SLUM

CITY

+

/

**re-connecting the city through
street-led slum redevelopment**

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Master thesis project in Sustainable Urban Design at Lund School of Architecture.

This superstition symbol for good luck is seen hanging on walls all around Dharavi.

SLUM + CITY

/
re-connecting the city through
street-led slum redevelopment

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FOR WHOM
ARE WE DEVELOPING
OUR CITITES?

Slums take over the cities. With growing economic gaps and rapid urbanization, informal settlements and illegal squatting is often the only way for poor to get shelter in the expensive cities. And the global response to the needs of the poor? Tear the slums down, build housing only the rich can afford – and force the poor away from the city.

Slum redevelopment has long been and is still often about finding a way to relocate the slum dwellers in order to free the land to be sold to investors that will build more malls, sports facilities, office buildings and housing that will benefit the rich and the middle-class that can afford living in the city. For the poor this usually only means having to squat somewhere else, further away from the city and from work.

I believe that cities benefit from heterogeneity and diversity - it is what makes them interesting and attractive. If a city loses its role of being a melting pot for different groups of people it can never be sustainable. It is in the conflicts between those groups that the vividness of cities lies.

Slums are not sustainable, not healthy nor worthy places to live. But forcing the poor people out of the cities is equally unsustainable. There must be ways for poor and lower-income groups to still live in the city, but under better conditions. In cities all over the world - in slums, favelas and shanty towns – the poor has started solving their housing problems in self built neighborhoods. Why not give the people of these neighborhoods a fair chance in the city, learn from what they have started and build onto it instead of bulldozing their homes away?

WHAT IS A SUSTAINABLE SLUM

[…]

"the most sustainable environment for an animal is that which is most propitious for its happiness. In the same way, the most sustainable city is, before anything else, the most propitious to human happiness. Although human happiness has many definitions and requirements, in terms of habitat it demands elements such as being able to walk and play; having contact with nature such as found in parks, trails and waterfronts, being able to see and be with people, and feeling included and not inferior."

Enrique Penalosa in "Politics, Power, Cities" (from The Endless City)

feeling included and not inferior

having contact with nature such as found in parks, trails and waterfronts

being able to see and be with people

being able to walk and play

WHY DHARAVI?

For a long time, Dharavi has been Asia's largest slum, situated in central Mumbai, India. It has been and is still discussed in newspaper and among groups of architects, planners, politicans and NGO's all over the world because of a controversial redevelopment project that was proposed for the area. Three years ago I spent a month in the area, getting to know people and mapping the life. The discussion had then been going for some time and much have happened since. The discussion is ongoing and change is soon to happen, and this discussion creates the foundation for my project around. **The goal of the project is to propose how a fair slum rehabilitation project could be done site-specifically, but also to universally discuss how slums can become assets instead of disadvantages for the global cities and the people inhabiting them.**

REFLECTIONS FROM ONE MONTH IN THE SLUM

In October 2012 I had the opportunity to, together with classmates and teachers from Umeå School of Architecture, spend one month in Dharavi, Mumbai. We were living in the outskirts of the area and spent the days getting to know people and the culture, dancing in festival, eating together with the inhabitants, making friends and bit by bit started understand ing some of all the layers of Dharavi. Here is a set of reflections and learnings from my month in Dharavi and Mumbai.

How would spending one month's time in one of the largest, probably most famous and notorious slum in the world be? What I quickly realised was that however well prepared I was before going, all the ideas I had were nothing but prejudices. After a month's time of mapping, oberving, talking to people, dancing and eating, my idea of Dharavi had changed completely. Many of my prejudices were turned around into something positive, but many things where also found to be worse than I ever could have imagined.

I had imagined Dharavi to be a miserable place, but in many ways it turned out to be quite the opposite. Dharavi for sure is a problematic place, but it is so much more than misery that strikes you when you are there. Dharavi is a survivor, and the positive spirit is a very bright shining star here. The dual feelings where many and my mind was constantly flipping between 'How can you even imagine taking this place away?' and 'How can people live under such terrible conditions?'.

Being positively surprised of a slum is dangerous, it makes you blind to the facts. Numbers tell the truth, and what the numbers say about Dharavi is the ugly truth of almost one million people living without safe water, electricity, systems for sewage, legal tenancy or even the right to go to the toilet.

The area where I spent most of the time is the oldest area in Dharavi, Koliwada. The small neighbourhood is in northern Dharavi, next to Mithi River, and was originally one of the fishing villages that even Mumbai grew out of. Today, the long history means that the original Koli families that are still there often own the land where they are staying and have had time to build up a fairly comfortable living situation. The Koli families

often rent out parts of their houses to poorer families, and there is a clear gap in life standard between those two categories. But in general, the houses in Koliwada are in better condition and built out of better material than in the rest of Dharavi(. People work and are able to) put their children in schools in the city and have private toilets.

I am aware of the fact that Koliwada is by far the most comfortable neighbourhood in Dharavi (which) have affected my impression of the slum, so I will try to look past that to form a truer impression. I try to see the good things about Koliwada as inspiration for how the rest of the slum bit by bit can be improved, if all the bad things where dealt with.

So there is many things that I find amazing with Dharavi, and many things are horrible. Exactly what I am referring to will follow later on, but I first want to try to explain some aspects of the life in Dharavi. Things that need to be pinpointed, understood and punctuated in order to make the work with redeveloping Dharavi fair. If changes are done with this in mind and in collaboration with the residents, Dharavi could not only help a lot of people out of poverty but also become a wonderful place to live and a prosperous and attractive part of the city. An inspiration for neighbourhood planning, instead of a place everyone just wants gone.

Mumbai is the City of Dreams. Labour-needy industries and Bollywood has long made people come here, and the promise of work still feed a constant immigration, which by now has turned Mumbai into one of the most populous cities in the world. Every minute 30 people move to one of the cities in India, and most of them end up in a slum area. In Mumbai, the slums house 60% of the city's population.

One month in Dharavi gave me the opportunity to meet with and talk to a lot of different people, some of them several times over the weeks. Jensey, in green, told me about her and her families life in Koliwada and her dreams for the future. Here with her sister in the doorway to their family's house.

If you come to Dharavi you are lucky - it is the prime slum of the city. Here are the chances good to find a job and the climate right even to start your own business - the location is great and there is a large network. There is an amazing business climate in Dharavi, with a huge network, much innovation and endless possibilities. Jobs are offered and the area is a stepping stone to the rest of the city.

Dharavi is a goldmine for the economy of Mumbai, and India. Around 2000 factories of various types and sizes are organised in the slum's 1,7 km square kilometers (an area half of the size of Central Park in New York City). Most of the businesses are illegal, but they generate work for the almost 1 million residents of the area and provide an estimated annual revenue of 665 million dollars. People and companies of Dharavi provide staff and goods to all of Mumbai and many even export out of the city. All around the world products from Dharavi can be found - a proof of how dependent we are of informal structures like Dharavi, with cheap and unlimited labour, cheap rent, no controls, no regulations.

Almost everything in Dharavi is illegal. Which is why there is jobs and why people can find an affordable place to stay. Every growing city in the world needs places like Dharavi in order to house new-comers. But in order to be secure and fair, it needs to be legal.

The hindu population has a very strong belief in destiny and reincarnation, and in many ways they are still in their mentality stuck in the since-long-forbidden cast system. The positive side of it is that there is always something to fight for because the next life you are born into can always be better. Many of the people I met during my stay in Dharavi strongly lived their lives out of those principles, which makes the people full of ambition, innovation and care.

The strong belief in karma also provide the hindus with a humble care for their surrounding. The family is most important, you would never by choice abandon it, and everyone wants to give their children the best in order for them to take over as responsible for giving the family a better future. Many of the poor families have very strong traditions, and religion is (a huge) part of it. The communities in Dharavi are often divided by religion and origin, but everyone still live side by side and celebrate all

type of religious festivals together in shared festival spaces. The small area has 27 temples, 11 mosques, 6 churches.

Even though Dharvai is a mix of all types of people - origins, religions, genders, ages - this does not help with connecting the area to its surrounding. Dharavi is closed off from neighbouring areas physically by railway tracks, large highways and a swamp, but it is also mentally closed off. Many neighbours would never set their foots in Dharavi and want nothing but for it to go away. To develop Dharavi, Dharavi must be made attractive and accepted by the rest of Mumbai.

Pride is also very present in the Indian mentality. In Dharavi, people will invite you in and proudly show you what they have built and what they provide for, rather than being ashamed of a too small or too simple home. They seem to gladly share, however little they have. But they are also well aware of their situation and can discuss what is wrong with it. A home that is flooded a forth of the year, not having enough money to feed your family or as a girl not being able to safely go to the toilet is things that are difficult to ignore.

A long list could be made with examples of how the governments, (both on a) local and national (level), do not support the fight against injustice in India, but (at least) one things have they done very well. Since a couple of years back a system has been worked out where all children in India are offered 8 years of free education. The government also offers a free meal of food every day in school. What is so smart about this is not only do the children get basic education and the so important language training, the free meal are incentive for the poorest families to send their children to school, just to have one mouth less to feed. You do se many children in school uniforms in the lanes of Dharavi, and it is with the children you can communicate in English. Dharavi itself does not have many schools, but thanks to its central location, the children can walk to schools in the neighboring areas.

Many children go to school today, but unfortunately (there) are too many taken out of school too early because they need to work for their family. In the illegal business climate no one will control the age of workers and child labour is common in Dharavi. Many young girls are taken out of school or not allowed to go there by their families because of traditional reasons, because they are not allowed to go out on their own or because education is something they will never need.

Tradition and unwritten rules sabotage for the girls and women in Dharavi in many ways and the gap in equality and opportunities is enormous between the gender.

The families who can make sure to provide education for their kids, gives them they opportunity to eventually be able to look for something outside Dharavi. A well-paid job in the south would be the dream, and if also a place to stay outside Dharavi can be bought (if) you have succeeded. In Koliwada, many children are enrolled in educational institutes all around the city and many of the men work outside the area.

This makes Koliwada a sleepy neighbourhood during day time. The connection between the families and extended families is strong and there is a strong community bound, but apart from that much of the life is focused outside Dharavi. Many of the young generations even have cars or motorcycles to move around with and friends from other areas of Mumbai to visit.

So how come so many, even when they have the choice to move, still stay? In Koliwada the ownership is probably an important factor, they have rooms to rent out for an extra income and rooms for future family members. The strong communities and closeness to families would be difficult to create elsewhere and the location of Dharavi, with stops on three of the main railway lines, is worth a lot for everyone who has to move outside Dharavi for work.

The situation in Koliwada may be different from others in Dharavi - the families often have a two room apartment to share by five or six, instead of a 10 square meters room shared by eight; the public toilets in the area is used by few compared to in other parts where one toilet is used by over a thousand people; the people have proper houses built out of proper material which protect them when the monsun comes; they also can afford to get fed and give their children education and they can afford to even consider moving elsewhere - but much is also alike. Simplified, the reason why people live here goes for entire Dharavi - closeness to family, location, jobs and housing. Everything is concentrated here, you work and live close-by. This makes it constantly alive.

When you choose to study the streets you will see so much that actually is beautiful and impressive. The network of streets, with a wide range of scales and levels of publicness are developed according to the needs of the people. In most cases, that means a clear lack of outdoor space and many houses, but every now and then a shared community square or workshop area pops up. The people use space in the smartest ways, sharing it with their neighbours with great flexibility. The communities are strong and show proof of collaborations skills in how they have managed to build up their little neighbourhoods with streets and small squares. You see that people put care in(to) their homes - paint them in strong colours to make them stand out and incrementally improve with better materials when they can. All the construction steps and the patchwork of materials and colours makes endless layers that never makes you bored when you walk the streets.

What is not so impressive is what sharing a ten square meter space with your family and extended family means. When you are a women and sometimes is not allowed to leave the house without a man, or when it is impossible for you to get some privacy or dangerous for you to go to the public toilets. The number of deaths and illness due to lack of sanitation and proper water handling, open sewage on the streets, dumping grounds everywhere and public space used as toilets (by boys and men) is also not so impressive. Neither is the fact that many streets, or lanes, are so narrow that no sunlight or fresh air can ever reach the apartment, not talking about how impossible it is for an ambulance or fire truck to reach it if something happened. All of those things together explains why Dharavi today is not an integrated and accepted part of the city, and why the people living here do not get an as fair chance to a decent life as the rest of the citizens. Changes in the physical layout of Dharavi must be made and the streets, its habitants and the businesses must be legalized, but hopefully the life and the people could still remain.

Who am I to think that I know something about life in the slum and make a project in India? The only way to even try is to try not to create more than I actually can, provide a structure for improvement and try leaving the design to the users.

INTRODUCTION

1. TO SLUMS

What is the definition of a slum? How come so many of India's population live in slum areas such as Dharavi? What is it that these areas offer, that keeps attracting people from all over the country to move to them?

Photo from a silent moment on a main street in Koliwada, Dharavi. Although physical and social living conditions often are below excepted standards in the formal city, the slum offers an opening to living and working in the metropolis.

WHAT IS A SLUM?

In most terms, urbanization is good. Cities and towns hourse more than half of the globe's population and the urbanisation movement is a leading force for the global economic development. As cities account for about 70% of the worlds total GDP, the rural-to-urban movement has also throughout history been the singel most powerful force to lift people out of poverty. (2)

However, with the rapid urbanisation in many growing cities around the world problems also come. When the local government has failed in providing for the new immigrants, slum formations have quickly evolved and with them situations of inequality, oftnen related to poor living conditions and informal and illegals economies.

' the most visible manifestation of urban poverty in developing world cities'

UN-Habitat

The phenomenon is seen especially in cities in the developing countries where the urbanization has been particularly fast, but in countries all over the world. There is several different names for the phenomenon - slum, ghetto, musseque, morro, favela, shanty town, campamento or villa miseria. The name depending on the place vary but the basic meaning is the same: a run-down area of a city characterized by substandard housing, squalor, and lacking in tenure security. (UN-Habitat)

In 2010, approximately one third of the urban population in the developing countries lived in slum areas. Until 2020, the slum population is expected to have doubled (UN-Habitat, 2010). But even though the annual growth of slum dwellers is estimated to 6 million people, the percentage of urban dwellers living in slums is constantly decreasing due to the fast speed of the growth of the cities.

The spontaneous, informal and uncontrolled villages, inside or in the outskirts of the city, are often the only affordable housing solution for the newcomers, but they also play an important role in forming the new life in the city. The network of people sharing a similar situation and contacts for work and establishment on the illegal market is often large and functions as a stepping stone. Of all new employment, the informal economy account for 85%. The slums account for jobs, but they also place people in the marigin of the society and outside all legal rights and systems.

Worth remembering is that there is no specific people living in slums - the dwellers can vary from all types of origins, economic and professional status and religion - and there is a great variety in appearance of slums, from simple shacks to more surprisingly permanent and well-maintained structures. In order to acknowledge the issue and find strategies to deal with it, attempts has long been made to find a politically correct and non-offending definition of what a slum is. The most established and widely accepted definition today was made by UN-Habitat in 2006. The definition deals with both the physical and social statuses of a slum household:

UN-Habitat's defintion of slum:

A slum household consist of a group of individuals living under the same roof in an urban area, lacking one or more of the following five amenities:

1. DURABLE HOUSING
- a permanent structure providing protection from extreme climatic conditions;

2. SUFFICIENT LIVING AREA
- no more than three people sharing a room;

3. ACCESS TO IMPROVED WATER
- water that is sufficient, affordable and can be obtained without extreme effort;

4. ACCESS TO IMPROVED SANITATION FACILITIES
- a private toilet or a public one shared with a reasonable number of people, and

5. SECURE TENURE
- de facto or de jure secure tenure status and protection against forced eviction.

A street in Koliwada,
Dharavi. The laneway offers
a shady extension to the
home and is often used by
women for household work.

WHY SLUMS?

What are the forces shaping the slum? How come so many people end up here?

With an urban population growth of about 70 million people per year, a lot of jobs, refuges and urban services are needed. Some countries and cities have during the last decades managed to urbanize without extensive falls in their economies, and hence prevented the formation of informal settlement, but most have not. Consequently, as mentioned before, more than half of the inhabitants of developing countries cities today live and work in such settlements.

On a national or larger regional scale, reasons for the increase of slum areas can be the effect of war, natural disasters, political turmoil or fractured patterns that comes out of it, such as increase in refugee populations, disruption in delivery of basic services, political instability, scarcity of land, shortage of formal housing or disparity in income distribution. Slums are found in all continents but the only major region which has succeeded in decreasing their number of slum inhabitants is North Africa, where efforts and investments in housing programmes and government policies has been handled on the larger regional scale.

The above mentioned factors force a rural-to-urban movement. In India, 32 people move from rural areas to the cities, every minute. In the city scale this leads to a competition over land, which the poor always loose. The leftover space in the city, land which ones was industrial, waste grounds or uninhabitable for other reasons, bit by bit gets densified and built. Space for pause in the city, oases, place for informal or spontaneous activities – or ground for the poor to scatter – get less and less and more and more commerce, business center and housing for the rich is built. When even the leftover space in the city is developed, the pressure grows on the poor to find new solutions for where to live. The options are often the even more uninhabitable places – dumping grounds, swamp deltas, poisoned industrial sites or dangerous infrastructural sites – or moving away from the city.

For a number of reason people escape the countryside to live in the city. The most important of them is the lack of work in the rural areas and the concentration of jobs in the urban areas. People come to the city in search for work and the more people the more pressure on housing prices. With lack of housing and housing prices triggered in the city, the formation of slum areas starts.

Despite awareness of the phenomenon, eagerness to grow and the will to create good cities many planning departments fail in offering housing for lower income groups. Urban planning practices often restrict rather than stimulate the variety in housing options and homogenous new housing areas for the middle-class or rich are taking over the land. With a growing middle-class, in general in cities around the world, and a lack of options in housing, not only poor life in slums today and many attempt for building for poor end up being bought by middle-class families. What might have been meant as a re-developments of slum areas, with the purpose to improve the situation of the inhabitants, hence fuels the informal by forcing the poor to move further out from the city centre. And forcing the poor away from the city the equality gaps are further fueled, when hours of income every day is lost to commuting time to the jobs in the city centre.

The effect of a more and more dysfunctional relationship between the poor and the growing wealth that happens when the city is segregated is that the capacity of the city is lowered. The city is dependent on the constant flow of people coming and a working class supporting the services and businesses of the city. The fact that the squatters are outside all legal systems and do not have access to basic services, amenities or infrastructure is a huge problem both for the squatters and the governments. Because of this, many countries and local governments denies the existence of slums and refuses to face the relating issues. According to UN-Habitat, this is perhaps the most challenging problem and counteracting force when it comes to lifting urban populations out or poverty in cities around the world.

SLUM REDEVELOPMENT

The idea of slum upgrading arose in the 1970's. The insufficiency of third world housing was at that point approach by subsidised mortgages and prefabrication – a strategy which provided housing, but not supply for basic needs such as water supply,

sewage systems and roads to walk on. By shifting the focus to instead provide the infrastructure, the where given the foundation and a stepping stone to start building their homes.

This was also the time when governments all around the world started recognizing squatted areas in their cities as slums. With the recognition came slum upgrading projects in some of the areas, roads were established and basic supplies of electricity and water was installed. Recognition of slums is still today a poverful and important eye-opener and first step towards upgrading. But for many of the slums that were recognized 1970's the imporvements that were made were quickly outdated and over overstressed when urbanization boomed in the coming decades.

Dharavi was recognized as a slum in 1971 and the three main roads – 90 Feet Road, 60 Feet Road and Dharavi Main Road – were built with underground sewage and electricity. The capacity of those link is today overloaded and little has been made to compliment the infrastructure. But since about 70-80% of Dharavi today is recognized as a legal slum most of the population gets supplied by municipal water a couple of hours every day.

