

A Participative Development Model: DCLT

Dharavi Community Land Trust

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FIRST PRIZE WINNER

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This team presents an extensive understanding of the challenges in Dharavi and of the Dharavi Redevelopment Plan, presented in the form of interesting graphics. It suggests an idea of human-centred design, a process built around mapping desirability through surveys and workshops, followed by feasibility studies. This is demonstrated through examples carried out by the team through design studies. The primary idea of this proposal is to form a Dharavi community land trust, a non-profit entity that owns all the land and comprising a governing board of 1/3rd owners, 1/3rd community and 1/3rd government officials, experts and NGOs. It will be financed through initial seed money and mortgage of land. It also proposes the need for a modified measuring index to produce amenity standards, appropriate to Dharavi and the use of form based codes as opposed to FSI. The jury found this proposal to be well-researched, comprehensive and with one of the more workable ideas for participative development.

PREMISE

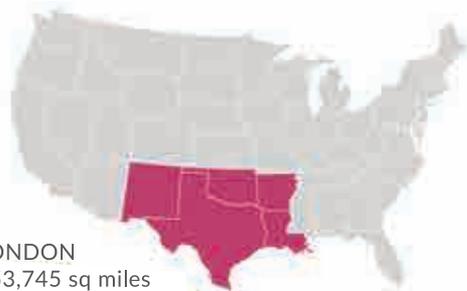
Understanding Slum Densities

The definition of slum according to UN-Habitat (2006) is a settlement in an urban area in which more than half of the inhabitants live in inadequate housing and lack basic services. It defines a slum household as lacking in one or more of the following five conditions - durable housing, sufficient living area, access to improved water, access to sanitation and secure tenure. In India, there is no common definition of a slum. The Census, National Sample Survey Organisation (NSSO) and Slum Area Act 1956 have different definitions. None of the definitions include living area or security of tenure as a parameter to identify a slum.

Approximately 42% of India's urban population resides in informal settlements without any land entitlement. In the absence of any affordable housing and low cost rental housing, a large part of Mumbai's land is occupied by slum dwellers. Contradictorily, the real estate market rules over 7-10% of formal luxury housing only (Deshmukh, 2013). Yet, there is no planning policy for essential affordable housing in the city.

Dharavi in particular has many added challenges. Located in the G North ward of Greater Mumbai with a land area of approximately 525 acres, it is considered as one of the largest slums in Asia. In spite of this, its population statistics is still a product of varied speculation ranging from 1.3 lakh to 6 lakh.

If the world's 6.9 billion people lived in one city, how large would that city be if it was as dense as:



LONDON
553,745 sq miles
13,870 ppl/sq miles



PARIS
127,930 sq miles
54,899 ppl/sq miles



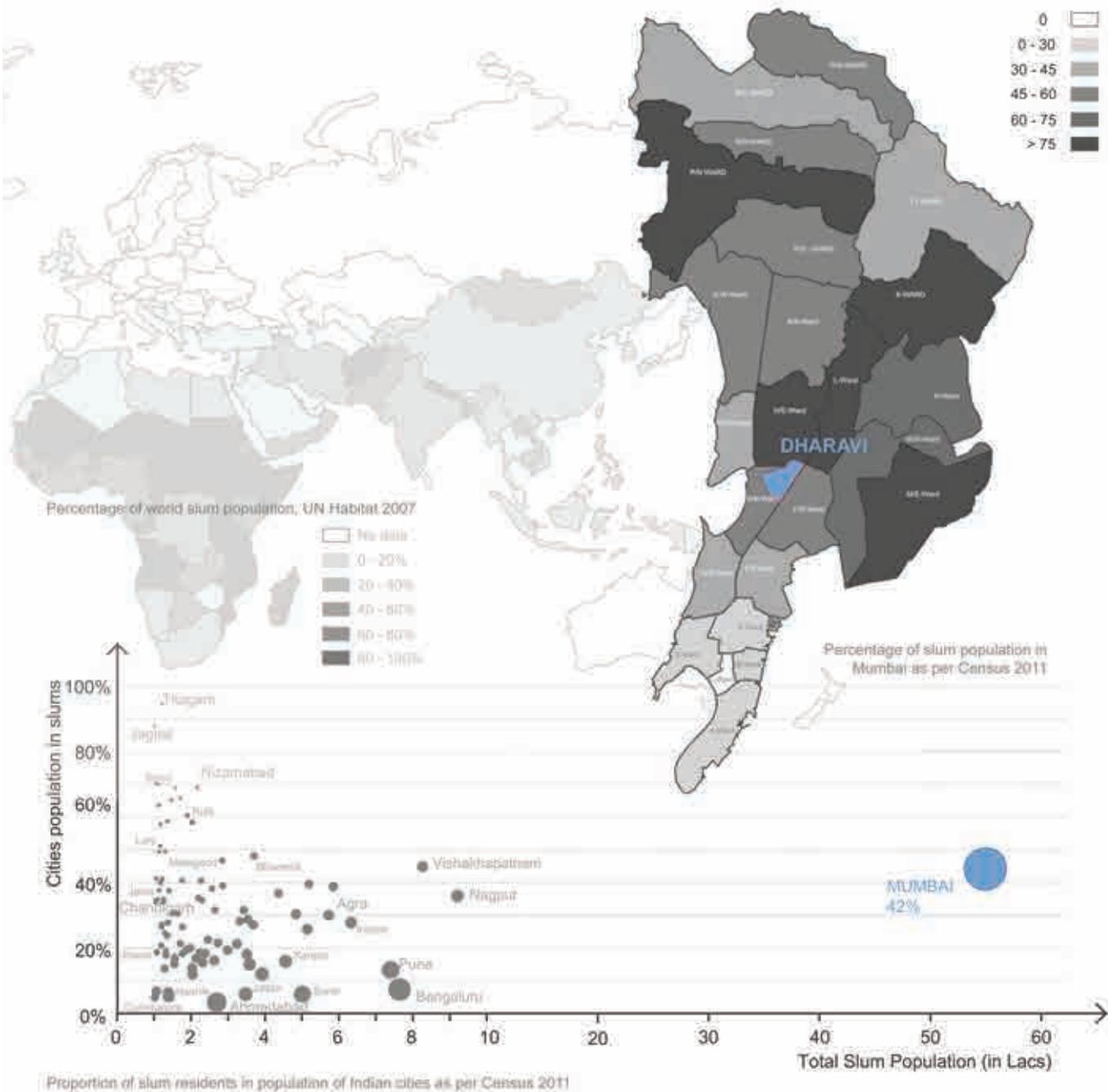
NEW YORK
250,404 sq miles
27,778 ppl/sq miles



DHARAVI
18,953 square miles
368,166 ppl/sq. mi.

India Accounts For 17% (170 Million) of The World's Slum Dwellers.

Source: UN Habitat 2006, for the year 2005



Dharavi is in need of an innovative, holistic and strong mapping system to quantify its varsity and curb speculation.

Understanding Slum Densities

On the world map, density in Dharavi makes a radical statement. It gives sustainability and resource management a new definition. The existing DRP proposal envisions a high-density, high-rise fabric for Dharavi with addition of densities through the sale component. The existing densities in Dharavi are already one of the highest in the world and the regional infrastructure would not be capable of taking any additional densities. The vision instead should be to restructure the existing densities in situ, with adequate infrastructure and open spaces in a high-density, low-rise fabric.

Understanding Slum Rules

Dharavi has a most sustainable model of work, live and play, thriving entrepreneurs, traditional traders, home-based workers, socially active neighbourhoods and walkability.

Dharavi has nurtured itself to evolve as a self-sustaining settlement with no formal rules in place. Those who depend on mixed-use structures that provide residential, manufacturing and commercial space will have to set up shop elsewhere, if vertical development takes place.

The people of Dharavi live with the uncertainty of relocation as they are deprived of:

1. The Right to participate in the redevelopment process:

Today, the Government of Maharashtra is looking to redevelop Dharavi without a clear and detailed idea of how many people live and work there, and how does its large and diverse economy function. No one knows how many people live and work in Dharavi; estimates vary from 350,000 to 600,000.

2. The Right to entitlement of land, structure and space:

The stakeholders' network is multi-layered and mostly unrecognised by the Government. A method to establish ownership is mandatory to curb the further emergence of more slums.

