density – 6 to 12 floors
10. High-rise, high-density - 12 to 24 floors
11. Maximum overall FSI of 4
12. Land is leased on an 80 year lease with an option for renewal
13. Residents pay for their accommodation, industrial and work space
14. NGO, Public, Private Sector contribution with land and funds

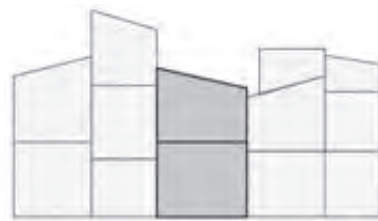
## HOUSING

The suggested building typologies for Dharavi aim to lessen disruptions caused by development. A set of possible typologies for intervention is proposed that can be used according to different conditions and implemented across the whole settlement.

These are spatial typologies or interventions typologies and do not prescribe particular architectural solutions.

### Self-incremental Upgrading

This type of upgrading will be done by individual residents on a small scale and includes the refurbishing, rebuilding or upgrading of existing huts, with the possible intervention of local builders.



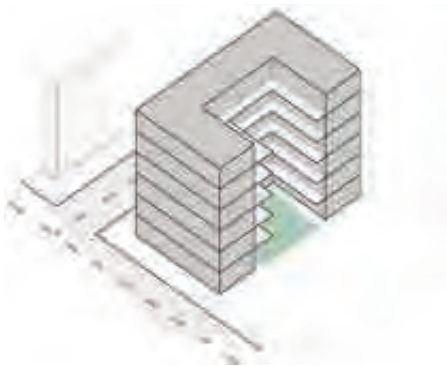
### Self-upgrading of Core Units

In this case a core unit will be delivered for each household. The unit is designed to provide an expandable structure with a core of services such as a bathroom, a kitchen and minimum living space. In this way, with a small investment, households will be provided with basic services and are free to self-upgrade the core unit depending on need and the availability of resources. (In the diagram the grey parts represent the built cores that will be delivered by builders and dots represent the parts that will be self-built)



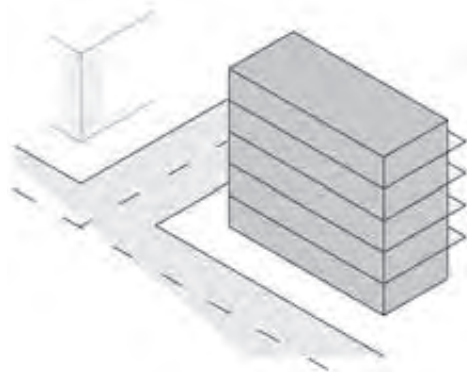
### Courtyard Block

This is a direct development of the urban block wrapped around an internal courtyard. The size of the courtyard can vary from a relatively small light well to a wider communal space that can host production and warehouse functions.



### Urban Block

This is the very basic typology for collective interventions of medium and large scale. Vertical circulation is either internal or external to the block and the horizontal distribution to the apartments is external through passageways. These also provide for external and communal spaces for the flats.



### Micro-Apartments

These are prefab stackable units corresponding to a minimal living space of 27-30 sq m and will include core services as bathroom and cooking facilities. These units can lead to upgrading of existing huts with small-scale interventions or can be stacked one on top of each other to form urban blocks or courtyard houses. A local industry for the production of these units should be incentivised and after an initial public investment it could become a self-fuelling business.



### Tower

The tower can sensibly increase the density of an area in order to accommodate residents relocated for building infrastructure such as roads or public green and squares. It should be used mainly along big roads and avoided in areas with a finer grain urban fabric. The ratio of commercial/residential space is reduced because of the small footprint, but the tower can also accommodate spaces for offices.