Once the scattered area or informal settlement has been legally recognized countries around the world have different improvement strategies. How the process is carried out and who is included in the program also varies depending on city and who is in charge. Leading international forces, such as The World Bank and UN-Habitat have developed important guidelines and often initiate projects, but the local governments are in general responsible for conducting the projects.

A WORLD WIDE PHENOMENON

In **India** a nation wide strategy was presented in 2009 by president Pratibha Patil announcing that her government would invest in building affordable housing and aiming for a slum-free India before 2014. The strategy was to, rather than improving existing areas, build entirely new homes for the urban poor, which might one of the reasons why the program could not be realized. By the end of 2016, Indias slum population is expected to be 104 million people.

The idea of ereasing, starting over and building completely new homes for the urban poor is common, but a strategy

that contends with the idea of slum upgrading. The traditional methods of keeping numbers of slums down in **China** is to simply bulldoze the areas. Migrant workers coming to Chinese cities face a tough situation when informal settlements are demolished and legal low income housing is unavailable for everyone not legally registered in the city.

In **Marocco** the organization The Most Clearing House Organization have implemented a project in Agadir with the aim to instead relocate families living in a specific slum area with as little social disruption as possible. With a limited plot in an urban context and with specific land constraints multi-family houses were the best solution. Small row-houses and apartments were offered for sale or to rent to families scattering an adjacent area and the families were helped with demolishing their shacks and bringing belonging to the new houses. Marocco has no culture in either multi-family housing or rentals so a community cooperative was introduced as part of the planning process to create a knowledge about the benefits in choosing the new housing typology. Special community working groups were established in order to make the project fit the needs of the people and many residents could during the construction phase gain paid employement in work related to the construction.

A successful example of how slum dwellers and their community have been re-established in a different area is a project initiated by Cities Alliance, the Brazilian Government and the World Bank in **Salvador, Brazil**. In order to eliminate slum settlements in an area of the city the slum families were moved into houses in a newly developed area. Incorporated in the new area was access to services utilities as well as education. Over a 5-year period 984 families were moved, of which all had the opportunity to also participate in a courses on how to improve their health and finical situation.

To my opinion a successful example of redevelopment is when the projects can be used to lift the slum dwellers out of poverty and get helped to themselves engage in the improvement of their situation. Slums aer often densely populated and unorganized and many governments in the developing countries can not afford paying for or maintaining large infrastructure projects. Community engagement and an incremental building process is therefore important for making the real changes. The projects in Salvador and Agadir are both great examples of how community engagement, responsibility and interest in ones situation can arose from providing new opportunities.
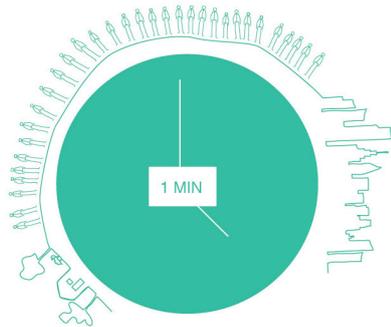
RURAL TO URBAN MIGRATION

In india 30 people move from the countryside to cities, every minute. The overall population is estimated to grow with 300 million people in the coming 20 years. That means 20 new Mumbais in India.

The people are already congested in the urban areas of India (1), but the movement flow still goes in the same direction (2). With 60%, Mumbai has the largest percentage of slum population in India (3) but also New Delhi and Kolkata have large numbers of slum populations.

The main reason for the migration to the cities, the move from rural areas to cities, are:

- **POVERTY**
- **GOVERNMENTAL POLICIES**
- **IN-MIGRATION**
- **LACK OF ECONOMIC GROWTH**

Every minute in India, 30 people move from rural areas to urban.

1

2

3

MUMBAI IN INDIA

New Delhi

Kolkata

Mumbai

20x

NEW MUMBAIS IN 20 YEARS
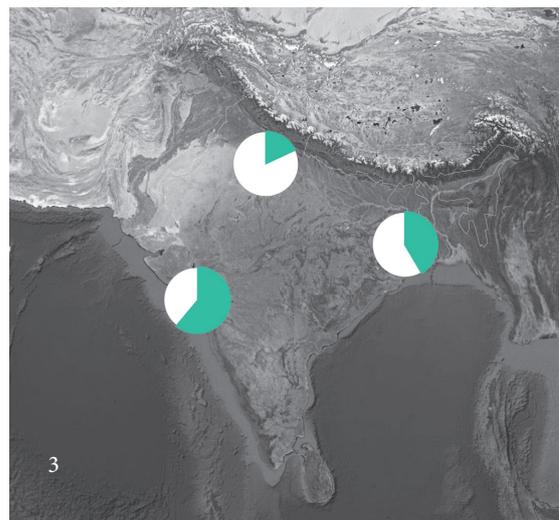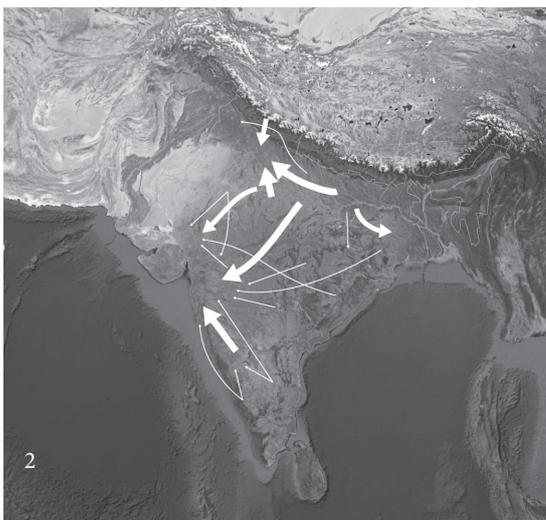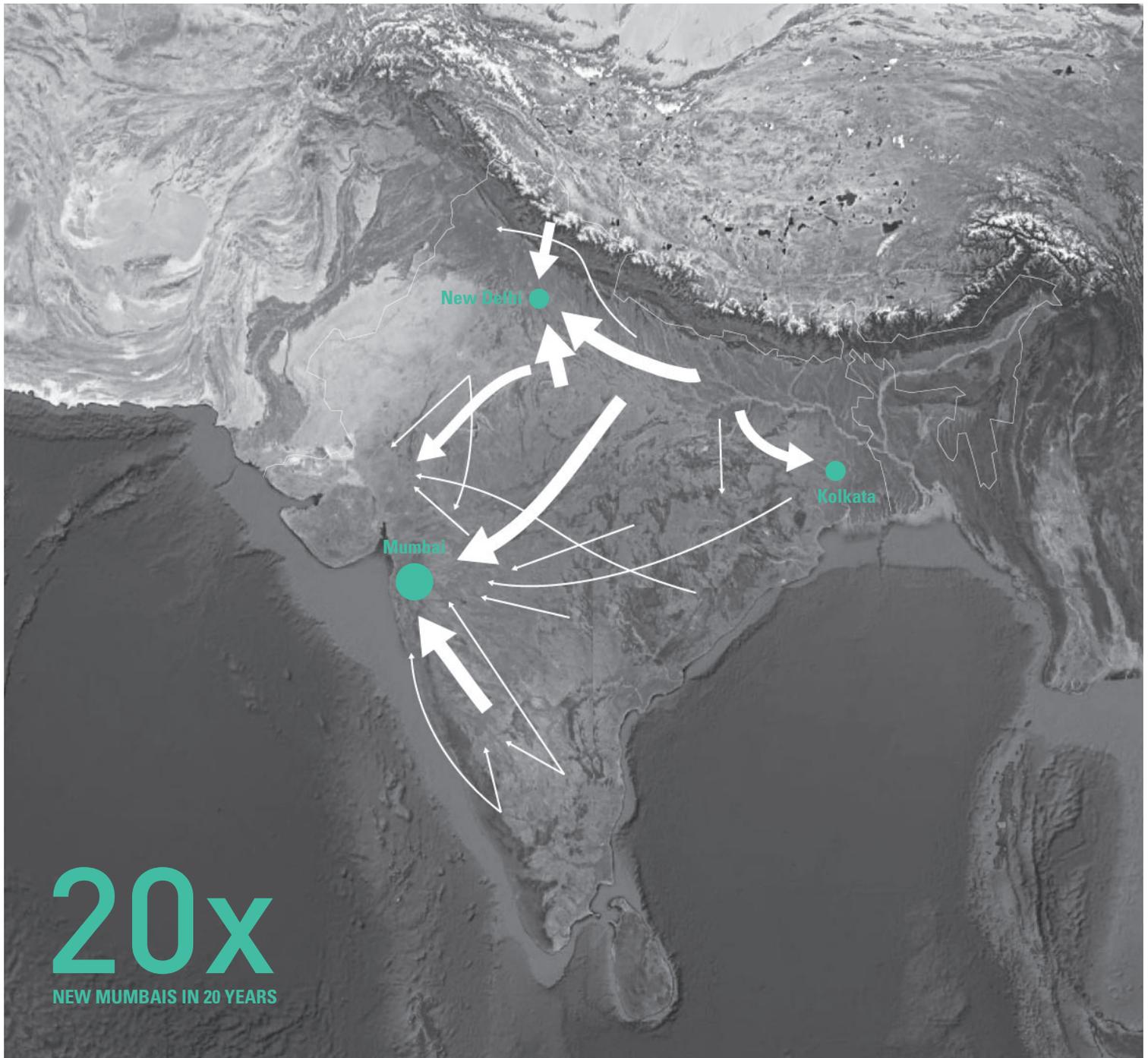
2. TO MUMBAI

It is not a coinsidence that Mumbai is the city in India attraciting most immigration, growing in a pace few cities can handle. How is this affecting the development of the city, and how has it affected the growth of the city over time? What is it resulting in and how is the city dealing with ensuring decent living conditions in the rapidly growing city?

Photo from the rush on Chhatrapati Shivaji Terminus / Victoria Station by: Indranil Mukherjee, Getty Images

THE CITY OF DREAMS AND VERY EXPENSIVE HOUSING

Mumbai is a study of contrasts. The city is India's largest, with a population of some 12.5 million people (20,5 million in the metropolitan area). It has the highest GDP of any city in South, West, or Central Asia, with a per capita income three times India's national average and a range of industry leaders in entertainment, finance, luxury goods, information technology, and textiles, among others. Mumbai has one of the most expensive office markets in the world and has been listed first by Forbes in the average wealth of its many billionaires.

The city also has the highest percentage of slum dwellers in the country, with 60% of its inhabitants living in informal settlements.

The comparison below, to Copenhagen, Denmark gives some demographic background and open the eyes to some of the issues related to inequalities and poverty in Mumbai.

MUMBAI

POPULATION (metro/city)	AREA (metro/city)	DENSITY (metro/city)	GDP (per capita)	GREEN SPACE (per capita)
20.8 million	**1,176** km²	**17,700** /km²	**7,200** $	**1.1** m²/ person
12.4 million	**438** km²	**20,040** /km²		**UNEMPLOYMENT RATE**
			INCOME INEQUALITY (Gini index)	**14** %
			35	**LITERACY RATE**
				88.4 %

COPENHAGEN

POPULATION (metro/city)	AREA (metro/city)	DENSITY (metro/city)	GDP (per capita)	GREEN SPACE (per capita)
1.3 million	**616** km²	**2,050** /km²	**49,000** $	-
0.6 million	**86** km²	**6,800** /km²		**UNEMPLOYMENT RATE**
			INCOME INEQUALITY (Gini index)	-
			0.27	**LITERACY RATE**
				-

The slum areas in Mumbai are in very
different conditions. Compared to many
other areas, Dharavi (and especially
Koliwada) is one of the older and more
structured ones, with comparably stable
living conditions. Photo from a laneway in
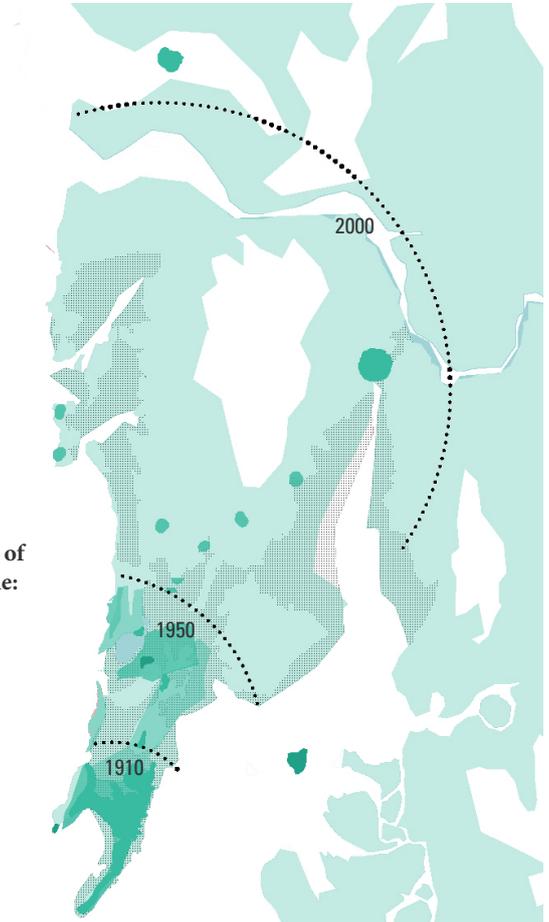Koliwada.

THE GROWING CITY

The has rapidly grown, both in size and population, since the mid 1900s, as shown in the graph to the right.

The timeline below shows important milestones in the city's development, leading up to this year's controversial decision to short a few developers for the reconstuction of Dharavi. **Milestones for slum developments and for Dharavi are marked in green.**

Population (million ppl) **growth over time:**
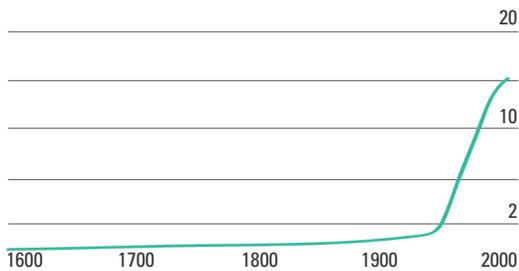
Physical growth of the city over time:

Timeline - key milestones in the development of the city:

1534
Mumbai, which is a series of fishing villages (Koliwada in Dharavi was one) over seven islands, is captured and a Portugese trading center is established.

1662
Bom Bahia is given to England by the Portugese.

1675
Population reaches 60.000.

18th century
Causeways are built to link the island and the city emerges as a docking, shipping and trading center.

1845
Land reclamation - swamps are filled in and the seven islands are connected into one strip of land.

1853
First railway line opens, connecting Bombay to Thane.

1854
First cotton mill opens, the railway allow Bombay to emerge as a major manufacturing center.

Late 19th century
Population boom and first informal settlements. The city attracts migrants from all over the county. Large scale building programs.

1920-30s
Indian film industry establishes in Bombay.
Manufacturing is diversified into chemicals, metal and engineering products.

1947
Independence and partition from Pakistan. Influx of refugees into Bombay lead to growth of Western and Northern suburbs.

1947-70s
Massive increase in slums.

1979-80s
Closure of the mills and decline of textile industry.
Slum rehabilitation programs have limited impact.

1971
Dharavi is recognized as slum by SRA. Main Road, 90ft Rd and 60ft Rd are built with electricity and underground sewage.

1980
Half the city's population lives in slums.

1990s
Public-private partnership in slum rehabilitation.

2000s
Citizen participation and influence of NGOs increase. Economic liberalization increase the role of private developers. Spread of malls, commercial and financial hubs and more high-rise residentials.

2007
International bidders are invited to develop the land where Dharavi is. 14 bidders evince interest but the project is put on hold because of faults in the bidding and program process.

May 2016
16 developers are shortlisted for Dharavi redevelopment to construct 110.000 houses.

HOUSING IN MUMBAI

130,000 homes are unsold and empty in Mumbai. 52% of them cost more than INR 2 CR (2,500,000 SEK). In Dharavi, a one-room-apartment in a chawl can be bought for INR 2 L (25,000 SEK). Minimum prices in Dharavi is INR 5 K (600 SEK), which is maximum what most migrant families can afford. Monthly rents in surrounding areas are 4-9 times as expensive.

Housing prices and unsold units in Mumbai:

DHARAVI

SRA
min 9K
max 15K

CHAWL min 5K max 8K

21,800

32,400

x5

16,400

x4

46,500

x2

SRA min 9K max 15K

CHAWL min 5K max 8K

14,300

x9

4,400

x9
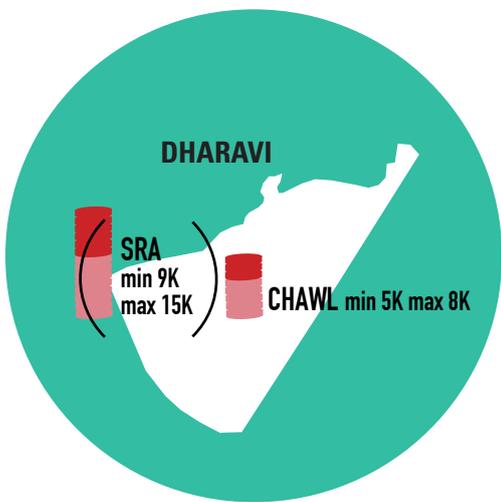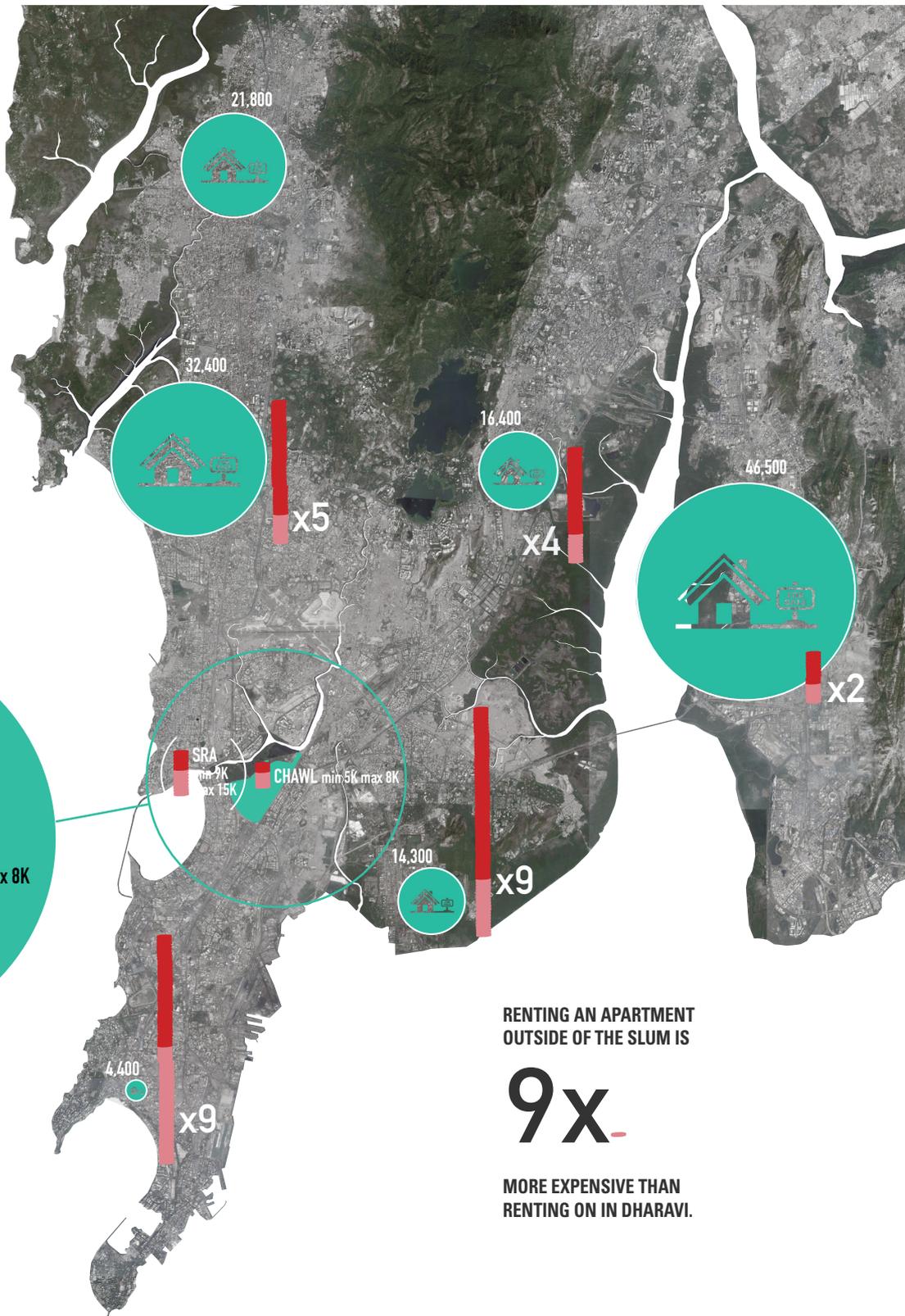
RENTING AN APARTMENT
OUTSIDE OF THE SLUM IS

9x-

MORE EXPENSIVE THAN
RENTING ON IN DHARAVI.