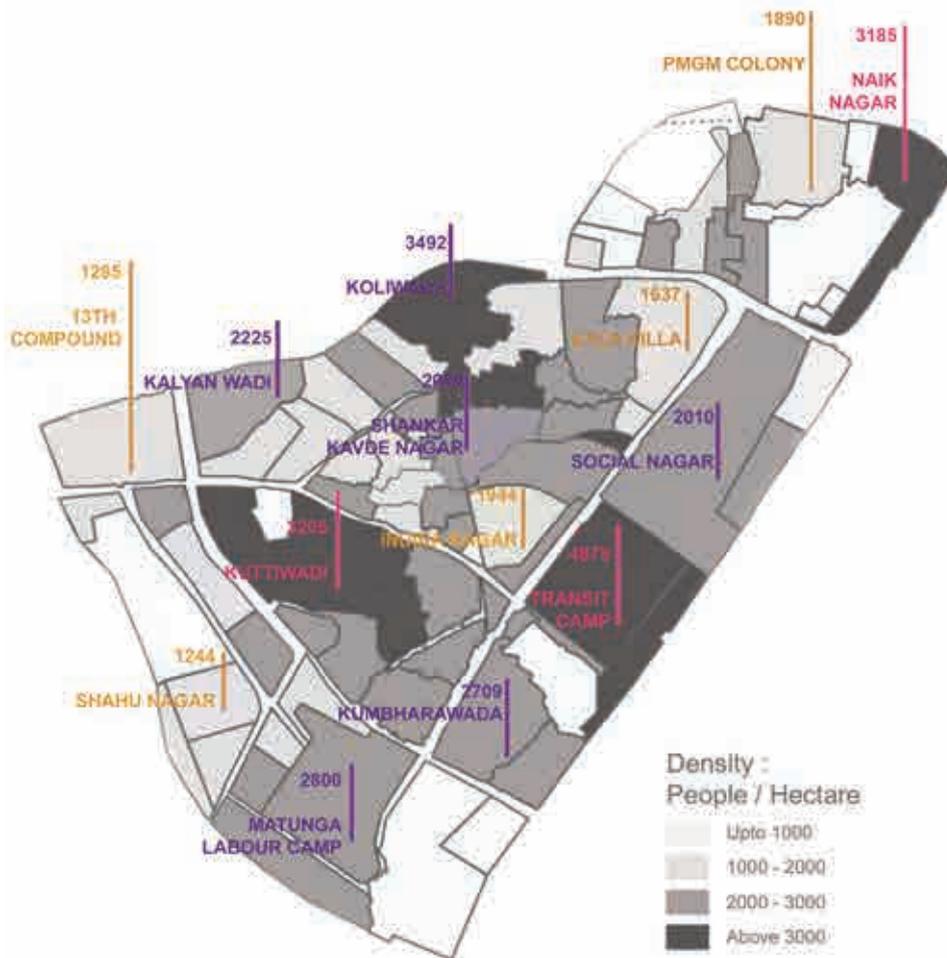
3. The Right to continue their work from place of establishment:

80% of those employed, work within Dharavi. This is primarily an informal, decentralised production process relying on a network of small scale and home-based production units. The SRA norms do not recognise and undertake to provide space for economic activities. This contributes to resistance to the redevelopment plan.

Conventional planning norms fail to function in such densities. Requirement of a new planning model is essential.

LOCATION	AREA	POPULATION	DENSITY
INDIA	3,287,590.00 KM ²	12,105.69 Lacs	3.64 people / hectare
MUMBAI	603.00 KM ²	124.79 Lacs	296.50 people / hectare
G - NORTH	9.07 KM ²	5.99 Lacs	660.46 people / hectare
DHARAVI	2.04 KM ²	3.40 Lacs	1,420.50 people / hectare

Comparative land area, population and densities, Census 2011



Map showing densities in Dharavi neighbourhoods, KRVI-UDRI, Density and Amenities, 2014

Challenges of Dharavi

1. Land - There is a small percentage of land whose ownership is unknown or unclear. Dharavi has grown organically, being declared a slum only in 1971, resulting in older settlers such as Kolis or Kumbhars to claim ownership on the land. Insecurity of tenure is a direct consequence of uncertain land ownership and no data on land use patterns. Some legitimate legal policy to reduce insecurity is a key challenge.
2. Institutions - Dharavi is spread over parts of the municipal wards of Sion, Bandra, Kurla and Kalina in suburban Mumbai (Apte, 2011) and residents do not have a common municipal representative. Further, the concerns and issues of the residents of Bandra and Kurla may be very different to the concerns of Dharavi residents and possibly in conflict.
3. Data - We do not have adequate, consistent or accurate data on Dharavi. Developing a policy with worse than incomplete knowledge is a recipe for failure.
4. Lack of infrastructure - The three problems of flooding, lack of access to water and sanitation and polluted water bodies are related. It is paradoxical that while Dharavi acts as the recycling centre for Mumbai, it does not have a solution for its own solid waste.
5. Institutions - Our institutions still use top-down approaches and the bureaucratic mentality equates spending money to a task done. Essentially, policy making in Dharavi is hampered by the lack of understanding of how Dharavi functions and this leads to faulty policy making. Unless and until policy makers and planners treat residents as partners, ideas will have a limited impact like the DRP.

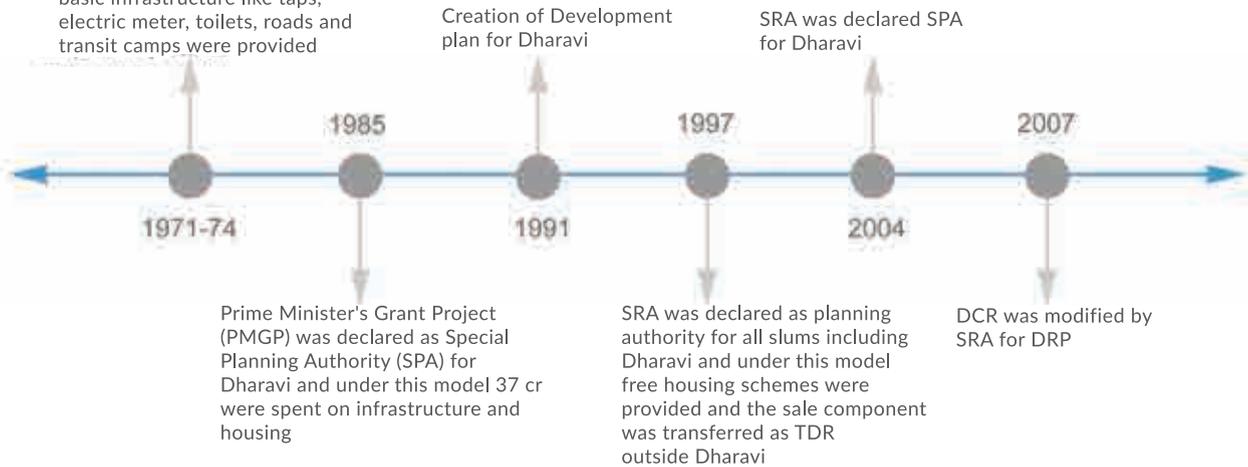
Before proposing a new framework for Dharavi, it is imperative to study the failures of previous models and limitations of existing ones.

Failure of Earlier Models

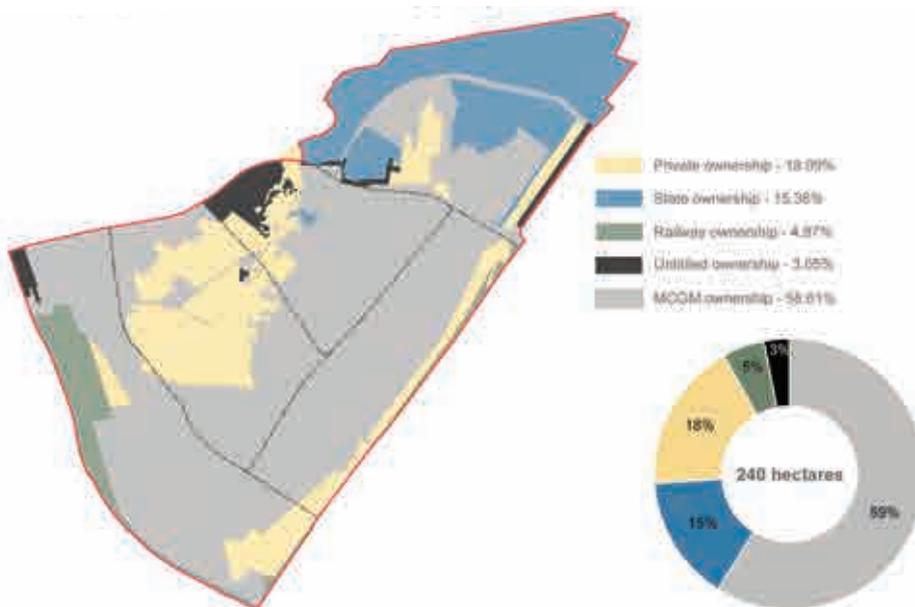
1. None of the previous models could address a basic fact that the whole of Dharavi does not qualify as a slum.
2. A clear and transparent survey recognising all categories of Dharavi residents (owners, tenants, sub tenants, etc.) has not been conducted.
3. Failure in acknowledging greater economic and affordable housing contributions made by Dharavi to the city.
4. No participation of the community in any of the redevelopment plans.
5. All plans and proposals have only been with a focus to make this a viable project and exploiting the real estate potential has been the main agenda.
6. 1991 Development Plan failed to acknowledge the then existing land use.
7. FSI tool inadequate and unrealistic to address the existing density and infrastructure.
8. No link between Dharavi infrastructure and Greater Mumbai infrastructure plan.
9. Conflict of interest between private builders and community needs.
10. SRA typology inadequate to address existing land use.
11. None of the earlier or existing models have clarified the issue of land entitlement.