## LIVELIHOOD

### A Community Economic Zone (CEZ) will support Dharavi businesses transition towards formalisation.

	Special Economic Zone (SEZ)	Considerations for a Community Economic Zone (CEZ)
Definition	<ul style="list-style-type: none"> <li>Specifically delineated duty-free enclaves that were deemed foreign territory for the purpose of trade operations, duties and tariffs</li> <li>Provide an internationally competitive environment for exports relatively free of regulatory encumbrances</li> </ul>	Whilst like the SEZ, Dharavi could be geographically delineated, the focus would be different. Rather than encouraging economic growth through inward investment, the CEZ would look to formalise businesses and encourage new ones. Businesses in Dharavi are of a much smaller scale and generally local not export focused
Objective	<ul style="list-style-type: none"> <li>Stimulate economic growth and transition</li> <li>Provide manufacturing and service sector jobs</li> <li>Attract foreign direct investment (FDI)</li> <li>Develop infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Support continued economic growth and transition</li> <li>Support existing and provide future manufacturing and service sector jobs</li> <li>Develop reliable infrastructure for business activity</li> <li>Relocate/regulate polluting industries</li> </ul>
Broader objectives	<ul style="list-style-type: none"> <li>Kick start economic activity in export related industry</li> <li>Support the Balance of Payment and provide FX</li> <li>Alleviation of poverty in urban areas (In some SEZ outside India)</li> </ul>	<ul style="list-style-type: none"> <li>Provide an example of business facilitation and gradual transition rather than wholesale redevelopment</li> </ul>
Incentives	<ul style="list-style-type: none"> <li>No import duties on raw materials</li> <li>Exempt from income tax on all export income for first 5 years and 50% exemption on next 10 years</li> <li>No service taxes or central and state taxes</li> <li>No stamp duty (in some cases)</li> </ul>	Incentives should be staged over time so they are manageable and practical, incentives such as: <ul style="list-style-type: none"> <li>Amnesty period for business registration &amp; taxes</li> <li>Grants to implement health and safety measures</li> <li>Advice and funding to reduce polluting activities</li> <li>Locally governed penalties for non compliance</li> </ul>
Approvals / regulatory mechanisms	Single window clearance for all environmental, construction and employment approvals through a single point	Single window clearance mechanism to assist with the high level of unregistered businesses. Advice and support on procedures and practice
Management Institutions	SEZ can be set up by Central Government, State Government, Private Sector or joint collaboration. The SEZ can be run by a range of legal entities including public corporations, private consortium	CEZ could follow a collaboration model of Government and Dharavi representatives. Key issues are funding, management and oversight
Labour legislation compliance	SEZ labour laws are more strict than standard requirements. Larger companies require Government approval to fire employees and restrictions on overtime	Dharavi businesses require some flexibility as they transition from unregulated (and sometimes illegal) employment practices to compliance
Average size	1.4sq km	Dharavi is about 2.4sq km (240 hectares)
Problems	Can become enclaves largely cut off from the rest of the economy, dedicated to extractive industries or serving as isolated export platforms with few if any net benefits to the country	The challenge for Dharavi is to manage the transition process in a way that enables businesses to continue to thrive but in a more safe, healthy and socially responsible manner

#### Considerations for a Community Economic Zone

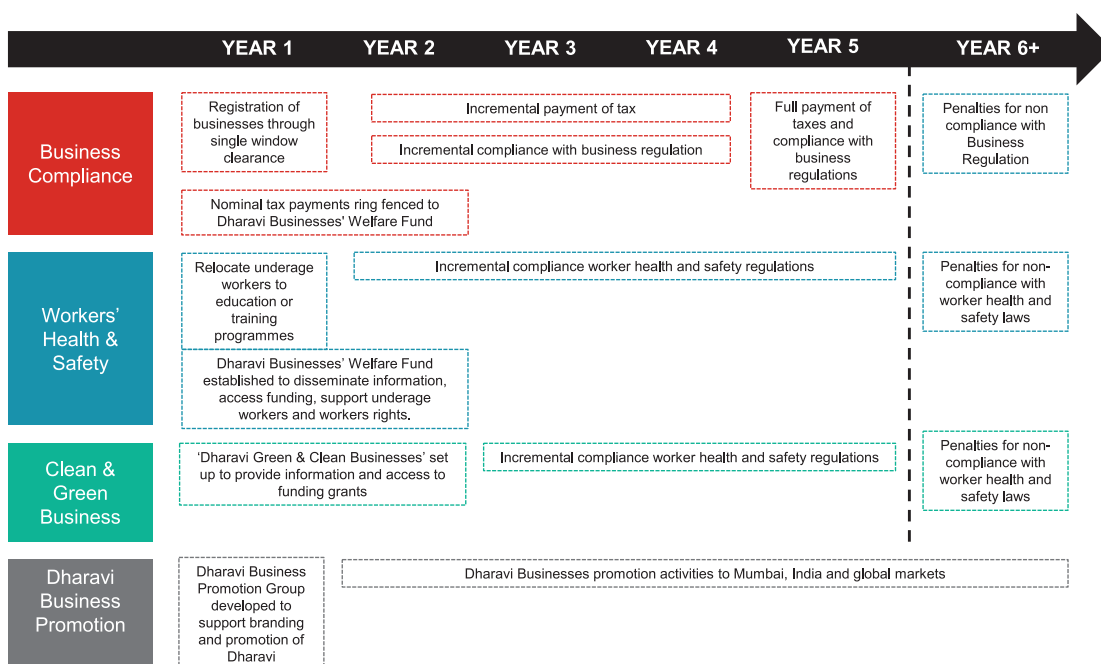
SEZs have been used in India for the past 10 years to support business activity, trade and investment by providing geographically delineated areas with duty-free and tax incentive status. The model has been relatively successful and can provide a framework for a modified type of economic zone which meets the objectives of Dharavi.

SEZs use a number of incentive mechanisms to encourage investment, economic activity and job creation. Relevant mechanisms could be determined through a consultative process with existing Dharavi business owners and workers.

**The Business Implementation Mechanisms for the Community Economic Zone are to:**

1. Register businesses within Dharavi and ensure compliance with relevant business regulations within five years.
2. Establish a Dharavi Business Welfare Fund (funded through tax contributions of Dharavi Businesses) to provide support to workers, minimise worker exploitation and enhance workers' health and safety.
3. Establish a Dharavi Green and Clean Businesses initiative supported by NGOs to promote information on reducing pollution generated by business and provide access to grants.
4. Establish a Dharavi Business Promotion Group to support branding and promotion of Dharavi to wider market in Mumbai, India and globally.