SLUMS IN MUMBAI

In numbers:

10%

**of the land
consist of slum
areas**

60%

**of the population
live in slums**

23%

**of the economy
is "informal"**

56%

**of the population
do not have
access to a toilet**

**Opposite -
The growth of the
city has changed
Dharavi's position in
the city from being in
the outskirts to very
central.**

There are slum areas spread all over Mumbai, but least in the south city center (1).
Dharavi in red in the middle. The areas are often located on 'uninhabitable' places like
in high-risk flood areas (2) or along the rails (3). There is very little parks and green
areas, and few of them are in connection to slums (4).
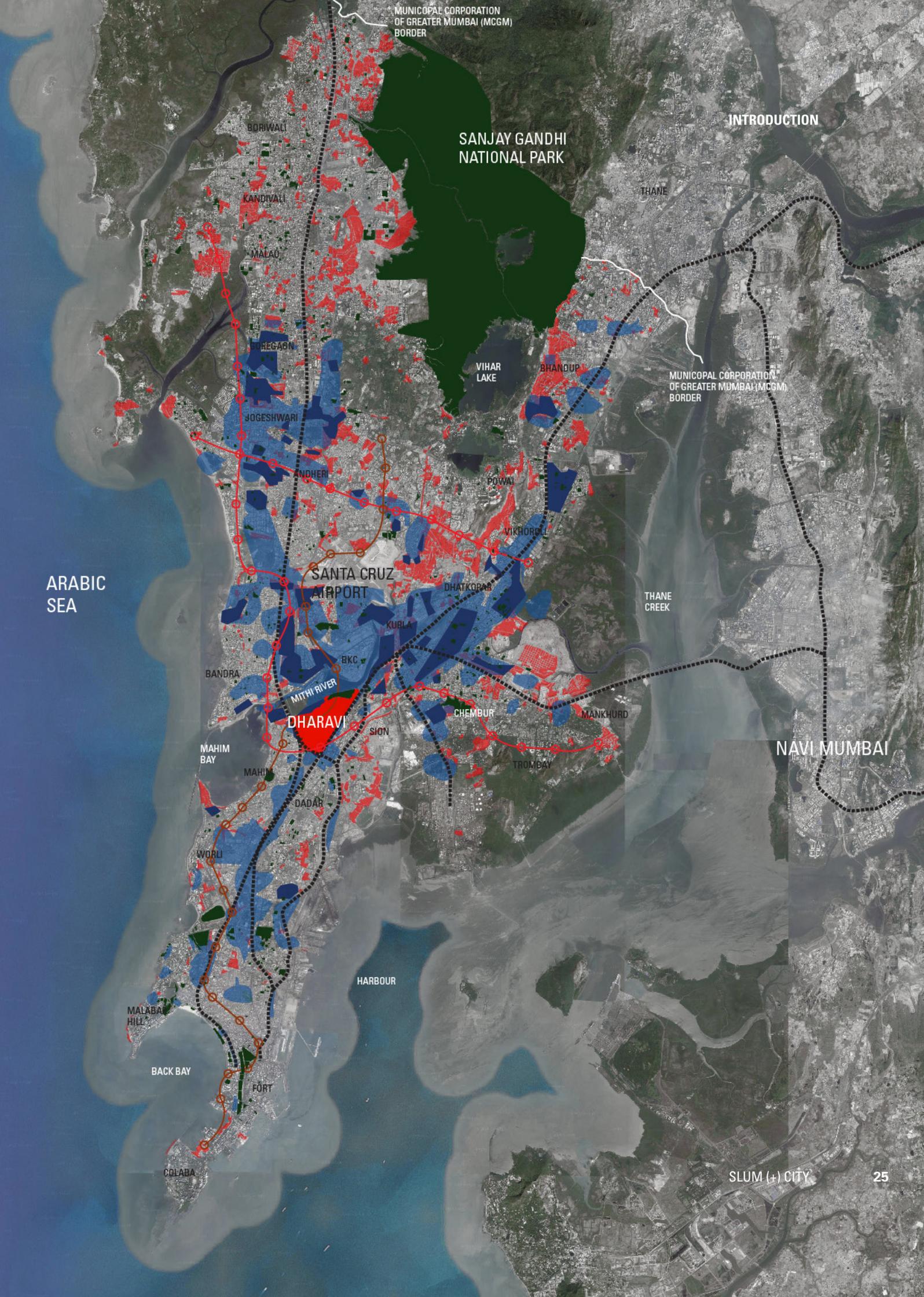
SANJAY GANDHI
NATIONAL PARK

THANE

MUNICOPAL CORPORATION
OF GREATER MUMBAI (MCGM)
BORDER

BORIWALI

KANDIVALI

MALAD

VIHAR
LAKE

BHANDUP

GOREGAON

MUNICOPAL CORPORATION
OF GREATER MUMBAI (MCGM)
BORDER

JOGESHWARI

ARABIC
SEA

ANDHERI

POWAI

VIKHOROLI

SANTA CRUZ
AIRPORT

DHATKOPAR

THANE
CREEK

KURLA

BKC

NAVI MUMBAI

BANDRA

MITHI RIVER

CHEMBUR

MANKHURD

DHARAVI

SION

MAHIM
BAY

TROMBAY

MAHIM

DADAR

WORLI

HARBOUR

MALABAR
HILL

BACK BAY

FORT

COLABA

SLUM UPGRADING IN MUMBAI

Existing slum settlements are going through a process of densification, leading to;

- **Larger numbers are living in environmental risk areas such as steep slopes, creeks, river and canal beds, marshes and near polluted areas like garbage dumps;**

- **The poor are moving out of the city into informal settlements in the periphery;**

- **Lack of central and local governments to adress the issue of urban planning, both financial and human capacity and knowledge.**

MUMBAI SLUM REHABILITATION PROCESSES

First of all, in order to get the project approved by the Slum Rehabilitation Authority, 70% of the dwellers in the targeted areas needs to approve with the resettlement. When the project is approved the dwellers unite in smaller groups and a co-operative housing society is created. An entrence fee is payed to enter the housing society and a document is created with measurements of the land. Each housing unit is given a number and the residents are hence registrered, an important step towards legal rights of occupancy. A developer, for which the project is an opportunity to get hold of land and develop new housing units to sell, takes on the responsibility of rehabilitating the dwellers and develop the plot. After the developer's proposal for the rehabilitation is approved by the local authority's permission for the first rehabilitation building is given. The original slum dwellings are demolished and meanwhile the rehabilitation buildings are built the dwellers gets relocated to a temporary settlement, a transit camp. The ones who do not want to leave their dwellings get a 15 days notice before they are evicted. After the first rehabilitation building is built and inspected the building permission for the sale buildings are given to the developer. When moving in to the rehabilitation building each dweller gets an identity card from SRA.

WHAT IS THE ISSUE WITH THIS?

In theory, the slum rehabilitation scheme sound like a good low-cost housing strategy and a fair deal for the slum dwellers living in inadequate houses in informal settlement. Finding developers to finance the project is usually easy and the dwellers get basic necessities that will improve their health situation. But usually, the rehabilitation blocks are only designed to hold as much people as possible on as little ground space as possible, and leave as much space as possible for the sale houses. Often the buildings have 8 to 12 stories and stand only 3 meters apart.

Every building and each floor plan is a copy of the other - human storage systems without any care for either the needs of the dwellers or the surrounding context. The vibrant and social life which take place in the Mumbai slums is dependent on each housing unit's relation to the street and the shared outdoor spaces, which are used for cooking or playing together. In the typical rehabilitation scheme in Mumbai, the importance of the close-knit social and cultural connections are completely denied.

Slum rehabilitaion in Dharavi:

Dharavi was recognized as a slum in 1971 and the three main roads – 90 Feet Road, 60 Feet Road and Dharavi Main Road – were built with underground sewage and electricity. The capacity of those link is today overloaded and little has been made to compliment the infrastructure. But since about 70-80% of Dharavi today is recognized as a legal slum most of the population gets supplied by municipal water a couple of hours every day.

Opposite:
1/ Typical slum replacement housing
2/ Dharavi from above as it is today

INTRODUCTION

3. INTRODUCING DHARAVI

Dharavi is the largest slum area in Mumbai, and most likely one of the largest slum areas in the world. The informal housing market offers a home to many of the immigrants coming to the city, and the informal business market employs around 10% of the city's population. What is the area like, beyond the numbers, and what is so controversial about toring it down?

Photo from inside a home in Koliwada.

INDIA'S LARGEST SLUM, ON PRIME LOCATION

Dharavi is most likely the most famous slum in the world. Because the celebrated Bollywood Movie 'Slumdog Millionaire' was filmed here, but even more because of many years of discussions about the redevelopment of the area. The protests agains the Dharavi Redevelopment Plan has come to be in the center of a world-wide discussion about informal settlements and slums around the world, which has given the area an iconic status.

THE VALUE OF LOCATION

For a migrant coming to the city in search for work, being in the right place and being able to easily get around means eveything. Dharavi is located in the crossing of the cities two main suburban railway lines, with three railway stations in close proximity, and the railway makes it possible to access the central Fort area in a short times travel and for only a few rupees. For a low-income worker in a city with massive problems in car traffic congestion that is worth a lot. Two important east-west and north-south roads, the Sion and Mahim Link roads, also intersect the Dharavi area. North of Mahim River from Dharavi is the city's new business complex located, Bandra-Kurla Complex. Just next to it is the International Airport.

A LOT OF PEOPLE, LITTLE SPACE

Dharavi is only 175 hectares (1,7 square kilometers) in size - you walk through the area in 25 minutes even though it is congested - but house around 700 000 (up to one million) people. The population origins from all over the country, many different Indian languages are spoken and all major religions are represented in different communties.

Looking at Dharavi with an outsider's eyes the many issues regarding informality and illegality as well as the lack of proper infrastructure and living structures are obvious.
But digging deeper you will find that the area has some major strengths - especially regarding strong social structures and communities, an entrepreneurial landscape and complexity in layers of scale and space. This has been succeeded completely by the dwellers themselves, self-built in collaboration between the inhabitants and incrementally developed over time.

No one knows the exact number of inhabitants in Dharavi, but it is estimated to somewhere between 600.000 to 1 million.

⊼ ~800.000

Dharavi in numbers

Official population	**376 000**
Estimated population	**600 000 -**
(by SPARC)	**1 million**
(Population Mumbai	20.8 million)
Size	**1.7 km²**
	/ 175 Ha
Official density	**220,000/km²**
Estimated density	**470,500/km²**
(Density Mumbai	27,000/km²)

EXTREME DENSITY

LACK OF PUBLIC AND GREEN SPACE

The extreme density of Dharavi becomes clear when you see the area from above. Few square meters are left unbuilt and there are almost no trees or other greenery visible. The lack of public space lead to strict limitations for movement, sport and play and creates unhealthy living conditions with, among other problems, poor air and light quality.

DHARAVI BUSINESSES IN NUMBERS

The area has around **2000** manufacture units, but **81%** work in the service sector. The annual turnover of business is estimated to be more than **$650 million.**

80% of the dwellers work in Dharavi

1700	manufacturing units
800	recycling units
150	in food production
300	bakeries

Rag pickers in Mumbai earn **RS100-150 / ($2) per day**

Mumbai's special economic zone

DHARAVI EMPLOYS 11% OF THE CITY'S POPULATION

Dharavi's per capita GDP is 20% higher than the national average. The annual turnover from the areas around 2000 manufacturing units is estimated to be 650 million US dollars. And, most importantly, not only does Dharavi employ 80% of its own residents, the informal ecomony of the area in total employs 11% of the city of Mumbai's population. The food-industry serves the whole city, service labour work all around the city and vending in neighbouring areas is provided by Dharavi. Many companies sell their goods all over the nation and even the world and international companies have production units in Dharavi- For instance is Johnson & Johnson only factory for production of surgical thread located in Dharavi.

**500M STREET
175 + MAPPED COMMERCED**

Mapping of commerces and
public spaces during a walk down
the street on a very hot October
day.

**Location of
Dharavi Main Rd**

Dharavi Main Rd

aerterial road
commercial

tertirary street
semi-public
production/
residential

secondary street
public
commercial/
residential

Holi Maidan

open space
sports and a
(by men onl

semi-public inner
streets and square

"pocket parks"

irregular streets
- openings

residential semi-private
cul-de-sac lanes

tertirary street
semi-public
production/
residential

secondary street
public
commercial/
residential

residential lanes
layers of scales
and places

Sant Rohidas Marg

Sant Kakkaiya Marg

Sant Bashweshwar Marg.

festival square

community square

Dharavi offers jobs within most sectors, such as tailoring, laundry, beauty, food production and distribution, recycling, waste collection, pottery, construction. Many also work in the service sector and outside Dharavi, e.g. with cleaning or driving rickshaws. In many families, the women do not work and hence do not interact much with the city or people from outside the community.
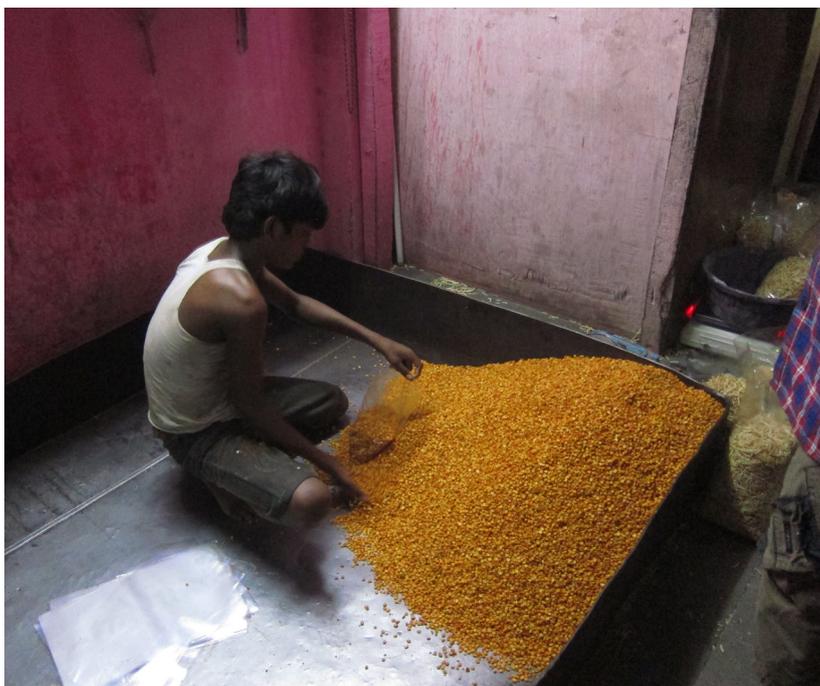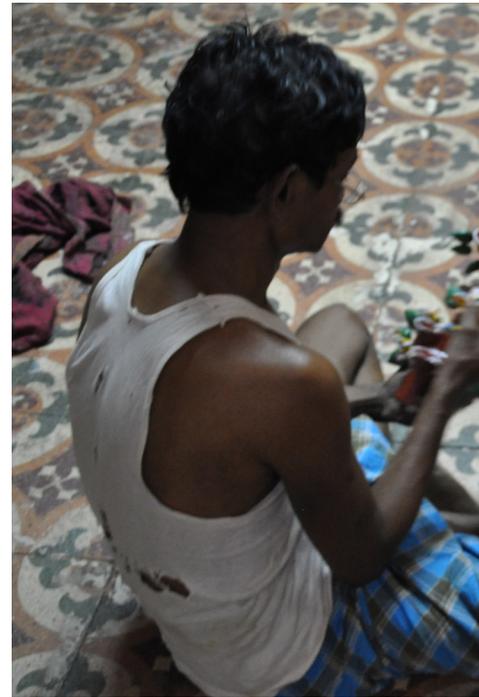
THE BACKSIDE

Although the informal economy enables job opportunities for many, the impact of living under informal conditions hugely influence the life quality of the people. Some of the issues related to the dense and informal structure are lack of daylight, sanitation issues, flooding, bad air quality, lack of public and green space, hazardous work environments and children being used as labour.

Maintenance vehicles and emergency cannot move within the area.

Lack of shadow, permeable surfaces and flood protection in the few open spaces there is

Unsanitary and open drainage systems that flood during the monsoon.