The SRA during its survey has chosen to ignore cultural boundaries. The same survey boundaries of real estate are augmented to form sectors that form the basic module of the redevelopment model.

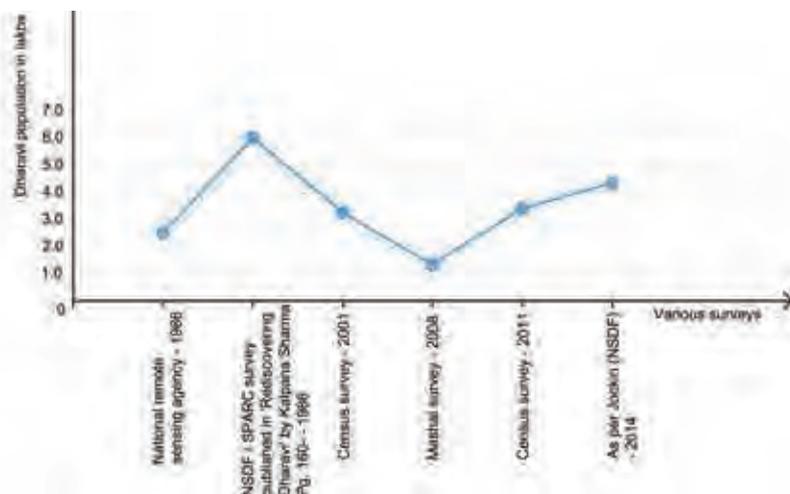
According to the Maharashtra Slum Areas Improvement, Clearance and Redevelopment Act, Dharavi was declared a slum and under this act basic infrastructure like taps, electric meter, toilets, roads and transit camps were provided



Dharavi planning model time-line from 'Dharavi Presentation' prepared by KRVI



Dharavi - Land ownership map as per SRA records



Graph showing speculative population of Dharavi as per various surveys conducted over the years

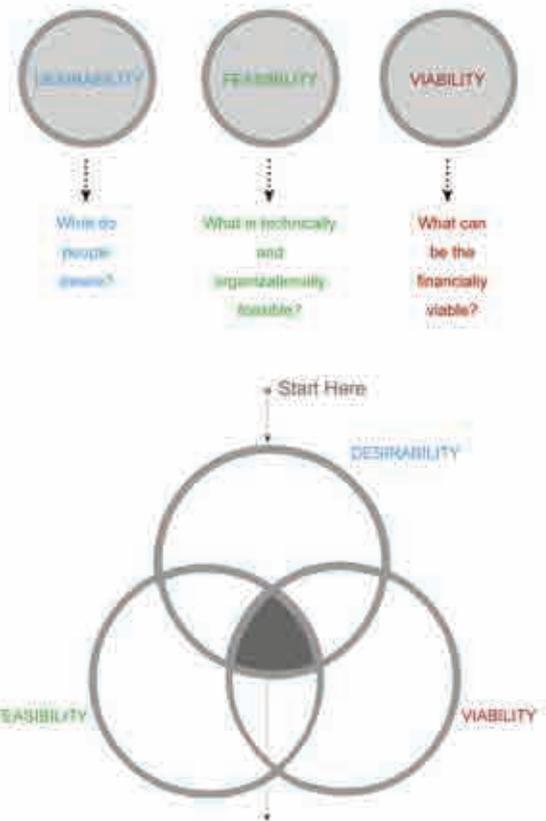
GUIDING PRINCIPLES

Any new framework, at the least, must fulfil the basic criteria to:

1. Be a participatory model;
2. Define a clear mandate for land ownership and land tenure that is acceptable to the community;
3. Introduce a transparent process for population, household and infrastructure survey that is inclusive of all resident types;
4. Envision an innovative development tool that can accommodate flexible land use policy and building typologies;
5. Provide basic infrastructure with least disruption.

The proposal is built on self-development through three key models:
 Human-centered Design
 Community Land Trust
 Form Based Code

In particular, the methodology to analyse Dharavi and derive solutions is based on the concept of human-centred design which keeps people at the centre. The key element to make a particular idea successful is to first understand the desirability of the people for whom the idea is proposed.



The overlap created by the three lenses of human-centred design make the idea Desirable, Feasible and Viable

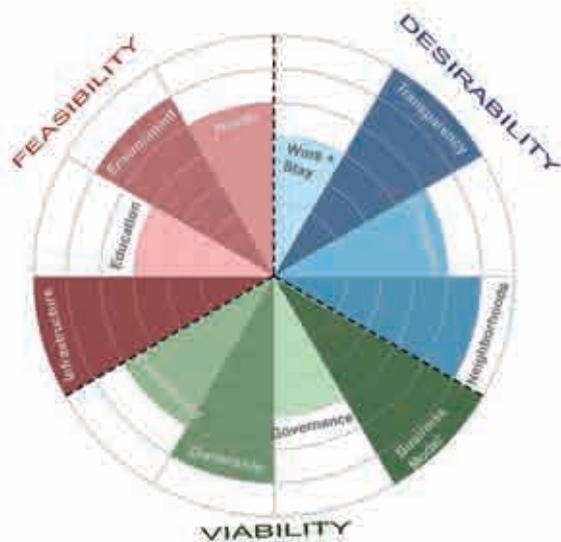


Diagram representing the layers of the three lenses of human-centered design



Mapping Desirability: Map showing multiplicity within Dharavi
 Source: Dharavi-Ground Up, Amita Bhide

Various individuals were surveyed and aspirations mapped. From this complex web emerged a fluid map of the community, its industries, cultures and ecosystems that are interdependent and sustainable within it.

Human-Centred Design

The proposal uses Ecosystem Mapping to simultaneously document and generate factual data to materialise the idea.

Data received was analysed at five levels - of the individual, population (resident and floating), community within and outside Dharavi, ecosystem within Dharavi and Field of Ecosystem where it intersects with the rest of the city and country.

This was achieved by mapping five different types of industries:

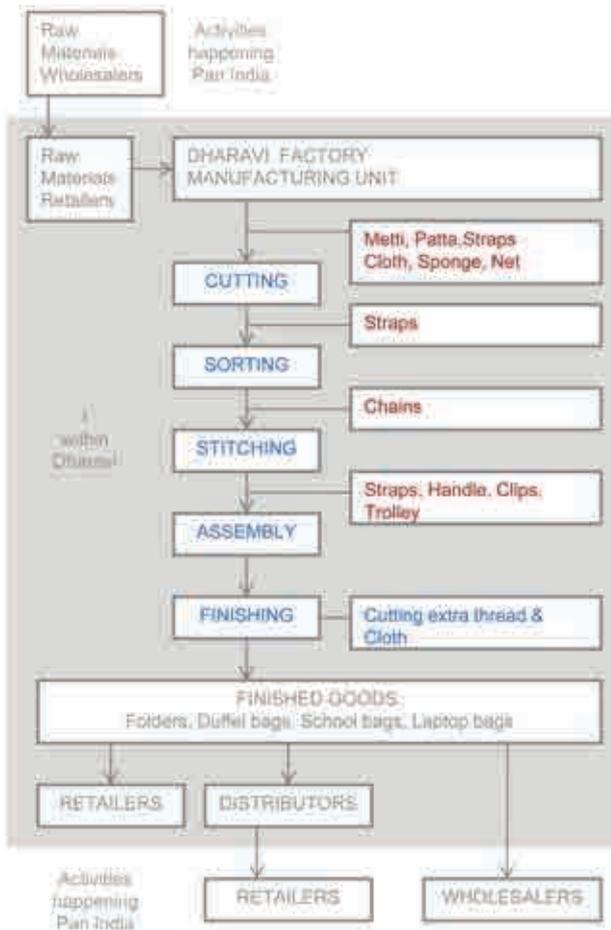
- A home-based industry of *idli* making
- Two small manufacturing units
- Two recycling industries

RECYCLING
METAL
GLASS
DRUMS
PAPER
PLASTIC
MOTOR OIL
CARDBOARD
HOME BASED
IDLI
SOAP
PAPAD
SOAP
JEWELLERY
SMALL SCALE
KITE
FOOD
BAKERY
POTTERY
LEATHER
CLOTH BAGS
JEANS AND SHIRT