The underlying principle is that businesses are supported through the transition process over a five year period in order to meet the objectives of the Community Economic Zone.



CEZ Business Implementation Mechanism



# TRANSPORT

A multi-faceted road system will be implemented over time to provide more options to people.

Roads are divided into four classes (R1, R2, R3, R4) depending on their size and function, with the following targets:

- Main roads will be the spine of the infrastructure including the sewage network, the cable network and obviously an eventual public transport network
- Roads create a hierarchy of spaces and accessibility, giving the character to the different areas (traffic areas and fast movements, pedestrian areas and slower mobility)
- They drive the development based on maximum density and maximum building heights allowed according to the different classes of roads.

## R1 and R2

Roads R1 and R2, as they are part of a big infrastructure plan, and ideally planned and delivered by authorities with public consultation.

## R3 and R4

Roads R3 and R4 will be designed based on a local approach with public consultation and approval and will be developed along and accordingly with the upgrading of the building stock.

## Classes of Roads

Each type of road defines an adjacent zone with different values for the following parameters:

- The range of width (W) of the road
- Zone surface (Z): the ratio of the zone surface relatively to the total area of the sector (ex. 40% of the total surface of the sector is zone R4)
- Maximum height (H) allowed for new construction and renovations
- Maximum floor surface index (FSI): ratio of the build-able surface relatively to the total surface of the zone
- Accessibility: the type of traffic allowed
- Public areas (P): a percentage of area within each zone which is reserved for services and amenities (including roads, green and public spaces, amenities)

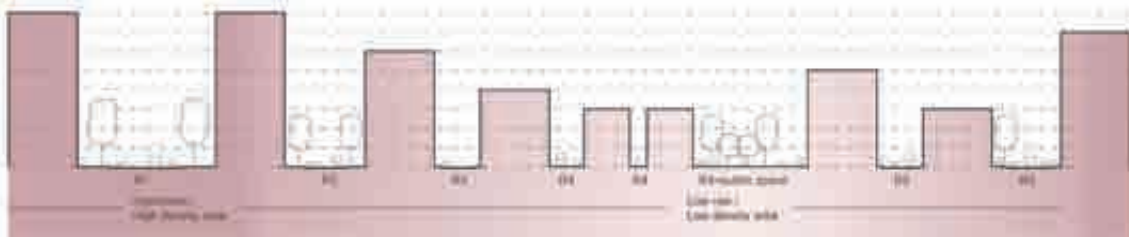
With the following values of the mentioned parameters and assuming an existing FSI of 2, we will achieve at the end of the regeneration process, a final FSI around 4.

## Walkability and Open Space

As proposed under the environment section, a green network is essential to facilitate pedestrian access. The roads within Dharavi will also be accessible and crossable by pedestrians and bicycles.



Proposed road network and classes of roads



**R1: 4 Lanes**  
 Width = 24m  
 Z=20% of the total sector area  
 H=G+7-18  
 FSI=5  
 P=25% of the zone R1 area

*Main vehicular roads connecting sectors within Dharavi and beyond*

**R2: 2-3 Lanes**  
 Width = 9m-18m  
 Z=20% of the total sector area  
 H=G+5-10  
 FSI=4  
 P=25% of the zone R2 area

*Secondary vehicular roads to serve between sectors*

**R3: 1-2 Lanes**  
 Width = 6m-8m  
 Z=20% of the total sector area  
 H=G+4-6  
 FSI=3  
 P=35% of the zone R1 area

*Local vehicular and pedestrian roads to access internal areas, serving restricted traffic and emergency vehicles*

**R4: Mainly pedestrian**  
 Width = 6m-8m  
 Z=40% of the total sector area  
 H=G+2-3  
 FSI=2 (existing)  
 P=35% of the zone R1 area

*Includes backstreets, alleys, semi-private roads with no vehicular traffic*

**Classes of roads and their characteristics**

## ENVIRONMENT

To supplement the road system, a comprehensive landscape plan will be implemented over time to introduce more greenery in the area and develop an open space network.

Central for these plans is a network of green spaces and linkages. This green network is expressly designed to be away from the main roads to provide convenient journeys. At the same time, however, the roads within Dharavi are not completely given over to motorized traffic. The roads within Dharavi will still be accessible and crossable by pedestrians, bicycles etc.

The mangroves at Mahim Creek near Dharavi will be restored with community input and developed as a Mangrove Nature Reserve that can create environmental awareness and restore the ecology while providing additional business and employment opportunities for the residents of Dharavi and Mumbai.

This can be organized as part of a community development program by an NGO interested in environmental sustainability. An environmental and recreational centre will be developed to link Mahim Park and form a beautiful natural edge to Dharavi creating a new green image and identity to Dharavi.