Hazardous work environments

Lack of daylight
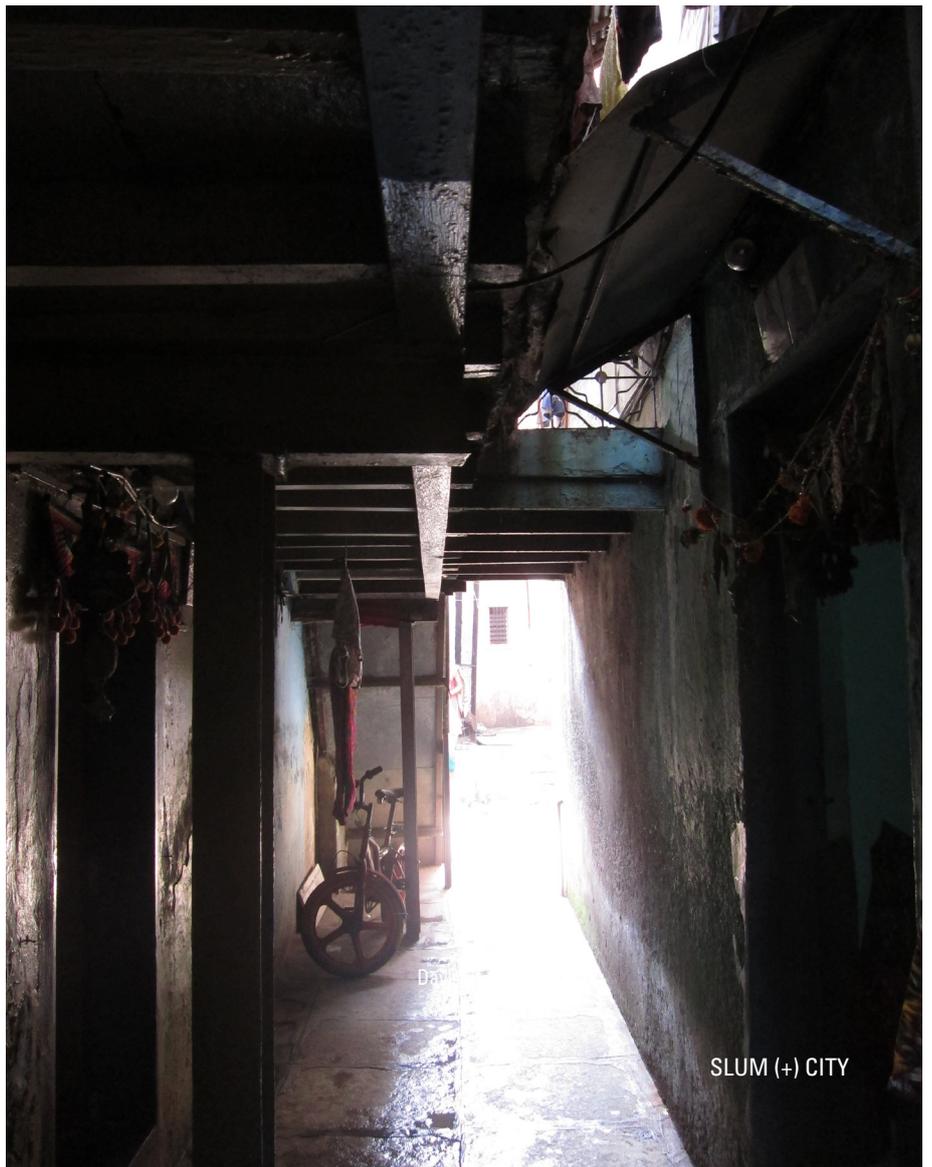
Koliwada is an old
fishing village, and
fishing and selling
fish and shellfish
is still a common
occupation in the
area.
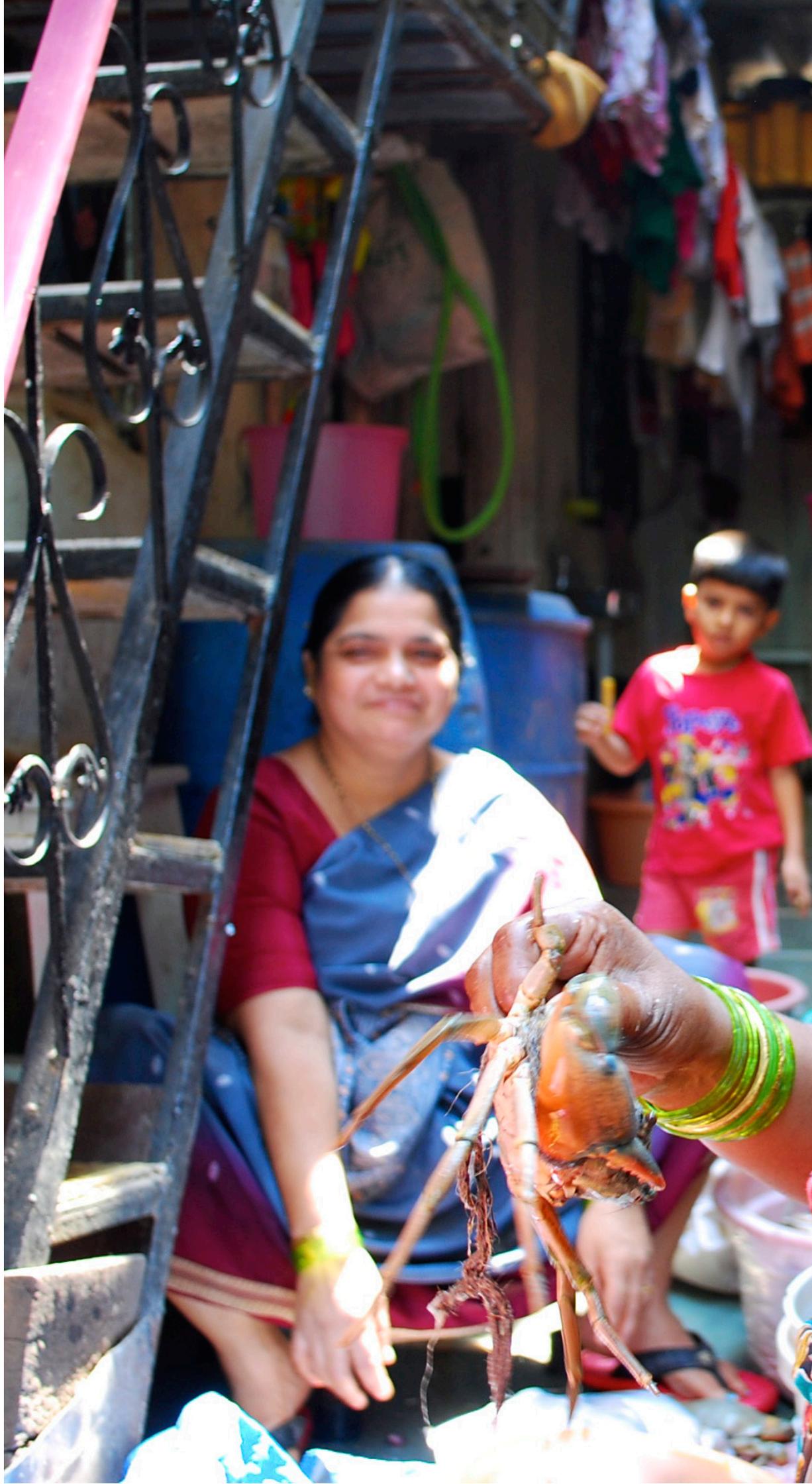
Most children go to school in the area, at least to a certain age. Unfortunately many children are taken out of school at a too early age and are used as labour in some of the businesses.
Image of a community school in Koliwada.

Girls do often drop out of school earlier than boys, and are less likely to get jobs where they get the opportunity to work outside of the community. Many girls and women are tied to the home and to domestic work. Image from Koliwada.

Products manufactured in Dharavi are sold all over India, and also often exported outside the country's borders. In this factory in Koliwada jeans are sewn for export.
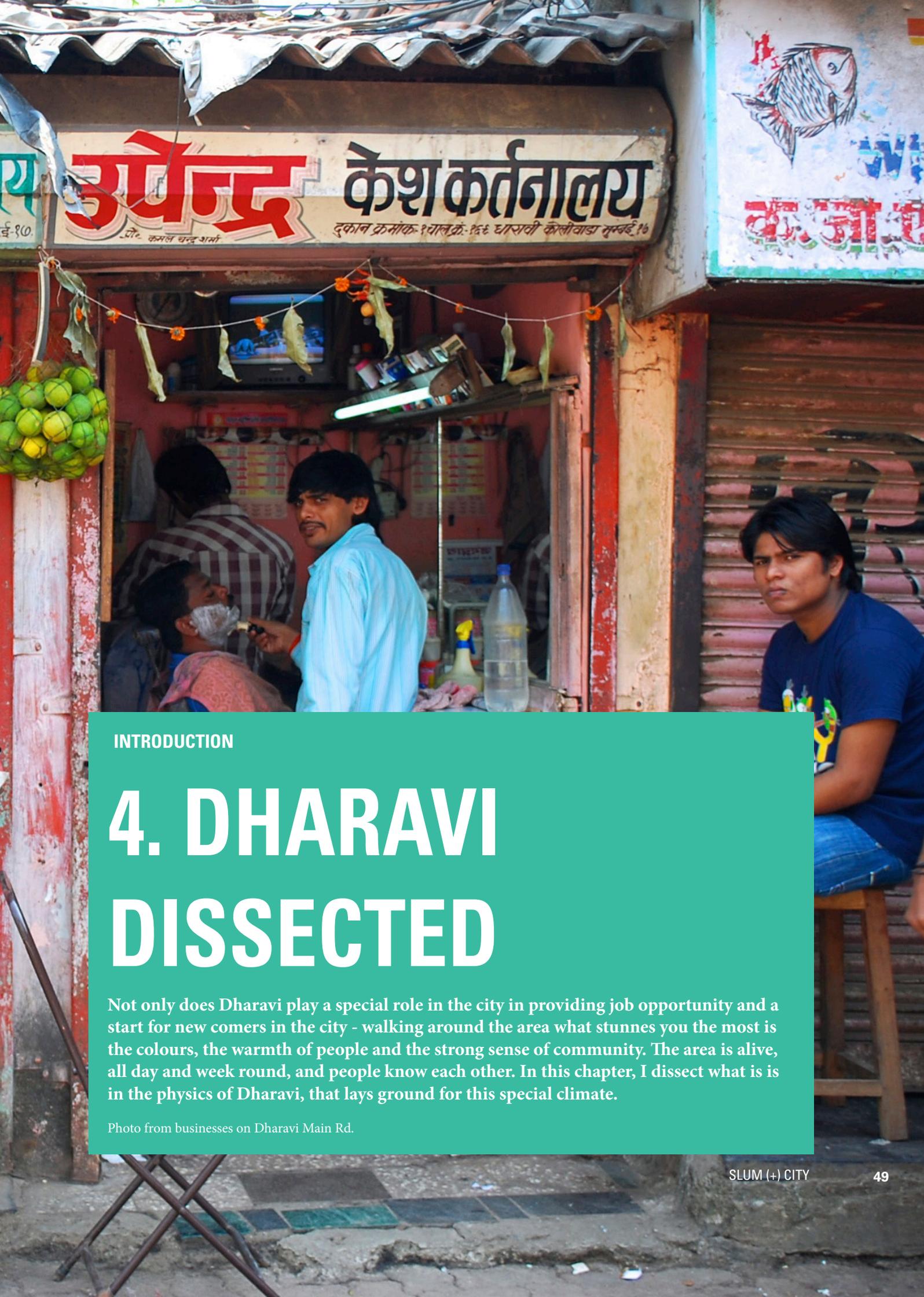
4. DHARAVI DISSECTED

Not only does Dharavi play a special role in the city in providing job opportunity and a start for new comers in the city - walking around the area what stunnes you the most is the colours, the warmth of people and the strong sense of community. The area is alive, all day and week round, and people know each other. In this chapter, I dissect what is is in the physics of Dharavi, that lays ground for this special climate.

Photo from businesses on Dharavi Main Rd.

# 85+ LOCAL NEIGHBOURHOODS

NAGARS

Dharavi is diveded into 85+ neighborhoods - nagars. In some cases streets make up the community borders but in most cases the division is mental rather than physical. Aspects forming the community and keeping it together can be origin, religion, family belonging or occupation and the nagars differs much in size, from covering only a road to larger neighborhoods.

The community spirit in the nagar is often strong with a strong sense of communal responsibility for the shared spaces. Through collective problem solving, decision making and collaboration the common space is developed and upgraded according to the needs of the community.

The way the shared space is used in the nagar, and the amount of shared space, is often based on the profession, social status and religion of the dwellers. The dwellings are often used also as workshops or shops, dependent on how much space that is needed is also the extended area around the house, roofs, verandas and the streets outside used as a workspace. In some cases, as with the papada makers (a type of thin dried bread exported all over the world) the squares in the nagar is used for both drying the papadums and making them. In the papadum nagar few extensions are made on the houses into the shared space, because the outdoor space is needed for the making. In other nagars the need for the space is smaller than the need for indoor space. Different religions (mainly muslim, hindu and christian) need different types of common spaces for celebrations and religious acts.

How the shared space has been changed to fit the need of the nagar is a proof of how strong the community collaborations can be.

COMPONTENTS

Physical borders; railway, swamp

Commercial units

Public toilets
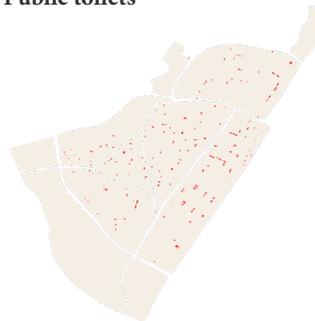
Factory areas
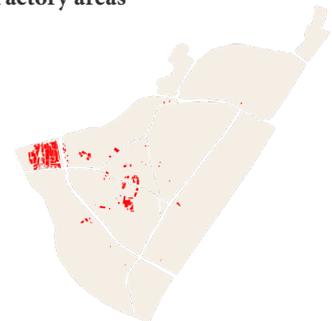
Temples
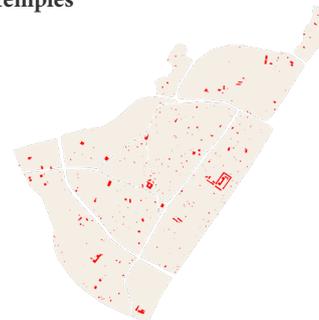
Schools
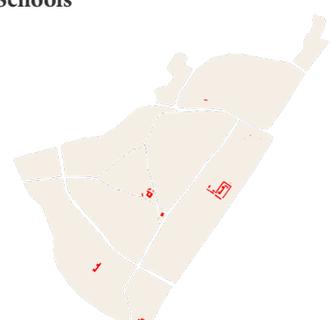
Although centrally located in the city, Dharavi is disconnected from its surrounding by two railway lines and a river. Three train stations in close proximity connects Dharavi to the rest of the city and the country. The neighbourhood of Koliwada is where I spent most of my time in Dharavi.

COMMUNITY LIVING

NAGARS

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How the shared space has been changed to fit the need of the nagar is a proof of how strong the community collaborations can be.

Dharavi's nagars

The community square in Koliwada, one nagar in Dharavi. Location marked above.
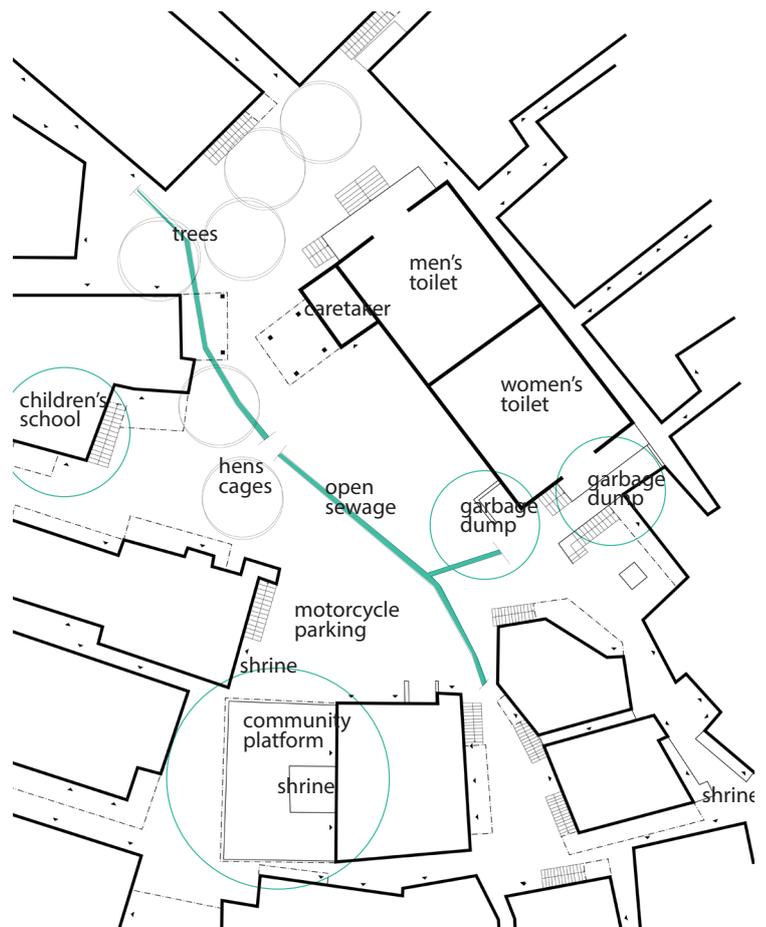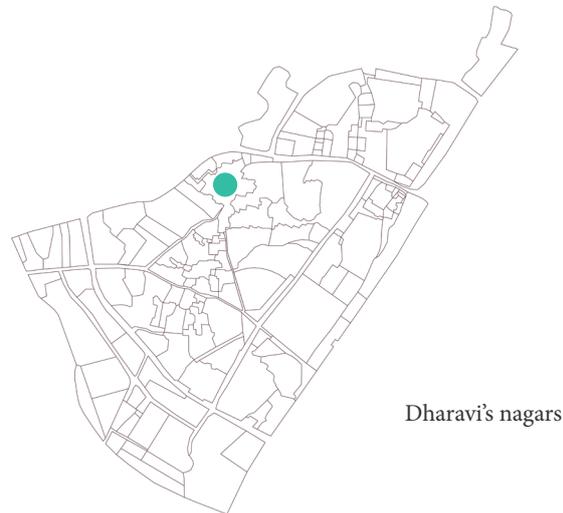
Families live close together over generations in the community. Origin, religion and occupation are some other factor that holds the community together. Photo from the square to the left, in Koliwada.

STREETSCAPES

LAYERS OF SCALE

Dharvai must be understood as endless layers of space and livelihoods. As mentioned before the area has grown from nothing to sustaining a business climate strongly interlaces with the city's economy. Dharavi and other self-grown settlements around Mumbai absorbs much of the city's workforce and have a working economy which is strongly connected to its spatial organization. The layers of scale and space in Dharavi are important to try to understand in order to gain an understanding of their functions, why they are used in a specific way, the level of private- or publicness and addition to the live-work climate.

MEDIUM SIZE STREET / PUBLIC

This street could typically be in between two nagars, a pedestrian street where many walks by. The street have shops fronts on the ground floors along both sides and housing on top. It is also used as a social space where people hand out and sit on benches along the facades. The impermeable paving and the lack of platforms to the housing calls for flood problems during the monsoon.

Electricity cables and overhangs/extensions to the buildings.

A variation of shading structures.

Sitting on the plint.

Shopfronts and workshops, separated from the street by the plint. The plint also plays an important role in the monsoon season.

Motorbikes are common, as they are the easiest way to get around. You will see them parked in all laneways and shared spaces.

STREETSCAPES

LANE / PRIVATE

The smallest residential lane can be down to one meter wide, with 1-2 floors buildings on both sides. Little day light comes down to the slane and the air ciculation is bad. Often is there open sewage ditches in the middle of the lane, which gets flooded during the monsoon. The lane is used as an extension of the homes, to hand laundry or store things.
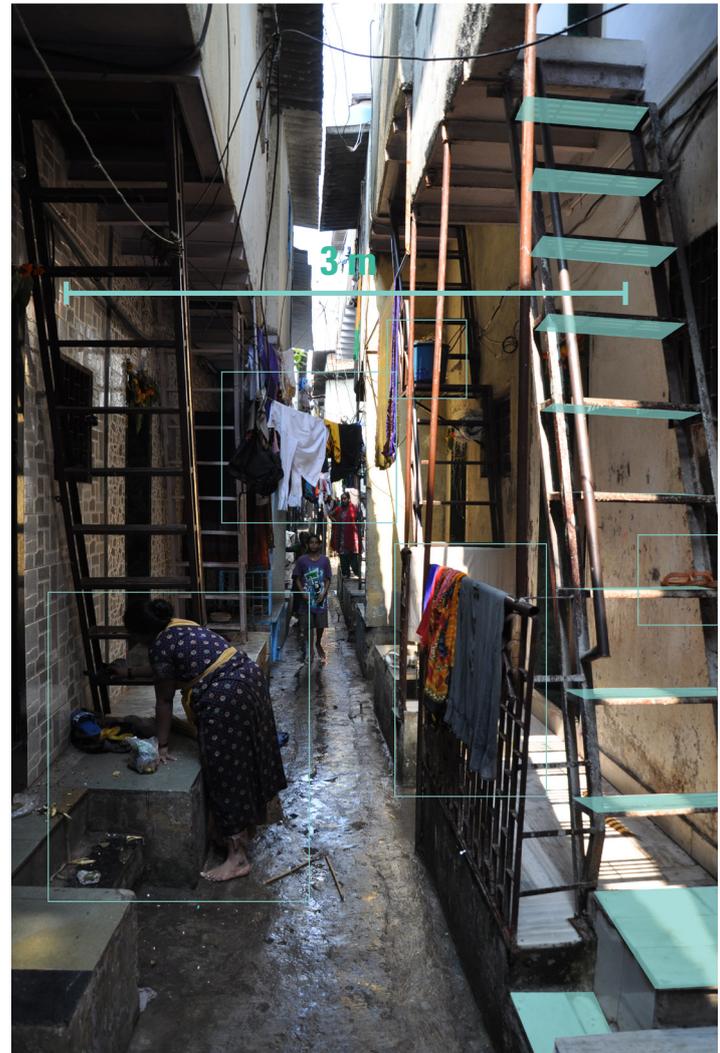
LARGER LANE / SEMI-PRIVATE

The larger residential street has 2-3 floors houses surrounding it, with stairs going up to the upper floor from the lane. Typically is there a 1 meter wide passage for walking in the middle of the lane and platforms to the houses on both sides. The platsforms are used to sit on, to store things, as a chopping board or work bench.