PLASTIC RECYCLING		CARDBOARD RECYCLING		HOME BASED IDLI INDUSTRY		CLOTH BAG MANUFACTURING	
PERSON (Name & Profession)	ECOLOGICAL FOOTPRINT (planets / year)	PERSON (Name & Profession)	ECOLOGICAL FOOTPRINT (planets / year)	PERSON (Name & Profession)	ECOLOGICAL FOOTPRINT (planets / year)	PERSON (Name & Profession)	ECOLOGICAL FOOTPRINT (planets / year)
Anand - Sorter	0.33 Earth	Ram - Sorter	0.23 Earth	Family 1 - Female	0.40 Earth	Maqbul - Head	0.40 Earth
Kamala - Ragpicker	0.25 Earth	Rajkumar - Loader	0.25 Earth	Family 1 - Male	0.50 Earth	Shyam - Master	0.25 Earth
Waseeq - Owner	0.65 Earth	Deva - Owner	0.15 Earth	Family 2 - Male	0.65 Earth	Ramdass - Tailor	0.50 Earth
Rajesh - Grinder	0.35 Earth	Rajesh - Stacker	0.40 Earth	Family 2 - Female	0.35 Earth	Nawsad - Cutting	0.20 Earth
Kartik - Surveyor	0.56 Earth	Priyanka - Surveyor	0.65 Earth	Kushal - Surveyor	0.90 Earth	Kunal - Surveyor	0.40 Earth
Palak - Surveyor	0.39 Earth	Khadija	1.40 Earth	Sangeet	1.20 Earth	Saurabh	1.39 Earth
Kritin - Surveyor	0.70 Earth	Harsh - Surveyor	0.90 Earth	Devika - Surveyor	0.80 Earth	Drishti - Surveyor	0.70 Earth

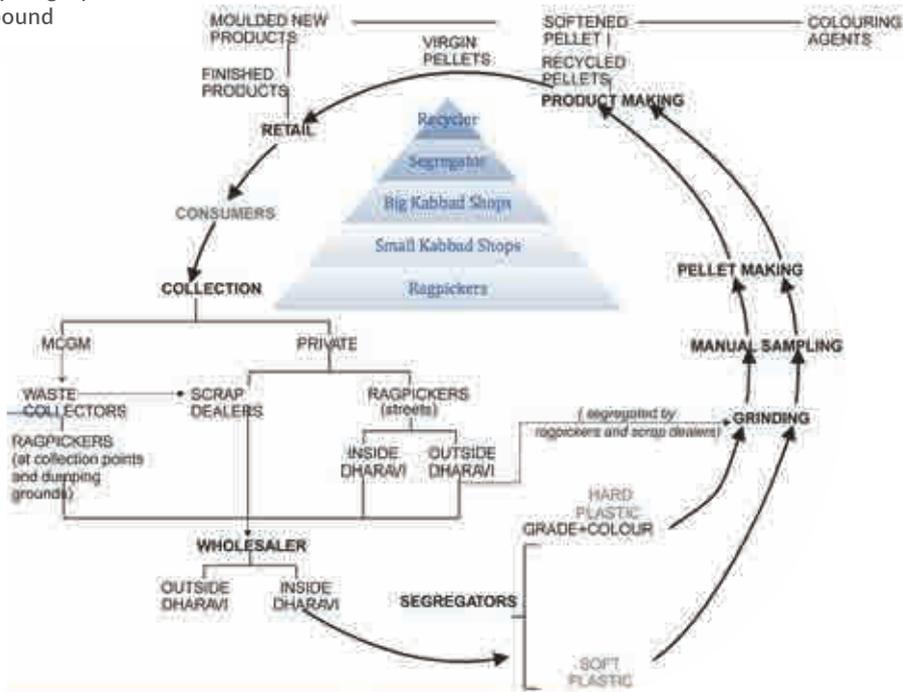
Ecological Footprints

Cloth Bag Manufacturing



Plastic Recycling Cycle

13th Compound



GOVERNANCE

Community Land Trust (CLT)

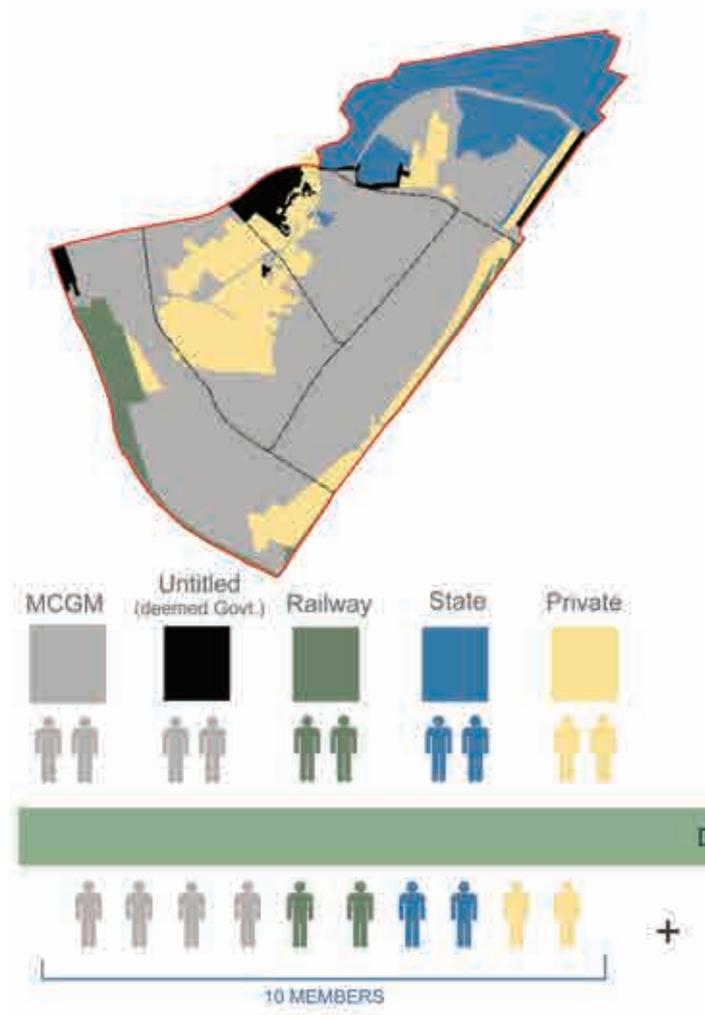
A community land trust is a non-profit corporation that develops and stewards affordable housing, community gardens, civic buildings, commercial spaces and other community assets on behalf of a community. "CLTs" balance the needs of individuals to access land and maintain security of tenure with a community's need to maintain affordability, economic diversity and local access to essential services.

Legal Framework

This framework ensures the residents of transparency of the organisation system by declaring DCLT as a new legislation with its working subject to RTI. This makes DCLT a Special Planning Authority (SPA) for the Dharavi region.

- Formation of DCLT - New Legislation
- Chairman - Ex Officio Position
- Working of DCLT subject to RTI
- Decision making powers of Trustees and Chairman to be defined
- Eligibility of beneficiaries of the DCLT
- DCLT to grant leases to beneficiaries so as to retain overall control of the land use
- Transfers in the Dharavi area to be subject to the DCLT's approval
- Overriding effect of the charter legislation over other State laws

The board of trustees will comprise representation from landowners, community and government, NGOs, experts. The board will be elected every five years by the voting members of the community, it would then be in charge of various Management and Action committees for operation and maintenance of the DCLT.



A model which addresses issues of land and tenure and includes community participation is the concept of **Dharavi Community Land Trust**.