SMALL OPEN SPACE / SEMI-PUBLIC

Openings in the community space are often used as a shared space for storing things, working together with domestic work or in production. Often in the nagars the dwellers share the same ocupation and the shared space in the community is used as a common workshop space, for working in the the shadow or drying things in the sun.

COMMUNITY SQUARE / SEMI-PUBLIC

Some communties have larger openings/ squares. This is the community square in Koliwada. The square is used by hens, to park motorbikes and occasionally by children playing, but it is often open. There is little greenery or shadowing strucures which makes the space hot during the day. An open sewage ditch cuts the square.

THE TOOL HOUSE

Most of Dharavi is built up by a type of small row houses - the tool house. Similar to the shop-house in Singapore or the home-factory in Japan the typologi is a small scale production unit which also is combined with living space. The typology is often completely ignored in current redevelopment proposals and by urban design practices in general, but the live/work lifestyle it offers to the residents, which enables small scale productions and self-emplyment and the possibility to be close to family and contribute to the neighborhood. With all tool-house production units, home-based offices and shops you have everything you need within walking distance in Dharavi.

The residential lanes in Dharavi are typically 1-3 meters in width and lined up wih tool houses. In some places the houses are mixed up with a small factory, tempel or such.

The typical unit has 10-15 square meter floor aera per floor plan and has two, sometimes three floors. What makes the typology specific for the Dharavi lifestyle is how it is used - each square meter of the house is flexibly used for many different function, and transforms as the day go along dependent on the need of the family. The house is usually home to the family that owns the house plus one family that rents, and the families are often large - between 5 and 10 people per family. The house is used both as a home and as a working place, as either the ground floor or the upper floor functions as a shop or workshop. Usually the upper floor can also be reach from the street with a stair or ladder. Sometimes there is a backyard which then often is used as an additional storage or productions space, but most houses have ther back towards another tool house.

10 +

living + storage
/to rent out

rare back yard

workshop

storefront

4m

2,5m

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factory for 15 workers
30 m²
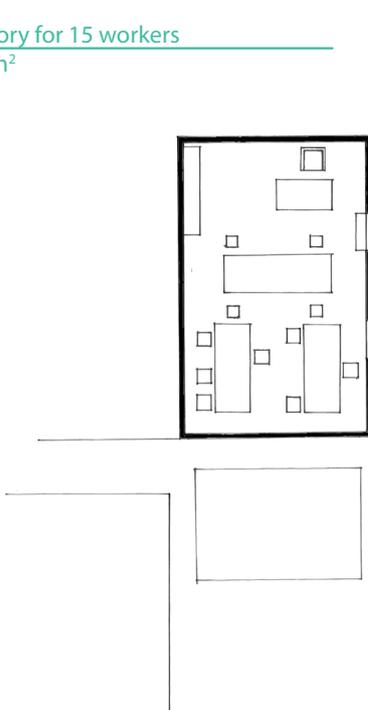
family house
ca 10 m²

ACTIVITY AT
ALL HOURS

Example of how
the tool house is
used, where the
ground floor and
plint is used for the
family business -
here a small store
on Daharavi Main
Rd - on which the
family lives on top.
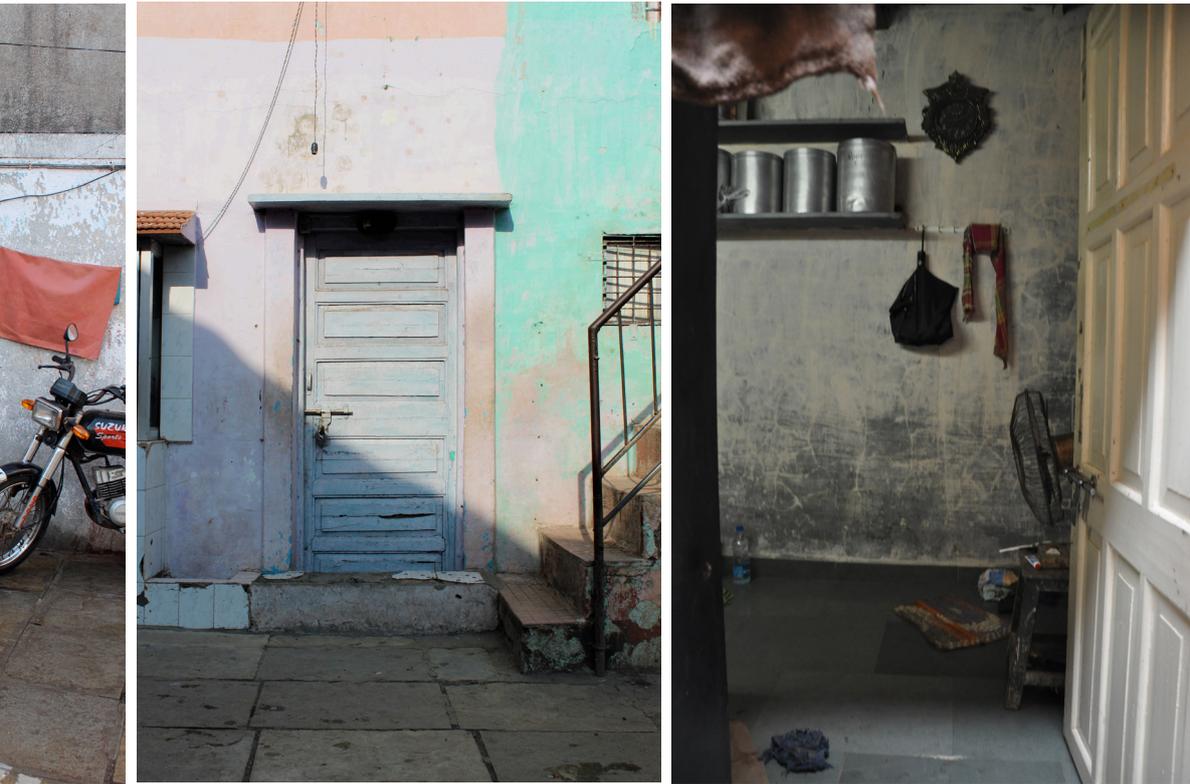
PERSONALIZATION

The images shows the variation and personalization in the basic tool house unit, done with color and materiality, as well as the layers of incremental development through horizontal and vertical add-ons.

COLOUR PALETTE
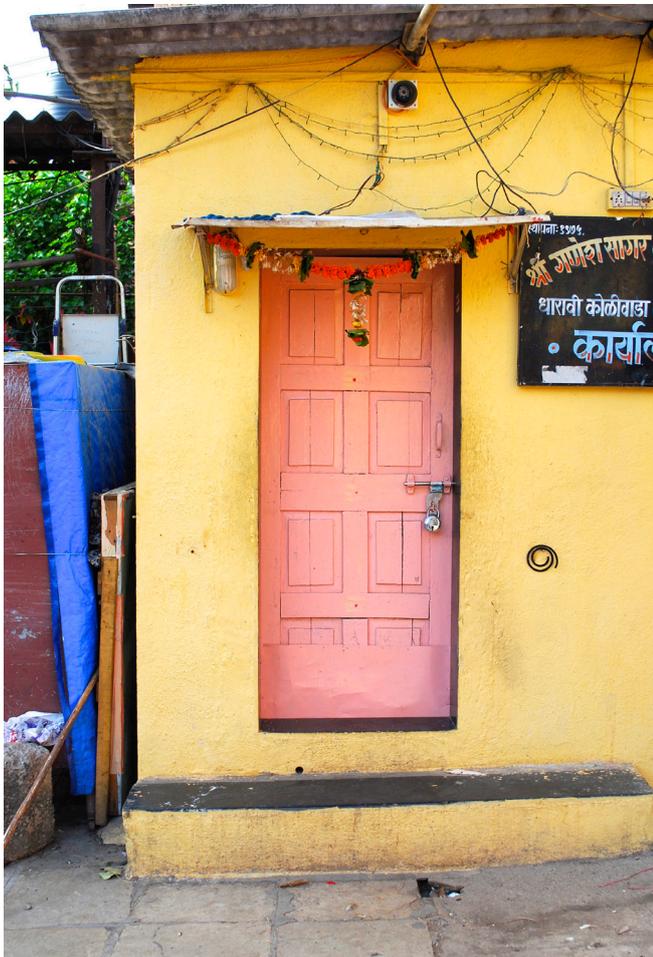
A PATCHWORK OF
WHAT IS AT HAND

Much of Dharavi is built up by what is at hand, with facades are made of mixed pieces of metal, bricks walls built incrementally over time and pavement patched together with concrete slabs. The patchwork created of re-using materials available is an as strong identity marker as the colours of the area.
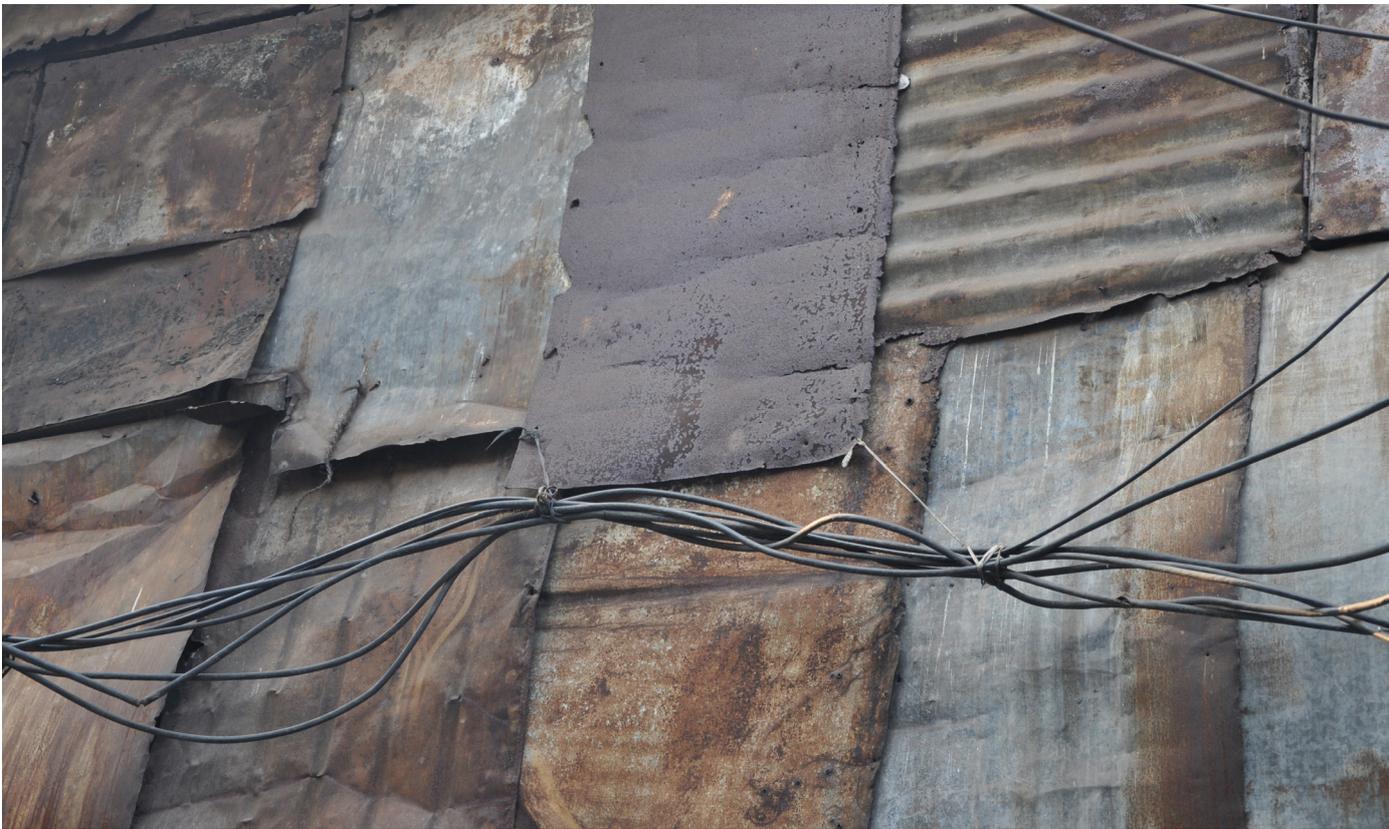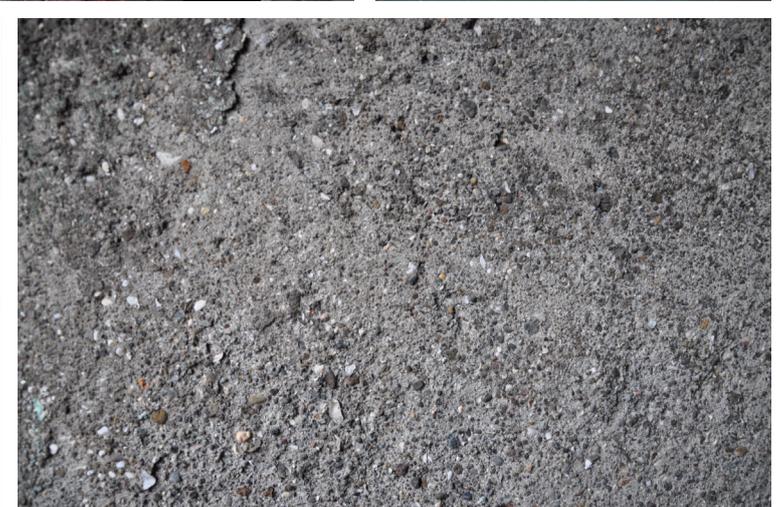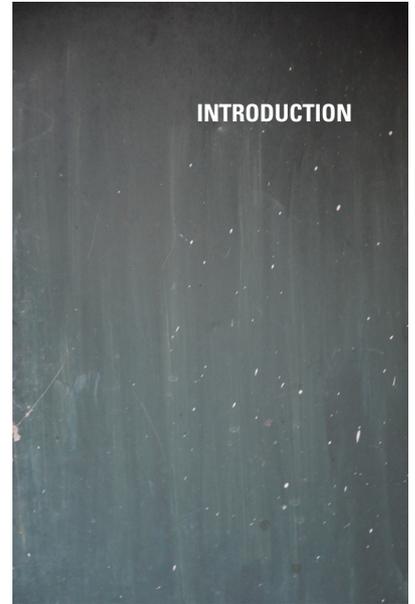
DEVELOP BIT BY BIT

As previous chapters have shown, Dharavi has been built incrementally, by its people and over a long period of time. The upgrade of the area hence needs to be done in the same way. Bit by bit.

Photo: Children outside a hair saloon on a local square in Koliwada, giving input on sketching.

HOW TO DEVELOP A SLUM?

In order to push for development rather than demolition one must look to what the slums do best and often exclusively offer the city.

Dharavi has built up an unique climate which through available jobs and affordable housing offer immigrants and people with low or no education a place in the city. Everyone come to Mumbai in search for jobs, and Dharavi offers it. I have seen few places like Dharavi when it comes to entrepreneurship and innovation, enthusiasm and eager to work and pride in doing it. Manufacturing, handicraft and trade, smale scale as well as large scale businesses is happening everywhere. Most people have jobs and everything they need within walking distance. The unemployment rates here are close to zero and the per capita profits coming out of here are way higher than the city's average. The streets and squares is where the life happens; people continuously interacting, collaborating and compromising about the space. New ways to find a livelihood are constantly found, an enterprise started on someones otla which might be the start of a global business. The close family connections, caring, openness and curiousness to ones surrounding is something we back home can only try to imagine.

A sustainable city to me is a place where the public sphere encourage meetings between a variation of people and where gatherings occurs naturally, where you are not bound to have a car neither to go to work or buy groceries but can and want to walk. And above all where all citizens have equal rights and opportunities and there is an openness to entrepreneurship, individual initiatives and innovations.

No one could say that the slum dwellers of Mumbai has equal rights with the rest of the citizens, but the other factors are already rooted in Dharavi. The inspirational and unique climate for professional and domestic incremental development, as well as the walkability, the scale and the community spirtit should be celebrated. It should be the founding stone when improvements are done to give legal rights and fair living conditions to the inhabitants. With governmental help to build basic infrastructure, provide good health care and education and give the dwellers legal acknowledgements Dharavi will not only be integrated in the city on fair grounds, but also remain a profit for the city and a great place to live and work.

CREATE NEW OPPORTUNITIES BY FORMALIZING THE PUBLIC SPACE

Streets with public transport and public squares would be a new typology for Dharavi. The upgraded existing main streets and meeting places would be part of a larger network of new public places in Dharavi, with different funtions and in different parts. The public functions are for the residents of Dharavi - such as libraries and 'Redevelopment centers' - but can also attract 'outsiders' to the area.

How can the unique climate be strengthened with new opportunities through upgraded living conditions?

Visualization of the new Redevelopment Square, with a new redevelopment center next to the existing school and with workshops and a new library in the area. The tramline connects with the rest of the city.

STRENGTHEN AND EMPOWER

Empowering Dharavi is about giving the people living here a fair chance in life and the same rights as other citizens of the city. It is about clean and fresh air, the right to move freely, right to healthcare and education and right to ones home and being recognized in the city with an adress. It is both about improvements of the physical surrounding, to create healthier and more enjoyable living conditions, and with social improvements, female empowerment and regulated working conditions as well as integrating the area with its surrounding. It is about everything from the big moves, done by the government and developers with muscle power, but it is just as much about the individual development - on community and family level: the collaborations that needs to be done and the data that needs to be collected. This should be done by the people and the communities, because no one knows about their conditions and needs better than they do.

The strong community spirit and opportunity to self-built and incremental development noticed in Koliwada are some of the things that should be brought forward in the future development.

WHAT TO BUILD ONTO
What are the strenghts and opportunties?

- **Diversity** - people from different religious backgrounds, origin, languages mix and need to cooperate
- **Location** - central and close to trains
- Informality/illegality - makes many of the jobs and the rental market possible
- Few cars- the street is for the people
- Scale - everyone is close to the street and to each other which makes loneliness impossible
- Nagars - communities with similar occupation share the common space and interest in it and can develop it accordingly.
- Live/work - living close to work makes relations with family and friends easier and little times is wasted on commuting
- 3,3 millions of goddesses and gods and many festivals to celebrate them - preparation for the festivals and the common belief create a strong community spirit and experience in collaboration

WHAT NEEDS IMPROVEMENT
What slows down or hinders the climate to flourish? To work with.

- Gender inequality - women are often bound to domestic work and not as much out working in the public as men
- Child labour - children often needs to start working young to earn money to the family, and get robbed of their right to education
- Poor quality of education - schools are often so bad that the children are taken out of it
- Corruption - illegal businesses makes a lot of money go into intermediaries and the poor earn least
- Poor level of language - especially of english, makes expansion outside Dharavi difficult
- Insecurity in tenure
- Hazardous conditions - dangerous and poisonous working conditions and unsanitary living conditions makes the risk och illness high.

EMPOWERMENT: FOCUS AREAS FOR PLANNING AND POLICY

To create healthy neighbourhoods and empower its people, five crucial focus areas has been identified. In order to provide the same opportunities and rights as the rest of the (formal) city, they all need to be worked with in parallel and symbiosis in the development of the slum area.
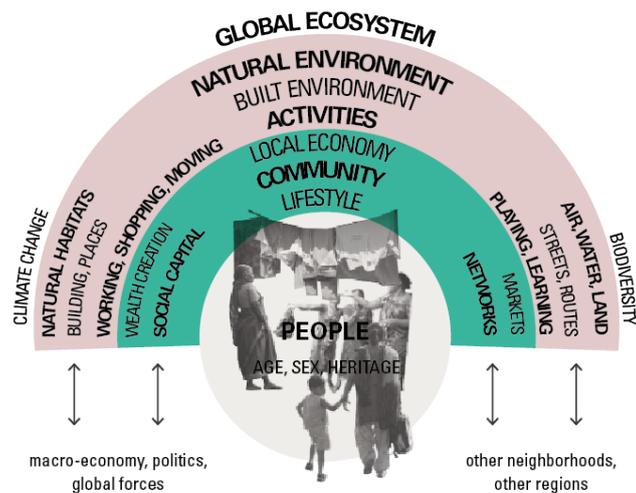
On the next page is a checklist that shows what each of them mean more in detail.
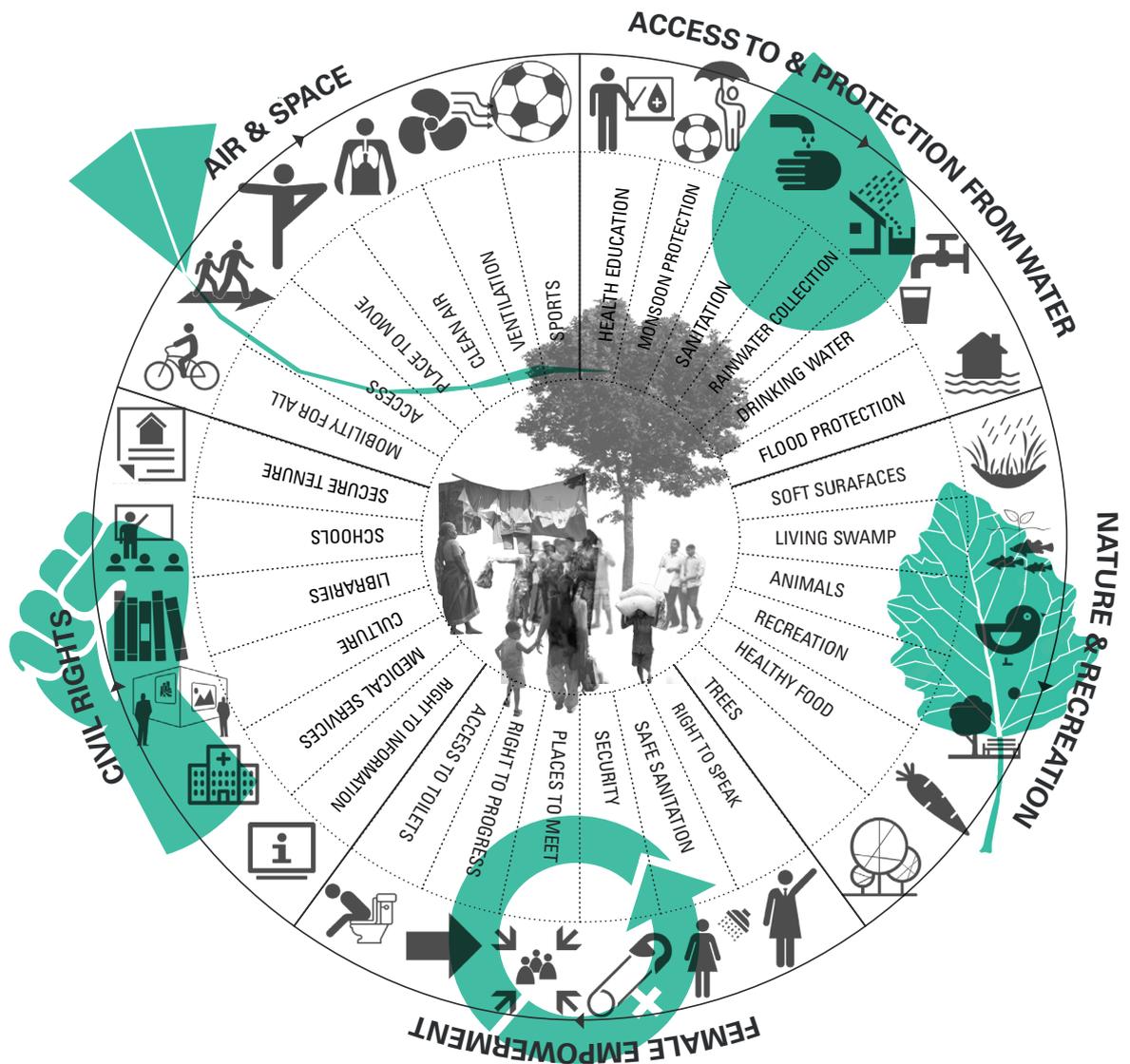

access to & protection from water

air & space

female empowerment

nature & recreation

civil rights

HEALTHY NEIGHBOURHOODS

How planning can affect social networks and health on neighborhood scale. (Barton and Grant, UKPHA Strategic Interest Group).

The diagram show what aspects of planning, in the physical as well as the economical and political aspect, relates to creating healthy communities and people.

GLOBAL ECOSYSTEM
NATURAL ENVIRONMENT
BUILT ENVIRONMENT
ACTIVITIES
LOCAL ECONOMY
COMMUNITY
LIFESTYLE

CLIMATE CHANGE
NATURAL HABITATS
BUILDING, PLACES
WORKING, SHOPPING, MOVING
WEALTH CREATION
SOCIAL CAPITAL

PLAYING, LEARNING
STREETS, ROUTES
NETWORKS
MARKETS
AIR, WATER, LAND
BIODIVERSITY

PEOPLE
AGE, SEX, HERITAGE

macro-economy, politics, global forces

other neighborhoods, other regions

EMPOWERMENT CIRCLE

CHECKLIST FOR
EMPOWERMENT AND HEALTH

In the 'empowerment circle' the 5 main pillars for empowerment and health - Civil Rights, Air & Space, Female Empowerment, Nature & Recreation and Access to & Protection from Water - has been further developed into a checklist with tools for empowerment. The checklist should be used and considered in all the different levels and scales of the upgrading - from community improvements to government work.

Women and children are among the ones vulnerable in the informal and patriarchal system. Photo from Koliwada.

UPGRADE WITH THE PEOPLE

To get closer to the around 800.000 people living in Dharavi the redevelopment needs to be done in different layers and scales and with focus on the need of the communities. As shown below the three scales for redevelopment are shaped by the existing community border and streets.

The sector scale and the neighborhood scale are where most of the top-down-development happens, such as adding of new functions, upgrading of streets and infrastructure. The actual upgrading for the dwellers happens on the bottom-up-community scale, where the communities - with help if needed - gradually can develop according to their need.

6 SECTORS

Evenly spread in 6 redevelopment sectors:

- redevelopment center
- main market place
- library
- innovation center
- exhibition space/museum
- culture center - cinema/theatre
- student housing
- recreation - mangrove park extended
- eco+water center
- university branch

~ 120.000
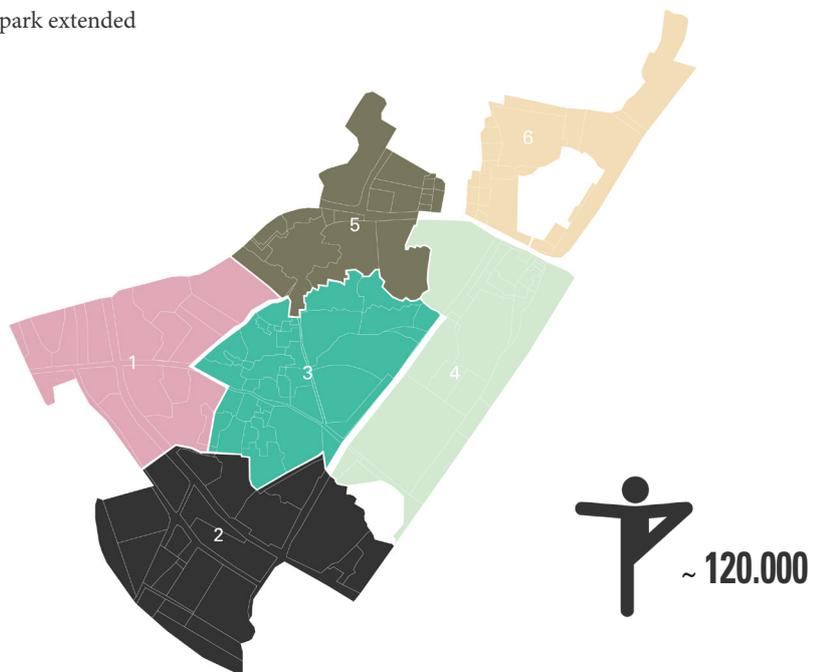
20 NEIGHBORHOODS

In each of the 20 new neighborhoods:

- park
- sports
- language school
- children school
- womens center
- bike sharing

large open festival (flexible) space

~ 35.000
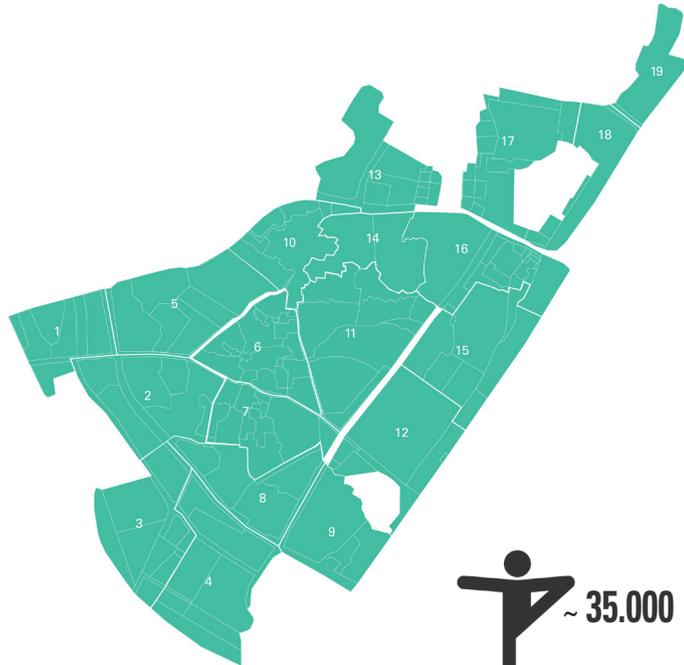
85+ NAGARS

Each nagar has at least one community square with:

- toilets and washrooms
- shared cooking space
- roofed flexible working space
- trees and greenery
- community recycling/trash collection

<10.000

BIG MOVES
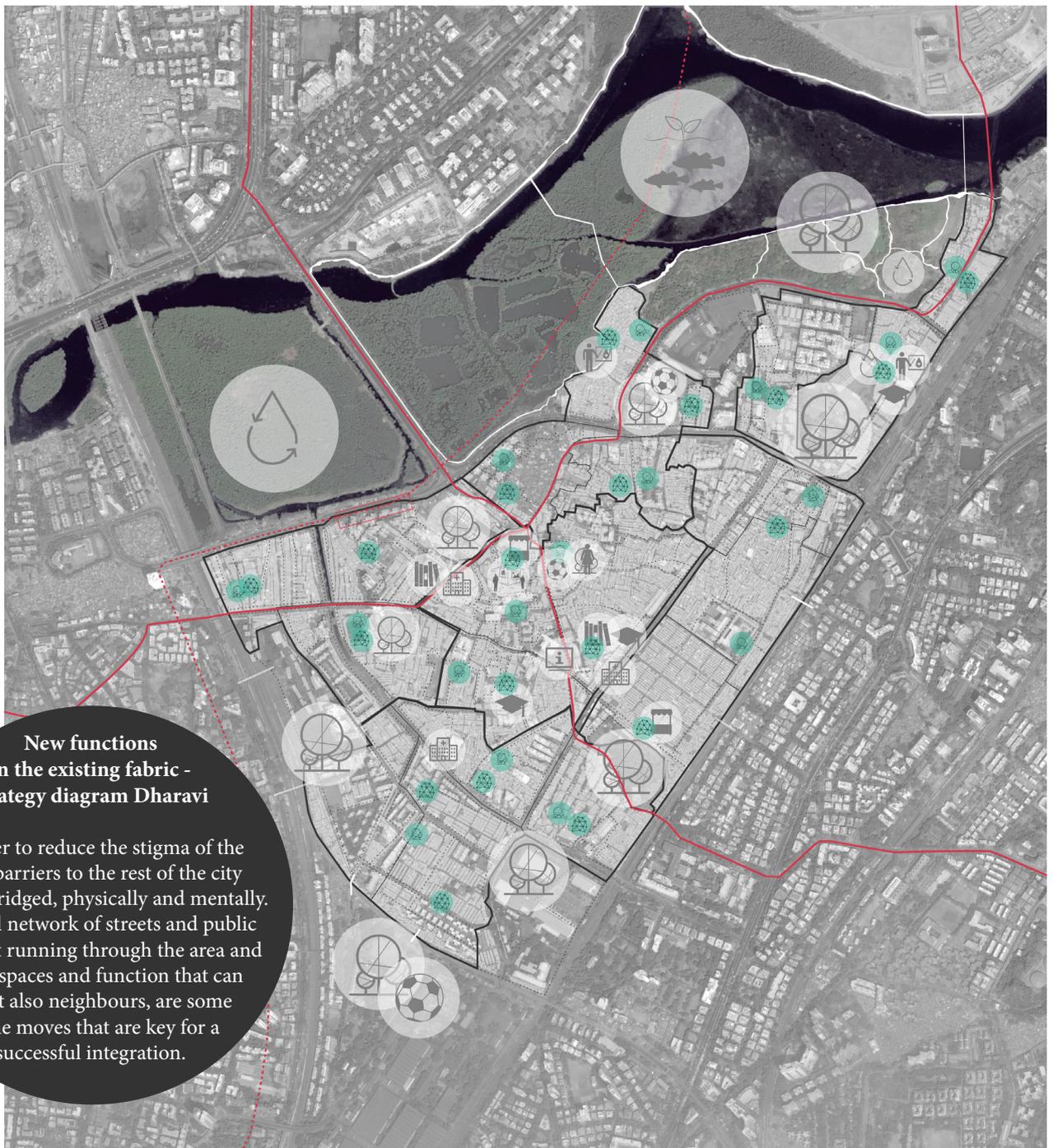
New functions in the existing fabric - strategy diagram Dharavi

In order to reduce the stigma of the slum, barriers to the rest of the city must be bridged, physically and mentally. A formal network of streets and public transport running through the area and public spaces and function that can attract also neighbours, are some of the moves that are key for a successful integration.

neighborhood square	sports	river park	ecosystem education	market place	new metro line	sector border
neighborhood park	park	swamp cleaning	women only park	library	new tram lines	neighborhood border
	hospital	higher education	(redevelopment) info center			existing nagar

1. PUBLIC TRANSPORT improved in the area. Two tram lines in east-west and north-south direction and a new metro line connecting to the city.
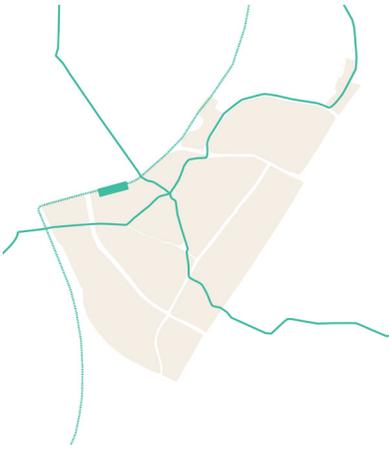
2. The new street network **CONNECT TO THE SURROUNDING** and connect the existing streets within Dharavi.

3. Street design to make it easier **TO BIKE** in and through the area.

4. In the new major streets **DRAINAGE** will be digged in to handle the monsoon rain water. In smaller streets and on squares surfaces are designed to slow down and absorb water.

5. A network of **NEW PUBLIC PLACES** where new social functions are introduced.
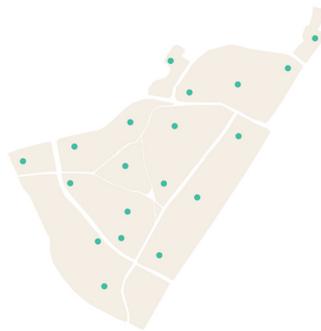
6. New **PARKS AND GREEN AREAS** in the area. The Mahim nature park is extended.

7. A bike and pedestrian walk along the swamp as a **RECREATIONAL RIVER WALK**.
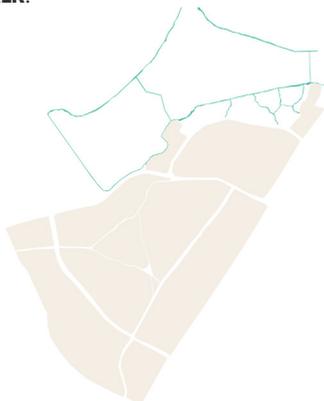
8. In some parts of the area it is possible to **BUILD HIGHER**. Those areas could be sold off to external developments
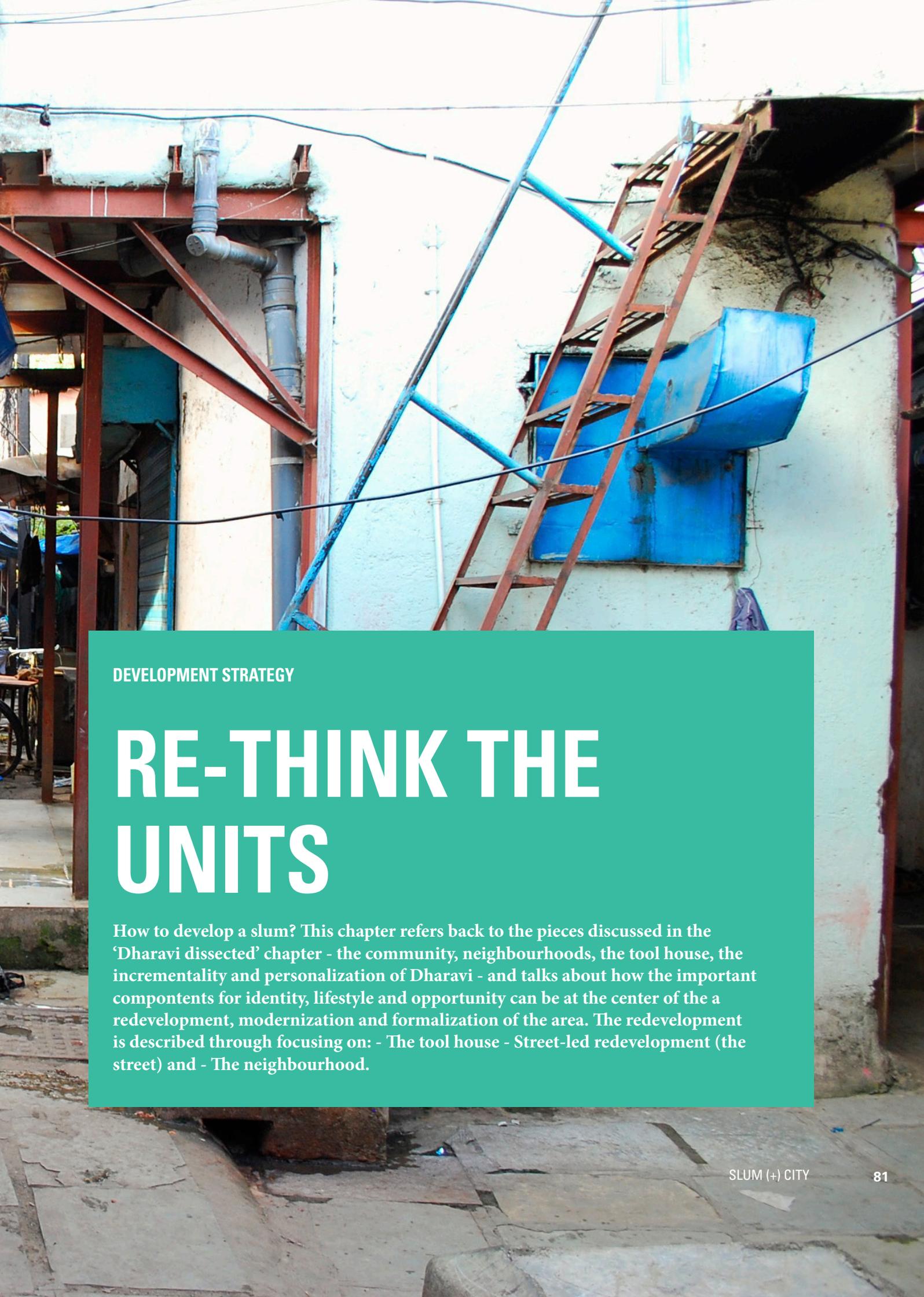
DEVELOPMENT STRATEGY

RE-THINK THE UNITS

How to develop a slum? This chapter refers back to the pieces discussed in the 'Dharavi dissected' chapter - the community, neighbourhoods, the tool house, the incrementality and personalization of Dharavi - and talks about how the important compontents for identity, lifestyle and opportunity can be at the center of the a redevelopment, modernization and formalization of the area. The redevelopment is described through focusing on: - The tool house - Street-led redevelopment (the street) and - The neighbourhood.