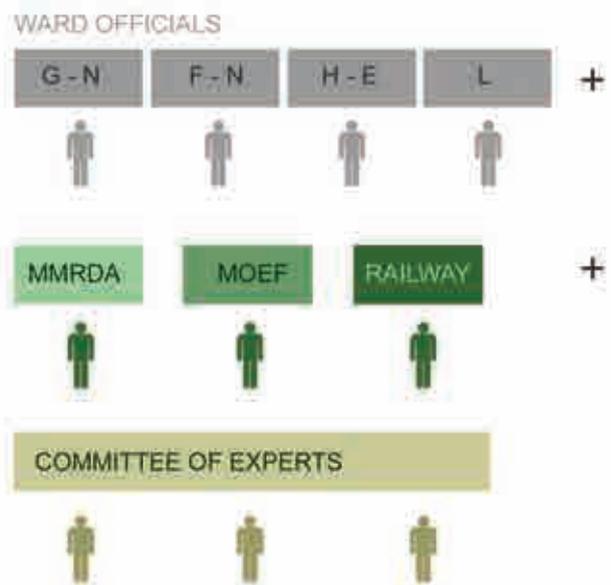
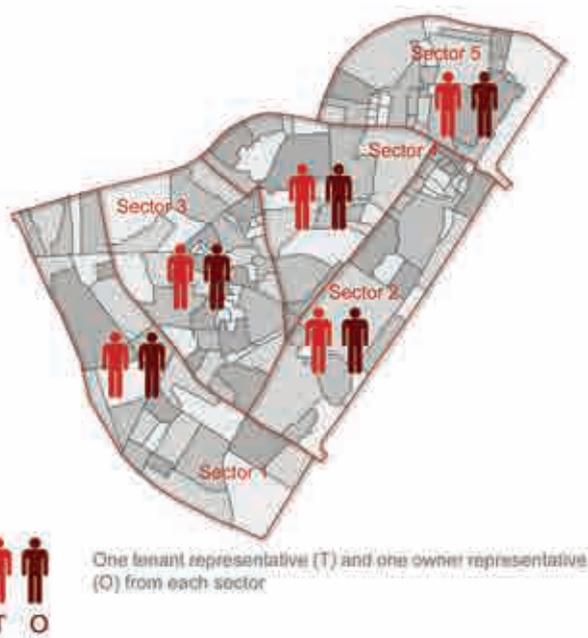
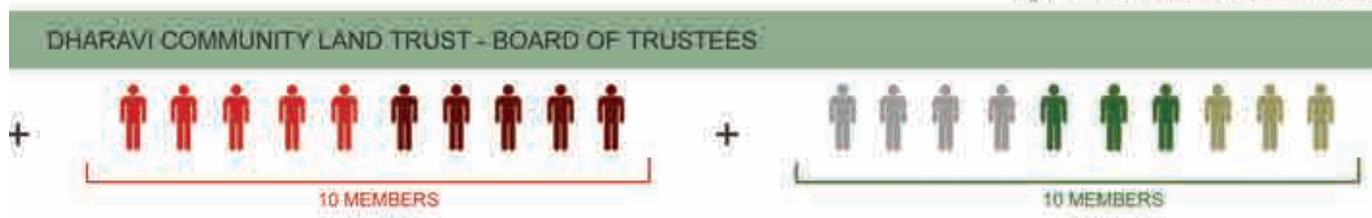


Fig 1: DCLT - Formation of Board of Trustees



DCLT is made of three equal parts with equal decision making rights. The decisive majority lies at 75%.

Tripartite Governance

1. Representatives of Landowner's Association

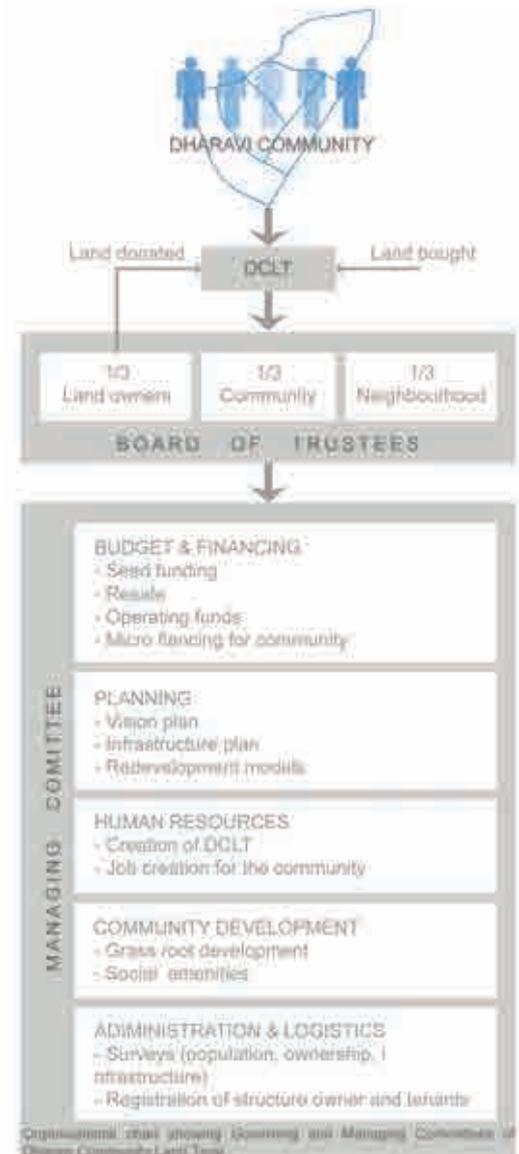
The representatives will be nominated by a Landowner's Association and landowners who will have donated the land to DCLT and approved by the community. This first part will include representation from MCGM, State, railways, private owners and housing societies.

2. Representatives of Community

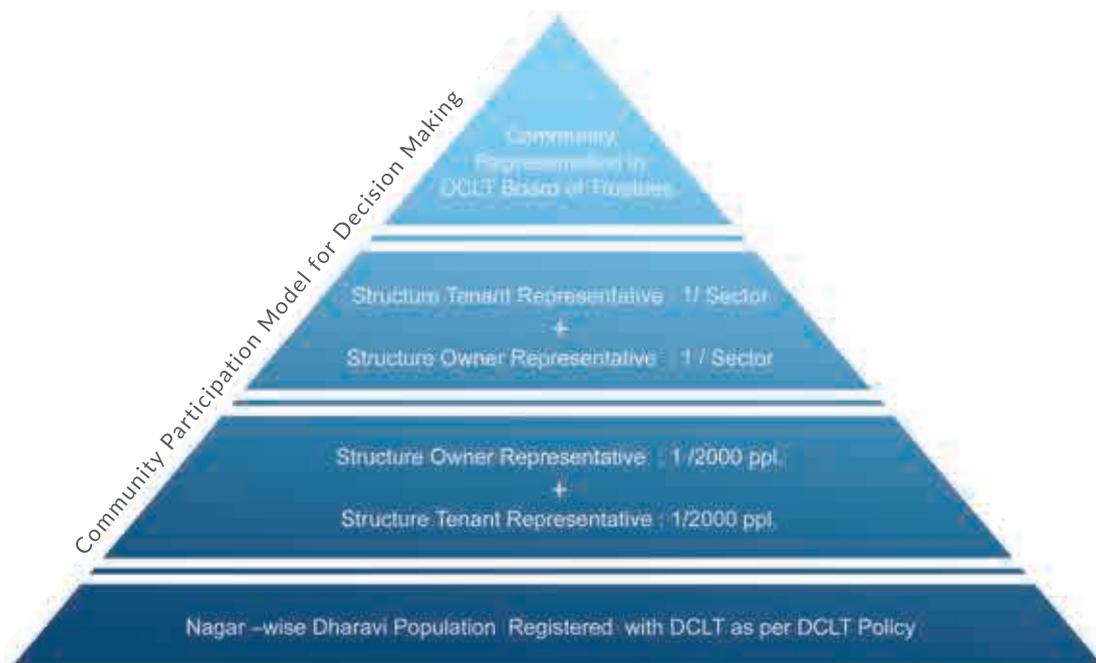
The second part will be represented directly by the community (both structure owners and registered renters). The representatives will be elected directly by the voting members first at a cluster (*nagar*) level and finally at the sector level. These nagars will be considered as the smallest operating unit for all planning, organisational and operational purposes. Representatives of each sector will be part of the board for a period of five years. The nagar level representatives will further go ahead and form a local DCLT administrative and planning committee.

3. Representatives of Neighbourhood

For the third part, government representatives from the neighbourhood community as well as an expert committee consisting of professionals, NGOs working directly with Dharavi residents can be nominated and approved by the community. The board of trustees will be elected every five years by the voting members of the community. The Board will then be in charge of various Management and Action committees for operation and maintenance of the DCLT.



Organisational Chart: Governing and Managing Committee of DCLT



LISTEN

During the Listen phase, the Design Team will collect stories and aspirations from the people. Conducted through well researched technical field workshops.



EDUCATE

During the Educate phase, the Design Team will inform about their rights and the power of registering themselves. During this phase the people have to exercise their Right to Live in Dharavi by registering with the DCLT.



CREATE

During the create phase, the Design Team will work together in a workshop format to translate what they heard from people into frameworks, opportunities, solutions, and prototypes. During this phase, they will move together from concrete to more abstract thinking in identifying themes and opportunities, and then back to the concrete with solutions and prototypes.



EXECUTE

The Execute phase will begin to realise the selected solutions through rapid revenue and cost modelling, capability assessment, planning and construction. This will help the launch of new solutions in Dharavi.

Community Participation Model

The Community Participation Model of decision making is built at the nagar level on the pillars of listening, educating and creating with the people of Dharavi. Representatives of both, structure owners and tenants, ascend this bottom-up approach to find equal place at the board of trustees in the DCLT. The most significant aspect to make the model feasible even in its technical stage is people's participation.

Voices of the residents are heard at the top level as they are generated from the bottom-up approach by creating various nagar level events.

FINANCE

The finance model will operate at three levels:

- Seed Fund
- Operation and Maintenance Fund
- Support Fund

To initiate setup of the DCLT the seed fund will be generated by pooling various funds and by mortgaging land to build low income rental housing. The seed fund will be utilised for the acquisition of land, planning, building infrastructure and constructing houses. The funding model makes provision for an Operations and Maintenance Fund which will be raised from the sale/transfer of buildings and leasing of land. In its third phase, the Support fund will make DCLT function like a micro financing institution.

1. Seed Fund : There are essentially two options for the seed funding of DCLT.

Option 1 : The seed money for DCLT comes from pooling of various funds available to Dharavi:

- State Government Fund
- Central Government Fund
- International Organisations
- CSR activities

Option 2 : After the transfer of land title to DCLT, some amount of land can be mortgaged to raise the seed funding.

2. Operation and Maintenance Fund : An initial 5 year period is suggested as a 'cooling off' period when no resale or transfer is allowed for

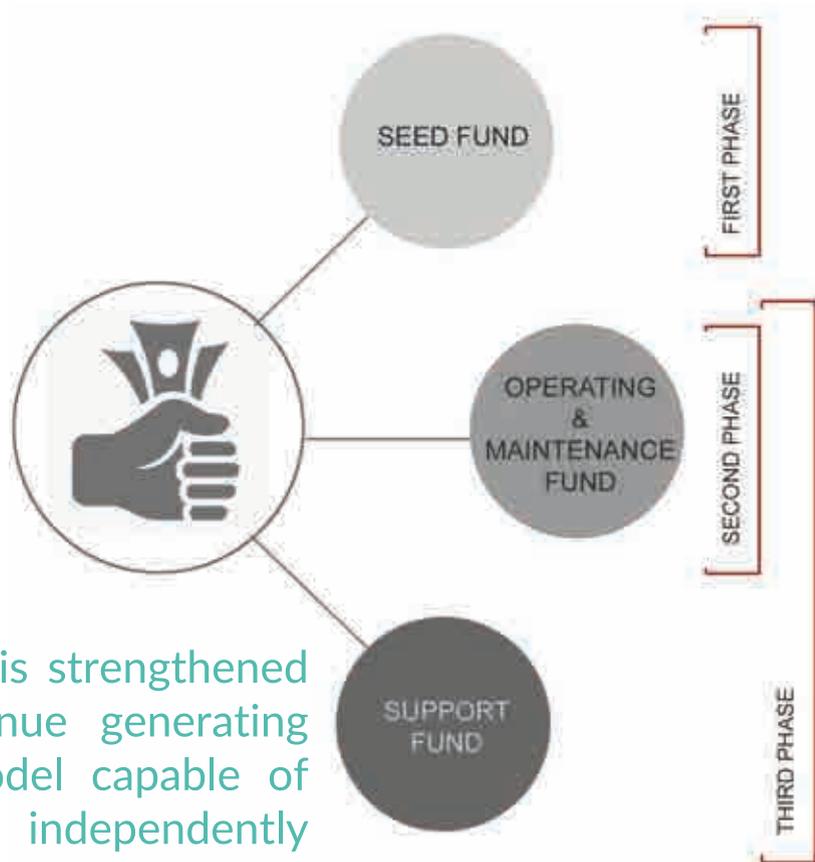
five years after the DCLT is formed. After this first phase, the CLT may earn money from the following sources:

- During sale/resale of property, a part of the land value increment will be given to DCLT which in turn keeps the housing affordable.
- The structure owners will go into a long term lease agreement with DCLT to secure tenure. This would generate a marginal income.
- DCLT will eventually build, own and operate a few rental housing and commercial structures that would be given out on short term leases or as daily/ weekly lodging boarding facilities to the workforce generating regular income.
- As per the agreed upon vision plan in later phases, Sector 5 land will be released cluster by cluster for sale development. This would generate substantial funds for DCLT.

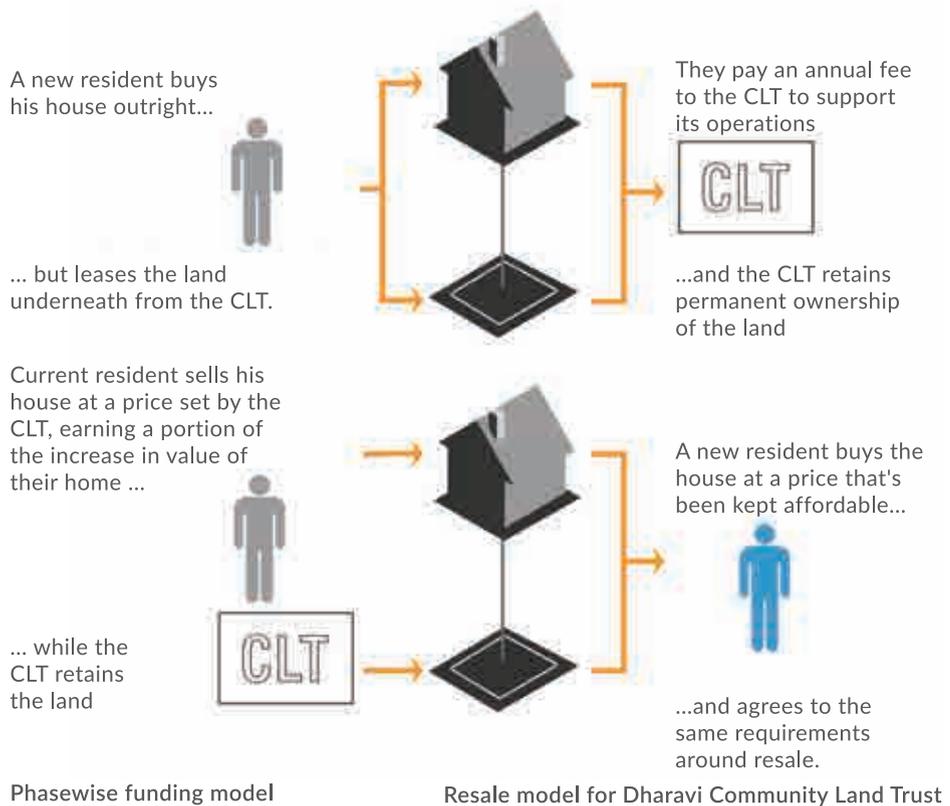
Resale formulae is as follows :

Index based: This is preferable because it leaves little space for corruption. Resale price=Original purchase price + (Purchase price * Index).

3. Support Fund : Once the DCLT has been established, it can, on behalf of community members, apply for various national and international funding available for individual poor households for affordable housing and can help further subsidise housing for EWS. DCLT can, with help of nationalised banks, set up micro financing institutions and give small loans for construction.



The DCLT is strengthened by a revenue generating finance model capable of functioning independently over a period of time.



PLANNING

Nagars encourage social harmony and should be recognised as the smallest planning unit.

Planning Unit

Dharavi is self-structured into distinct communities called nagars that have organised themselves either by place of origin, religion, culture, language or occupation and accommodate social and physical infrastructure network like places of worship, community halls, chowks, spaces for celebration etc. For the purpose of the human-centric design approach, it becomes imperative to negotiate these boundaries at the beginning of the process.

Land Use Plan

Three mandatory zoning boundaries:

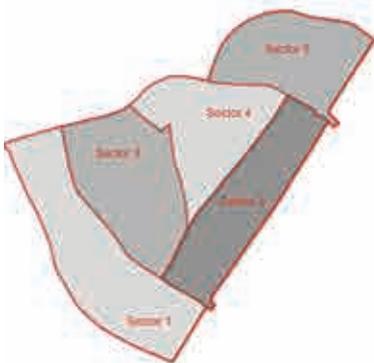
- Heavy and polluting industries with mandatory environmental mitigation strategies in Sector 1
- Existing and future open spaces
- Mixed use zoning - The land use zoning plan would mark maximum development potential zones along the primary road network and at important nodes.



Existing sector boundaries, Mashal Survey, 2008



Existing cluster boundaries, Mashal Survey 2008
There are 90 clusters as per the SRA



Proposed sector boundaries as per existing nagars



Proposed smallest level planning unit, nagar
There are 156 nagars

Built Fabric and Typology

The plan will prescribe:

- Maximum tenement densities for various nagars based on the Infrastructure plan
- Maximum ground coverage for future development in accordance with the open space guidelines

The form based code will prescribe:

- Maximum permissible structure heights along the road networks. Development along primary road networks and at important nodes will be allowed added heights in a stepped format
- Criteria for street façades, terraces, plinths, community spaces etc.