RE-THINK THE UNITS

THE TOOL HOUSE

The tool house lifestyle - where you live close to family, work and the street, are able to expand over time and rent out parts of the house that are not needed - is crucial for many of the individuals of Dharavi as well as for the business climate of the area. It enables the 5-minute-city. An upgrade to the model, but with improved living standards, is hence the key piece of the development. Starting with the housing unit also enables starting at community scale.

UPGRADE THE TOOL HOUSE

To enhance the tool-house lifestyle an upgraded version of the tool house could be developed. With material reused from the previous dwelling a more stable foundation could be built that can hold a taller building. Few of the self-made houses that are there today have a stable structure, which with the swampy ground conditions of Dharavi is needed to be able to build more than 2 floors. Bricks from the existing buildings can be used to build a new foundation - and with a more stable foundation taller buildings can be built.

Based on the existing housing typology

10 +

living + storage
/to rent out

rare back yard

workshop

storefront

4m

2,5m

20+

4

3

2

1
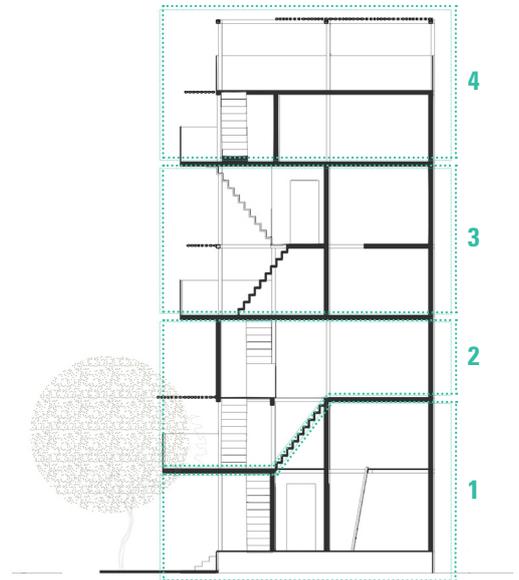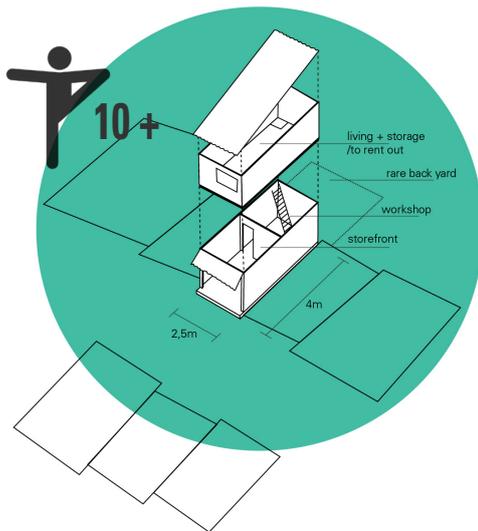
A little higher to make room for more people in one unit and free up space for the community

Re-use material from the old house to build a stable new foundation
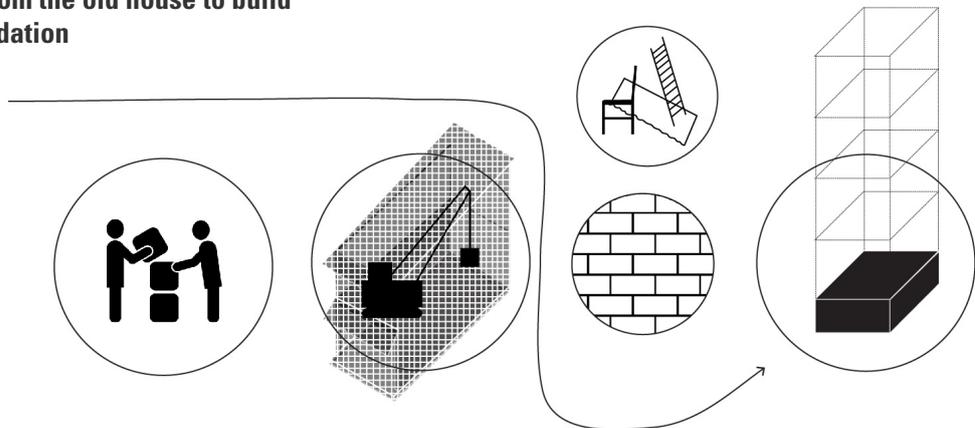
By improving the structure and providing a stable foundation the housing can safely be incrementally inproved and extended over time, according to needs.

TOOL HOUSE 2.0

INCREMENTAL DEVELOPMENT

In the foundation a water core where a toilet can be installed is integrated. The structure can also hold water storage and ventilation. With the basic structure provided, the rest is up to the users to develop depending on their needs. More floors can be built after time to house tenants or family members.

In the Dharavi Redevelopment Project the allowed floor height is 14 feet (4,3 m). In the proposal, the dwelling units overlap so that each unit have 1,5 floors. Each unit in the proposal have 36 m^2

THE RIGHT TO ONE'S HOME

Along with the redevelopment of the communities, all dwellers should get registrered and get an identification card, in order to be part of the city's social systems. An important aspect of the legalization process is the right to ones home - document that secure your tenure.

In the remaking of the streets a system of adresses should be implemented, with the possibility to registrer also on the upper floors of the houses, and not only the ground floors.

Ventilation shaft at the back of the building and stormwater collection in the basement.

24 m^2

4,3 m

STRUCTURE

ONE UNIT
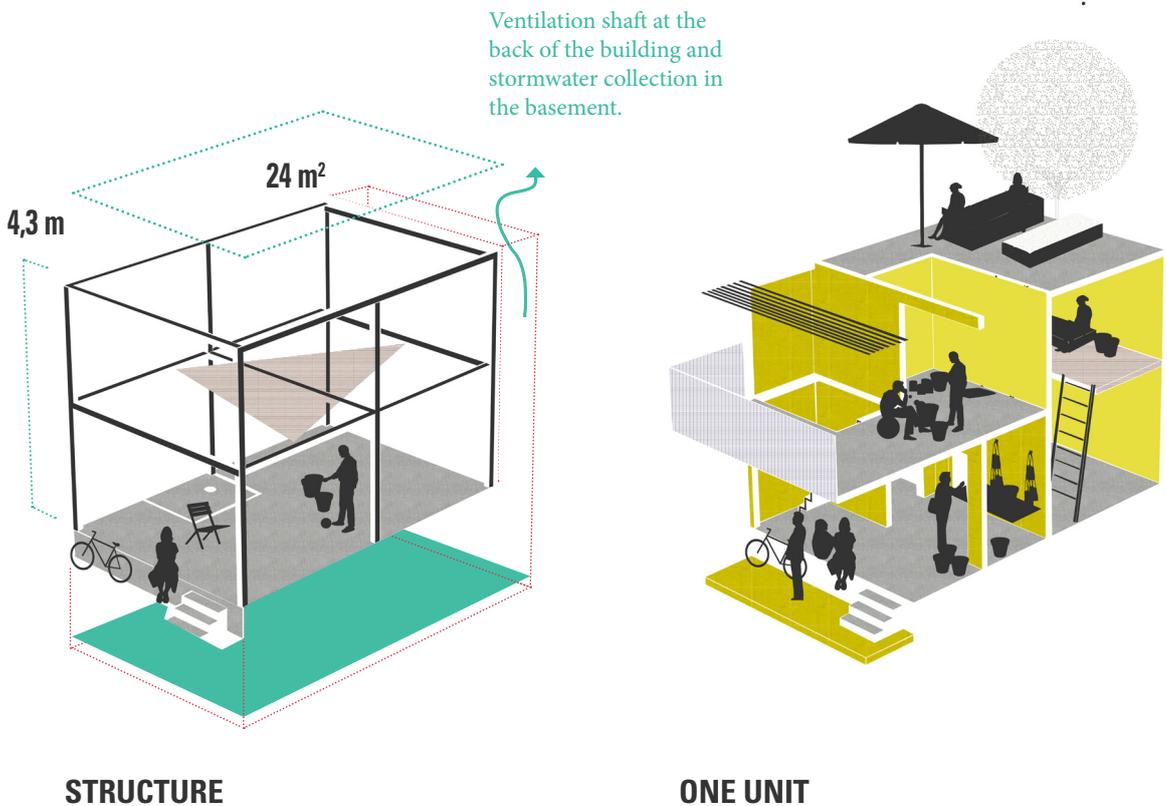
TWO UNITS

FOUR UNITS

WHY BUILD HIGHER?

Most available ground space is built in Dharavi, and the lack of space is as earlier mentioned the main issue which leads to many other problems. By proper structures that are just a floor or two taller, a lot of ground floor space can be released.
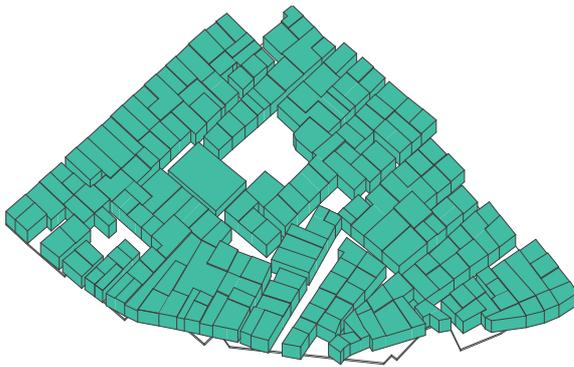
EXISTING

unbuilt area/
total area:

450m² out of 2765m²

groundfloor
households:
ca 200

average stories: **2**
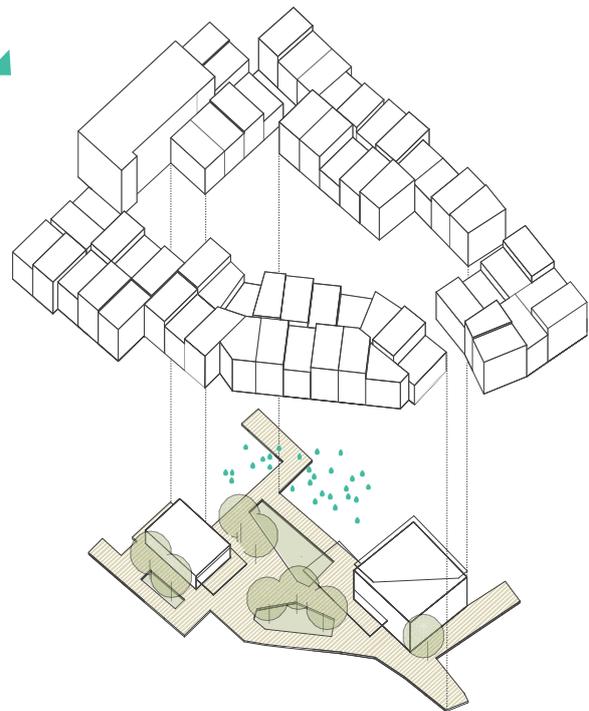
estimated no. of
families: **ca 300**

OUTCOME OF THE PROPOSED

unbuilt area/
total area:

880m² out of 2765m²

groundfloor
households:
ca 70

average stories: **4,5**

estimated no. of
families: **ca 300**

AND HOW?

Schematic phasing visualisation showing how the tool houses can be upgraded and over time be redistributed to give room for streets and shared community space.
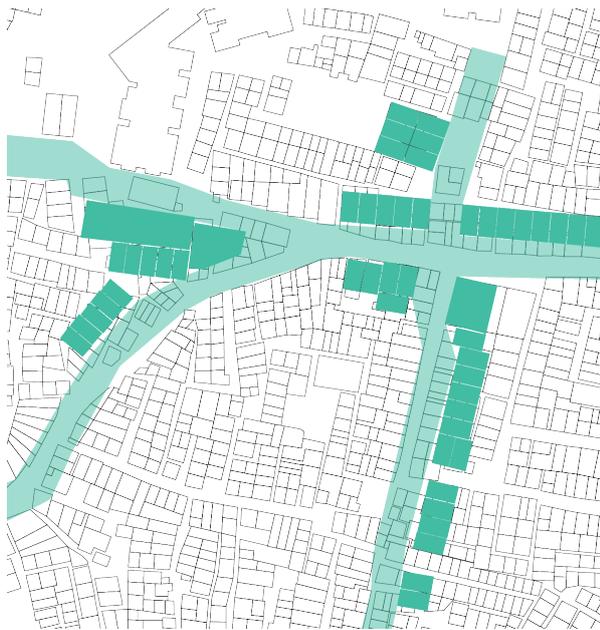
1. Widen bike streets, replace buildings where needed
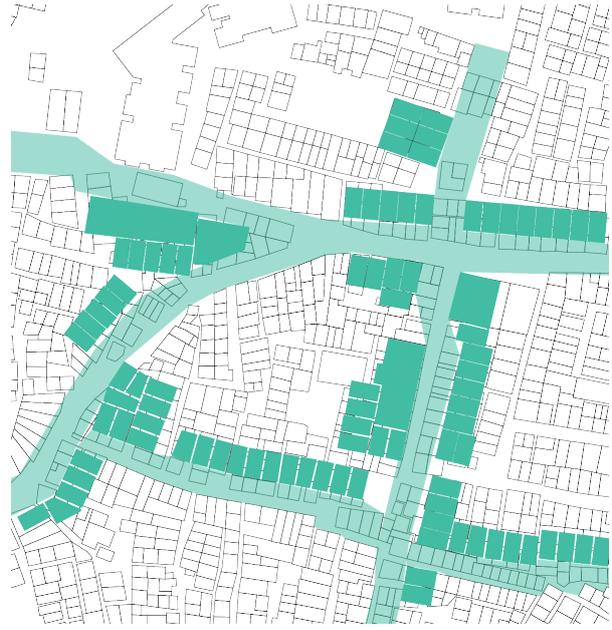
2. Pedestrian links/workshop streets
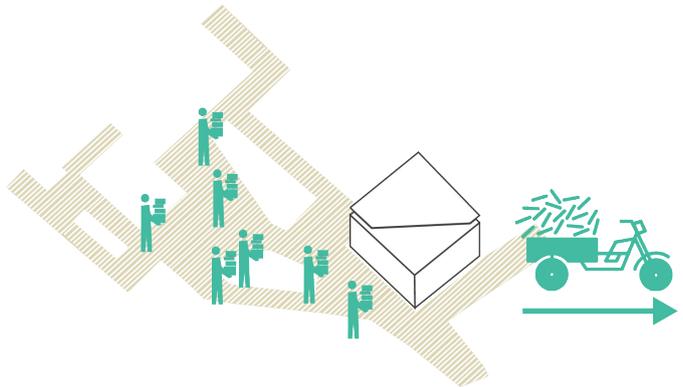

3.Community squares + building
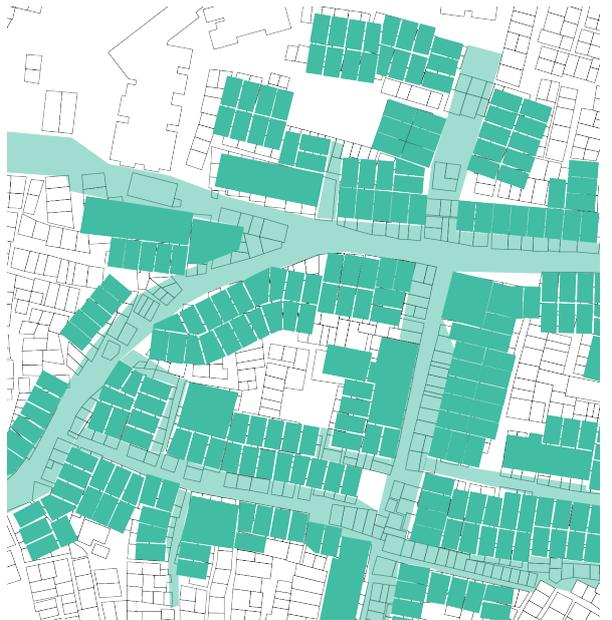
4. The community continues the development in their pace
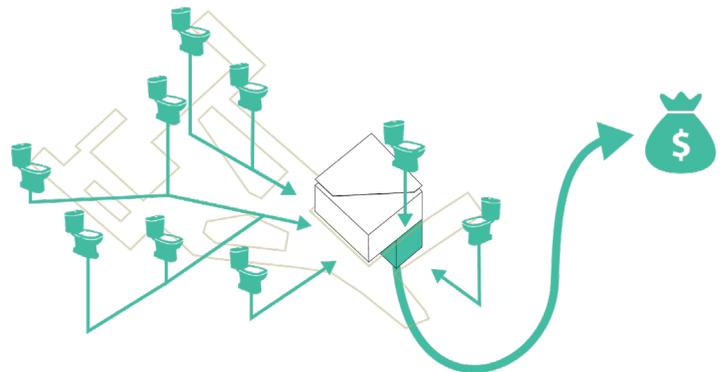
SELF-SUSTAINING COMMUNITIES

TOOLS FOR BUILDING INDEPENDENT AND MORE SUSTAINABLE COMMUNITIES

WASTE is recycled by the dwellers and collected in the community building. Rag-pickers buy the waste from the community and sell it to the recycling factories.
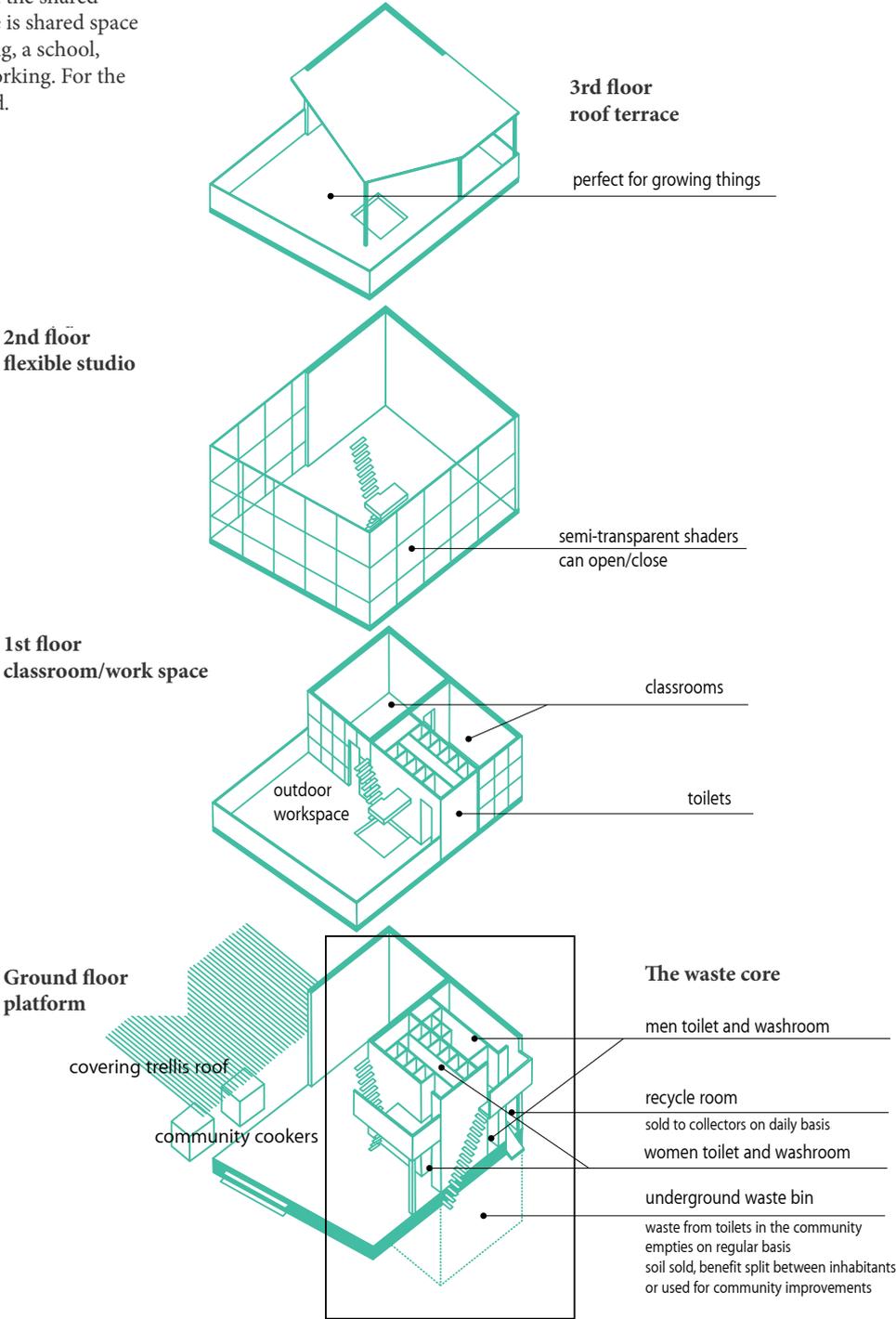
Soft surfaces, greenery and permeable materials slow down the flow of **WATER** during the monsoon season.