Open Space Strategy

The strategy will prescribe:

- Mandatory community space requirements for all future developments
- Models of flexible usage of space to maximise existing resources
- Usage of interconnected terraces in each nagar to add a layer of recreational space on rooftops
- Flexible, pedestrian-oriented usage on the tertiary street network to double up as community space

Infrastructure Plan

The infrastructure plan will provide a phase wise, incremental development strategy at the nagar level to meet the projected future population in the areas of water supply, sanitation, electricity, solid waste disposal and telecommunication in collaboration with public and private agencies. The DCLT will manage the maintenance of basic infrastructure on behalf of the community.

Redevelopment Plan

The following redevelopment model options are available to individual nagars:

1. SRA model within the DCLT Vision
2. Site and services model
3. Slum improvement and upgradation model
4. Any other model under DCLT guidelines

Form-Based Code instead of FSI based development will generate the vision plan.

POLICY

DUAL OWNERSHIP

Land Ownership

Land becomes a Single Entity, the Dharavi Community Land Trust (DCLT) may own all the land. The land ownership may be transferred in a manner that the entity is a partnership between existing land owners. The DCLT may lease out land for a specific period of time. The suggested period of time is 99 years. Land will always be owned by the DCLT and will never be transferred to the building owner. Therefore, no concept of freehold will exist.

Buildings Ownership

Owners of buildings on land are provided with the exclusive use of their land. They own the buildings but not the land. The land can be leased to any entity. The building's buyer may be an individual homeowner, a cooperative housing corporation, a non-profit organisation or limited partnership developing rental housing, or any other non-profit, governmental, or for-profit entity. A two-party contract between the landowner (the CLT) and building owner will protect the latter's interests in security, privacy, legacy, and equity, while enforcing the CLT's interests in preserving the appropriate use, structural integrity and continuing affordability of any buildings located on its land. The DCLT may also build multi-unit rentals. In that case, they retain ownership of the buildings. These will especially cater to the larger rental population in Dharavi.

Perpetual Affordability

The DCLT is committed to preserving the affordability of housing (and other structures). The DCLT will retain the option to repurchase any residential (or commercial) structures

located upon its land, whenever the owners of these buildings decide to sell. The resale price is set by a formula contained in the ground lease that is designed to give present homeowners a fair return on their investment, while giving future homebuyers fair access to housing at an affordable price.

Perpetual Responsibility

The CLT has a continuing interest in structures on its land (and people residing in them), even after they are sold.

Voting Membership

Dharavi residents can become voting members of the DCLT. New residents and registered tenants having two or more year rent agreements with the DCLT can exercise their rights for overall development by voting.

Community Control

Two-thirds of the governing body will remain community members.

Tripartite Governance

This concept is explained further under the Governance section.

Flexible Development

CLTs accommodate a variety of land uses, property tenure and building types ranging from housing, commercial, industrial, educational to parks and gardens.

The policy framework ensures residents of transparency by declaring DCLT as a new legislation, working as an SPA.



Dual Ownership Concept

Source : Base Figure from Dharavi: Informal Settlements and Slum Upgrading, University of Melbourne, Source: Roots of Community Land Trust by John Davis on behalf of National CLT Network

Other Legislations to be Synced SPA and Development Plan

DCLT to be declared as a Special Planning Authority for the Dharavi Region. Separate regulations should be framed by the DCLT to then implement a development plan for Dharavi.

Acquisition and Transfer of Land

Land within Dharavi to be acquired by the State government and transferred in favour of the DCLT.

Grant of Lease

DCLT will be entitled to lease parcels of land to entities for a limited period of 30 years and renewable at a premium.

Beneficiaries

Every person entitled to occupy premises or land parcels in Dharavi will be beneficiary of the DCLT. Initial beneficiaries will be those occupying premises in Dharavi for a continuous period of 5 years.

Form Based Codes for Low-rise High-density

This is a land development regulation that fosters predictable built results and a high quality public realm by using physical form (rather than separation of uses) as the organising principle. A well-crafted code is the most effective form of development regulation for shaping pedestrian-scaled, mixed-use and fine-grained urbanism. This approach contrasts with the focus of conventional zoning on micro-management and segregation of land uses, and the control of development intensity through abstract and uncoordinated parameters (e.g. Floor Space Index (FSI), dwellings per acre, setbacks, parking ratios, traffic level of service), to the neglect of an integrated built form.

The Components of Form Based Codes are :

1. A Regulating Plan
2. An Urban Design Plan
3. Building Form Standards
4. Public Space Standards
5. Architectural Standards

Modified Measuring Index

Dharavi would drastically fall short of amenities if compared with the Urban and Regional Development Plans Formulation and Implementation (URDPFI) norms.

Recognised amenities and social infrastructure assets surveyed and documented in highly dense, organically grown urban fabrics in mixed-use conditions fail to register two major aspects of social uses:

- First, the spaces inside structures perform multiple tasks but these activities are not counted as a part of amenities because it is not conducted in a formal building. The multiple use of the same space is also a key factor in building a strong community structure.
- Second, tertiary roads as community spaces. The narrow inner lanes which are vehicular free besides being used as a vital pedestrian link performs many other functions. To begin with, it is a living room for some houses yet for another set of people it is a space to conduct and attend weekly prayers.

There needs to be a new measuring index to make such spaces accountable within the requirement of the formal format for providing infrastructure in highly dense areas. The interconnected network of these spaces weave a very cohesive social structure which is very affordable, accessible and sustainable.

Under the DCLT sector design, introduction of such spaces as a part of the essential social infrastructure asset requirement is mandatory. This aspect can be innovatively used to merge with existing open spaces.



BRIDGING THE SHORTFALL	
MULTI USE OF SPACES	
Schools	= Night Stay Homes
Community Halls	= Health Clinics
Religious spaces	= Vocation Training
Tertiary Roads	= Social Spaces = Social Infrastructure



EDUCATIONAL AMENITY

	REQUIRED	EXISTING
Pre Primary	10.9 Ha	0.23 Ha
Schools	36.3 Ha	2.81 Ha
Integrated Schools	2.38 Ha	0.47 Ha
Colleges	4.91 Ha	0.44 Ha

The above required numbers are taken from URDPFI Guidelines for Population of 3,40,922. The numbers are sans playing field and parking area requirement. The DEFICIT in Educational Amenity amounts to **50.5 Ha**.

MEDICAL AMENITY

	REQUIRED	EXISTING
General Hospital	580 beds	250 beds
Intermediate Hospital	779 beds	-
Polyclinic	4 beds	-
Nursing Home	121 beds	-
Dispensary	2.41 Ha	0.09 Ha

The above required numbers are taken from URDPFI Guidelines for Population of 3,40,922. The Sion Hospital abutting Dharavi serves the population well and has a capacity of **1400 beds**. Many of the traditional dispensaries have not been mapped.

SOCIAL AMENITY

	REQUIRED	EXISTING
Community Hall	9.5 Ha	0.08 Ha
Recreational space	0.303 Ha	-
Meditation center	1.5 Ha	-
Police chowky/stn	6.11 Ha	0.18 Ha
Religious spaces	-	1.76 Ha

The above required numbers are taken from URDPFI Guidelines for Population of 3,40,922. In Dharavi the community recreational activities overlap onto the streets and places of worship. So the exact DEFICIT cannot be enumerated. However at present it seems to be approximately **15.4 Ha**.

PHASING

The vision plan is phased out to distinctively mark the contribution of the communities towards building an improved neighbourhood along with other stakeholders.

Phase 1

Educate on DCLT model
Seek nagar wise registration,
Identification of beneficiaries

Extent of Participation

Phase 2

Transfer of Land Entitlement
Election of nagar representatives
Creation of Board of Trustees and
Managing Committee

Involvement in Numbers

Phase 3

Create an Infrastructure and
Environmental plan for Dharavi for
Immediate implementation

Weightage of decision

Phase 4

Create a Vision plan on land
use, Transportation, Open
spaces and Amenities for
eventual implementation

Participation

Phase 5

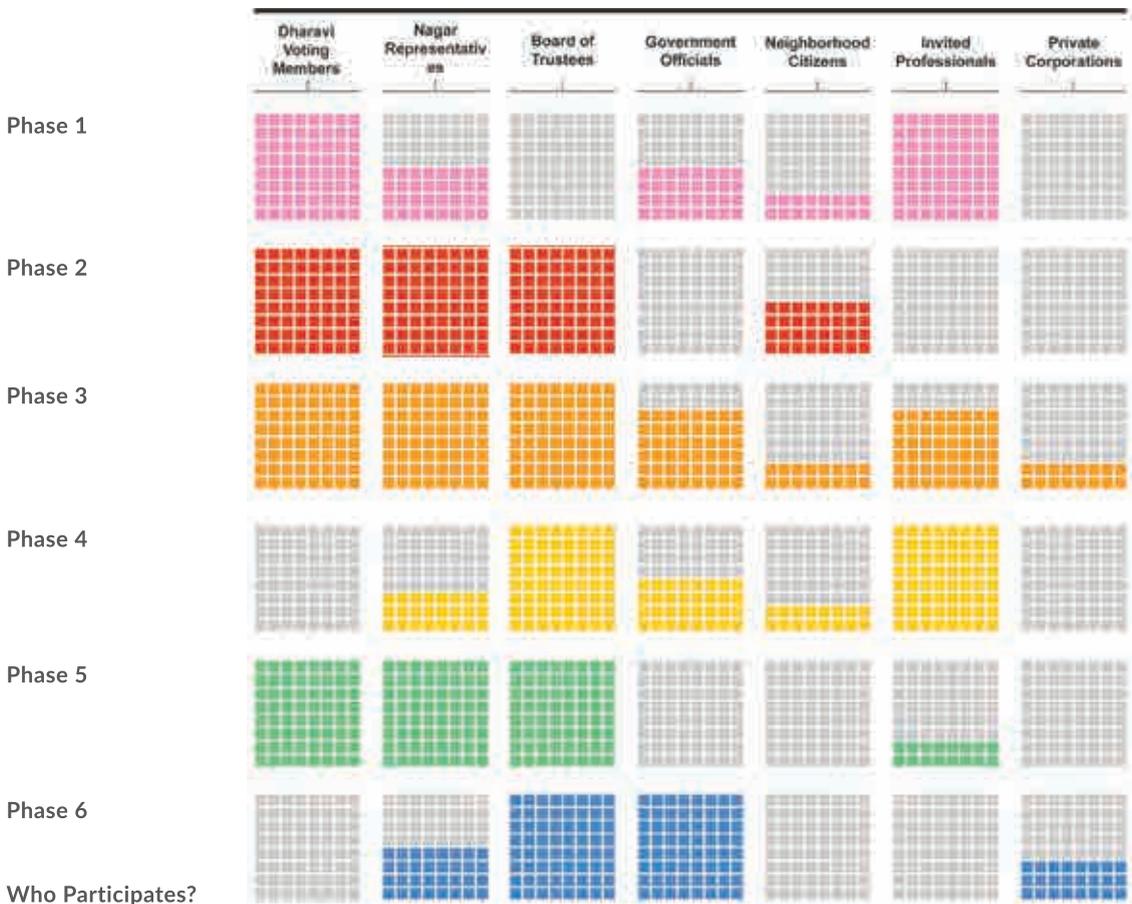
Conduct nagar wise workshops
to get feedback on the vision plan
and to build future scenarios for
nagar level development

Involvement

Phase 6

Prepare Funding, Implementation
and Approval strategies for nagar
level development

Key Responsibility



ENVIRONMENT

DCLT Mandates Proactive Planning and Decision Tool

The EIA process is a proactive planning tool to avoid and pre-empt adverse environmental impacts that might be caused or experienced by the proposed development.

The EIA is proposed to be linked to the decision making process. The purpose of the EIA process is to protect the environment through prevention. The environment works as a system and hence any new physical planning will have an immediate impact in its neighbourhood and can cause long term damages to the city's natural wealth. Before any planning exercise is initiated in Dharavi, the DCLT makes it mandatory to make a GIS based EIA Plan.

The aim of the EIA process is to avoid, prevent or reduce adverse environmental consequences of the proposed project.

Make EIA Recommendations Enforceable

The EIA recommendations should be sensible, practical and effective, with information about the five Ws (i.e. what mitigation measures would be implemented, by whom, when, where and to what requirements) and with a clear definition of the responsibility for implementing the recommended mitigation measures.

Practical Environmental Outcomes for the Environment and Community

The EIA process should deliver and communicate practical environmental outcomes for the environment and the community. The EIA process should be transparent and take into account public participation, but should be flexible to adapt to changing circumstances without compromising the environmental requirements.

DCLT Mandates Resulting Infrastructure Projects

- Natural Cleaning of the *nala*
- Storm Water Management Plan
- Waste Management Plan

DCLT Mandates Levels of Operation

- Macro City Level proposal to connect with city Infrastructure
- Micro Cluster Level proposal to connect within Dharavi



Source : Environmental Impact Assessment Ordinance, from Dharavi Mapping Informalities edited by Jonatan Engquist, Maria Lantz

Current Type of Drains:

Open surface drains and nalas

Current Storm Water Collection:

By gravity towards north-west

Disposal:

To river Mithi using SWD pumping station

Physical Conditions:

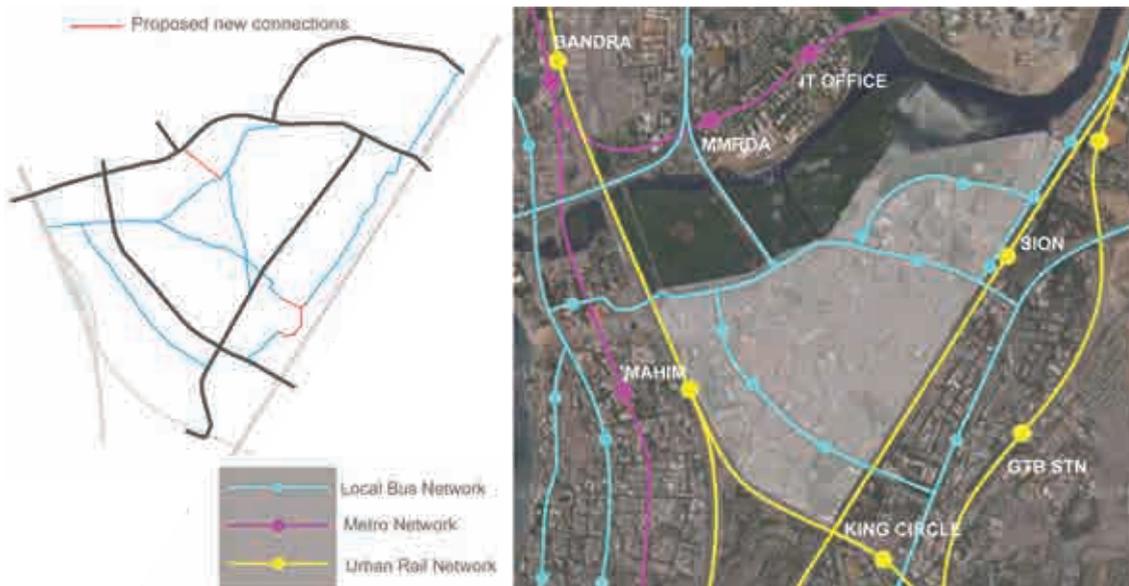
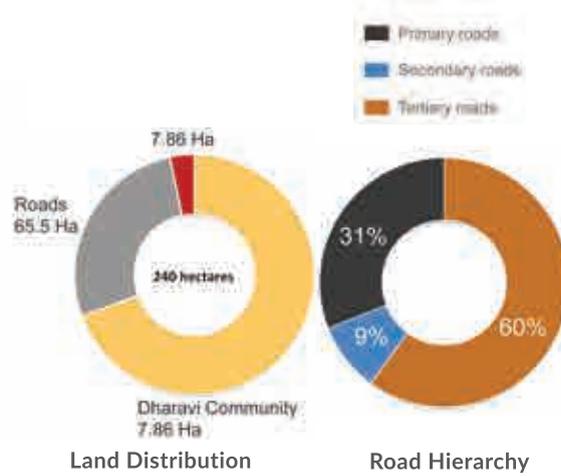
Majority of the drains are overloaded
Poor quality construction further degrades due to lack of maintenance

TRANSPORT

It is proposed to strengthen the existing secondary network of roads with an added connection at the T-junction. This connection however differs from the SRA proposal as the existing tertiary connection is proposed to be widened instead of introducing a completely new alignment. Another connection parallel to the Central Railway in the west is suggested, running parallel to the high tension line.

The walkability within Dharavi is very high. We propose to strengthen this network by making all roads pedestrian and bicycle friendly and tertiary roads car-free.

Dharavi is very well connected with all three lines of the suburban rail network. The planned Mumbai Metro lines 2 and 3 will further enhance the connectivity of Dharavi to various parts of the city. Sitladevi, Mahim and Bandra stations on Metro Line 3 and MMRDA and Income Tax Office Stations on Metro Line 2 will be within 1 km walking radius of Dharavi connecting it to Charkop in the north and Mankhurd in the east.



Proposed new transport networks

SOCIAL INFRASTRUCTURE

Gallis (inner lanes) are spaces beyond transit corridors, they are used for street schools, community singing, processions and much more.

In the highly dense fabric of Dharavi, any unbuilt land is used as public space including the gaps between structures, *chowks*, inner lanes and spaces between houses. Official calculations rarely taken this into account. The vision plan proposes to transform these social spaces into infrastructure assets.