TOILET CORES in every new building. The dweller build the toilet and connect to the community system. The waste is collected in a tank and sold off to earn money to the community.

GREENERY in the community square creates a more pleasant environment. The flat roofs can be linked and used for planting food, socializing or working.

STACKED COMMUNITY SPACE

Space for the community is stacked on top of each other in the community building, to save ground floor space at the shared courtyard (next page). There is shared space for working cooking, meeting, a school, flexible space for sport or working. For the community to gather around.


**3rd floor
roof terrace**

perfect for growing things

**2nd floor
flexible studio**

semi-transparent shaders
can open/close

**1st floor
classroom/work space**

classrooms

outdoor
workspace

toilets

**Ground floor
platform**

covering trellis roof

community cookers

The waste core

men toilet and washroom

recycle room
sold to collectors on daily basis

women toilet and washroom

underground waste bin
waste from toilets in the community
empties on regular basis
soil sold, benefit split between inhabitants
or used for community improvements

THE LOCAL NEIGHBOURHOOD

The courtyard is the center of the community life. More stable building structures allow slightly taller buildings in the area, and more outdoor space can be free up for greenery and stormwater treatment, and shared space for cooking, working, playing or socializing.
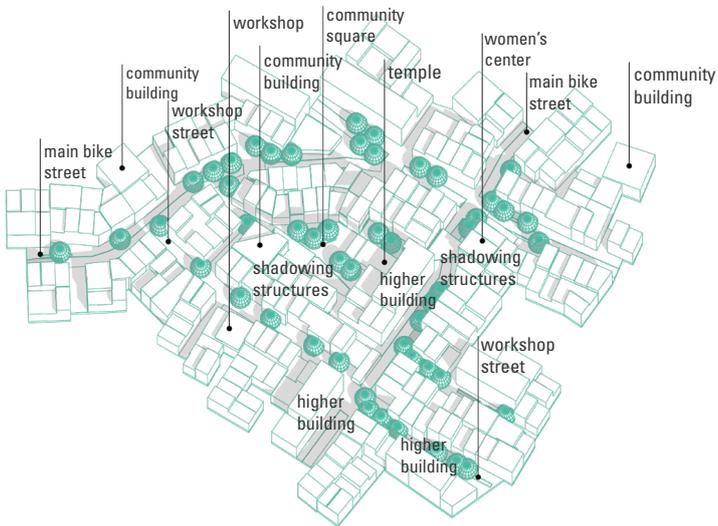
Location of the area in Dharavi. The area is further developed in the 'Neighbourhood' chapter.
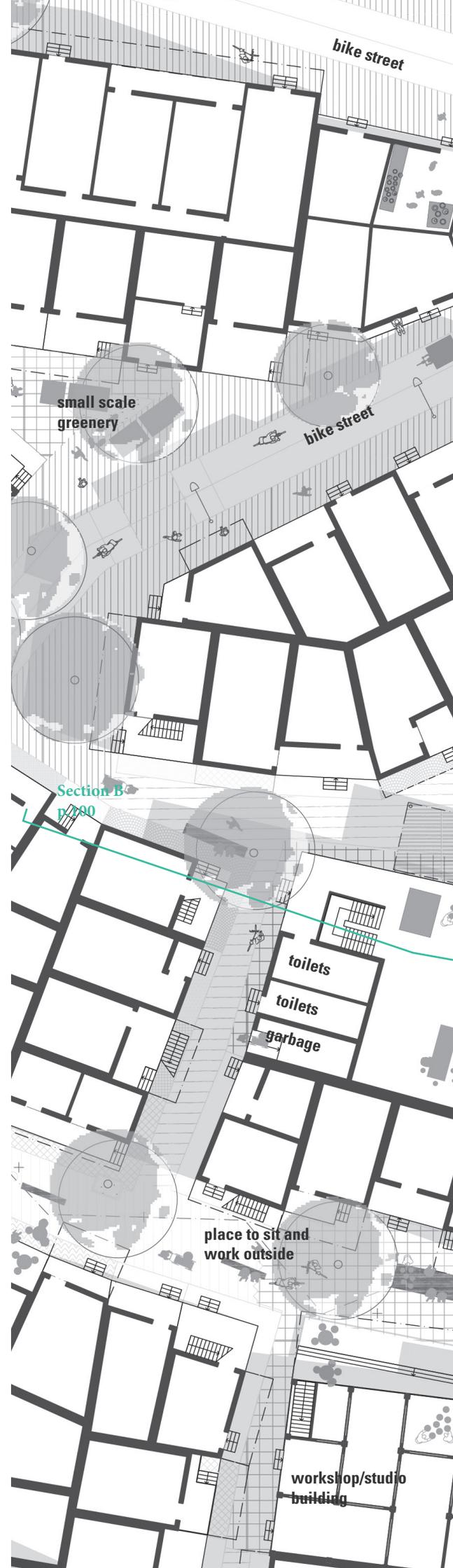
pocket square

bike street

women's center

toilets & washrooms

shadowing strucutres

small scale greenery

shadowing strucutres

stormwater basin

shadowing strucutres

tempel

higher building

community building

community cookers

stormwater basin

bike street

small scale greenery

STREET-LED REDEVELOPMENT

The paper 'Streets as Tools for Urban Transformation in Slums: A Street-Led Approach to Citywide Slum Upgrading' from UN-Habitat (2014) has been an inspiration for how street tranformation can improve livability in slum areas and connect them to the rest of the city. The method advocates for a shit from individual piecemeal projects to opening streets and using them as the driving force for citywide slum upgrading.

THE STREET IS WHERE LIFE HAPPENS

Slum areas in cities are often spatially segregated from their surroundings due to an absence of streets and open spaces in the area. Instead of the piecemeal project based approach to slum upgrading which is usually applied, this approach is program based on the larger city-wide scale. Opening of streets within slum areas reconnect the area to the city and can be the driving force for further upgradings.

DHARAVI NEEDS STREETS

Dharavi is cut off from its surrounding by physical borders as well as mental. Well-functioning, attractive streets can make people from the outside come in and pass through the area - better infrastructure both give reason to short cut the area and give better and safer access within the area.

By establishing som major links through the area, with new public functions along the way, Dharavi has a new set of spines for the rest of the upgrading to lean on and grow out of.

RESPECT THE EXISTING NETWORK

Dharavi's network of streets is disconnected and lanes often end up in cul-de-sacs. By developing the existing street network identity and communities are maintained and by connecting streets a more efficient and safe network is created.
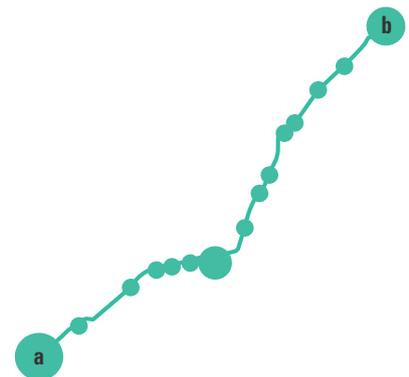
Streets should be seen both as connections between nodes or points of interest and public spaces, with opportunities to stay and where commercial or public functions gather

Existing street grid
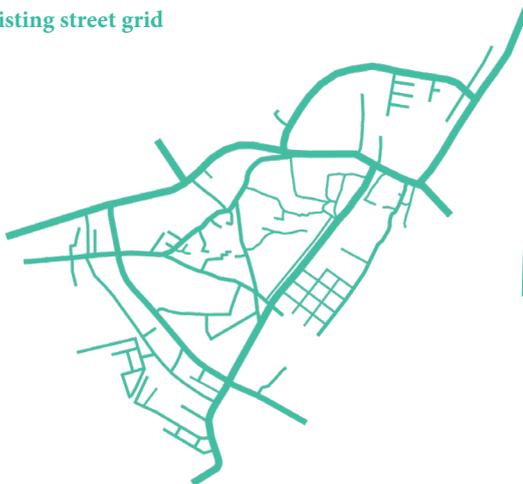
**New street grid**

WORKSHOP/COMMUNITY STREET

is a medium sized street with shared
indoor and outdoor space for working
together, education and small scale
production. The street is possible to
travel through, but speed is slowed down
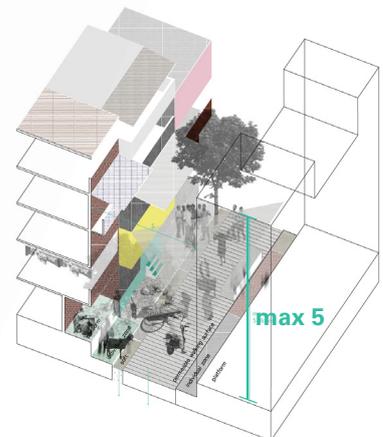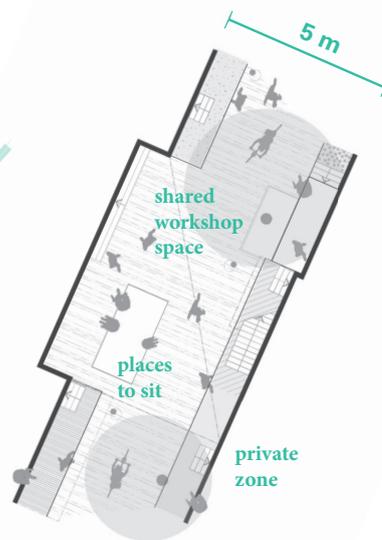because of all the activity on the street.

RE-THINKING THE STREETSCAPES

LANE

- Community street
- Semi-private

stairs to upper floors

private zone

balcony overhangs

3 m

max 4
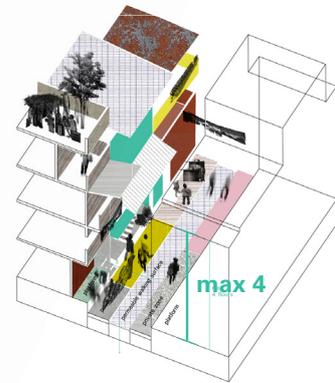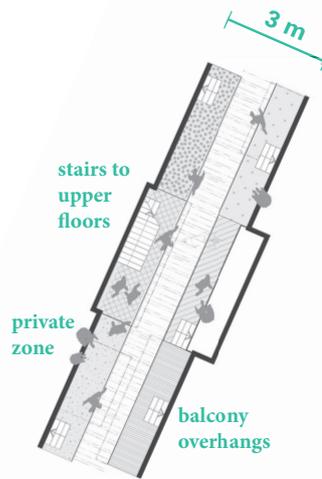
INNER COMMUNITY STREET
/ workshop street

- Community street
- Pedestrian
- Semi public

See page 97.

shared workshop space

places to sit

private zone

5 m

max 5

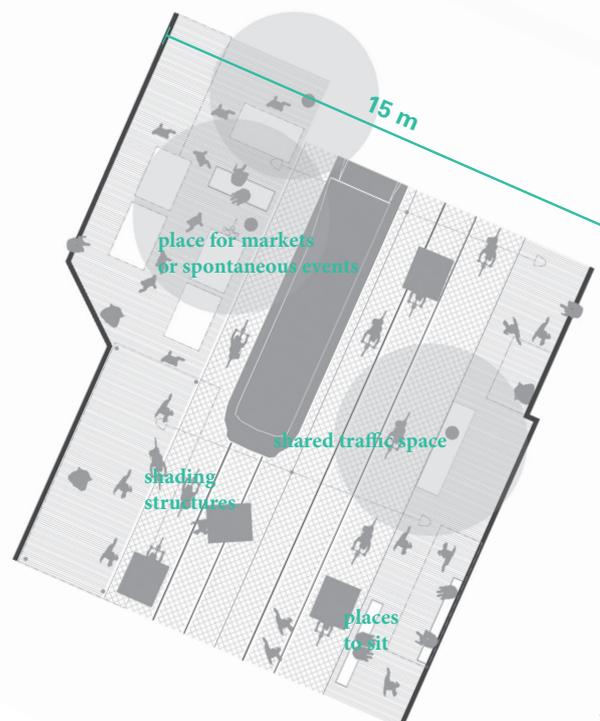## MAIN INTERNAL STREET /
bike street

- Aerterial street
- Combined zone for bikes, tram or cars
- Public
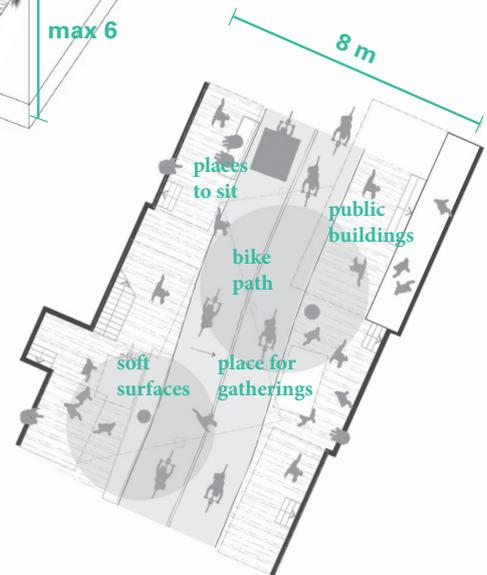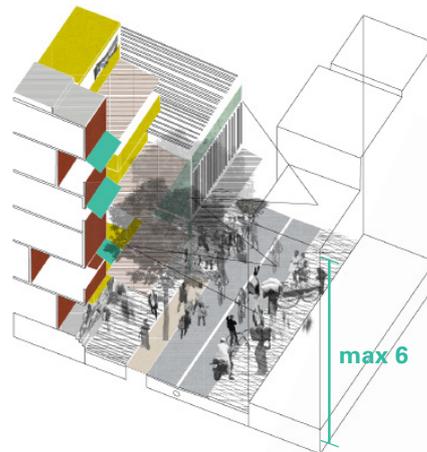
PUBLIC MAIN STREET

- Aerterial street
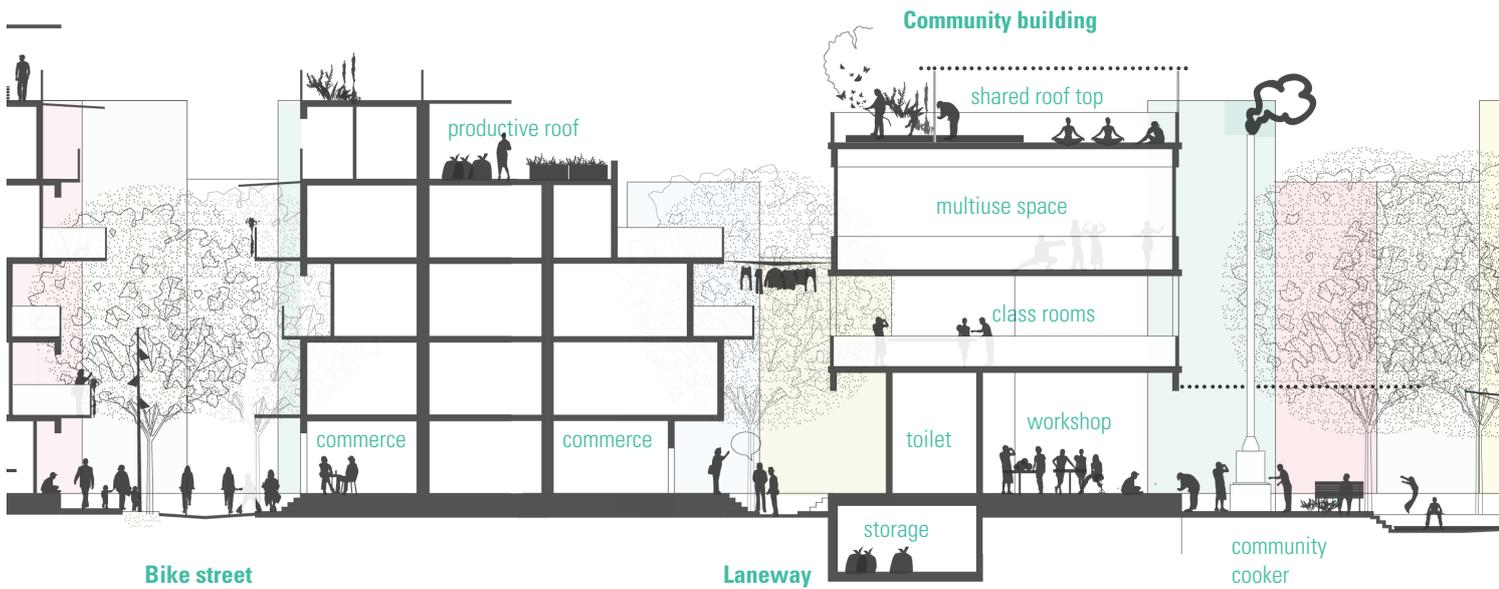- Combined zone for bikes, tram and cars
- Public

See page 102.

NEW STREETS

COMMUNITY AREAS

Section A 1:150

Community building

shared roof top

productive roof

multiuse space

class rooms

workshop

commerce   commerce

toilet

storage

Bike street   **Laneway**   community cooker

NEW STREETS AND PUBLIC SPACES

Section B 1:500

Green space   **Main public street**   **Laneway**   **Bike street**

productive roof

stormwater
basin

temple

commerce

commerce

commerce

commerce

Community square

Bike street

Laneway

Laneway

Public square

Laneway
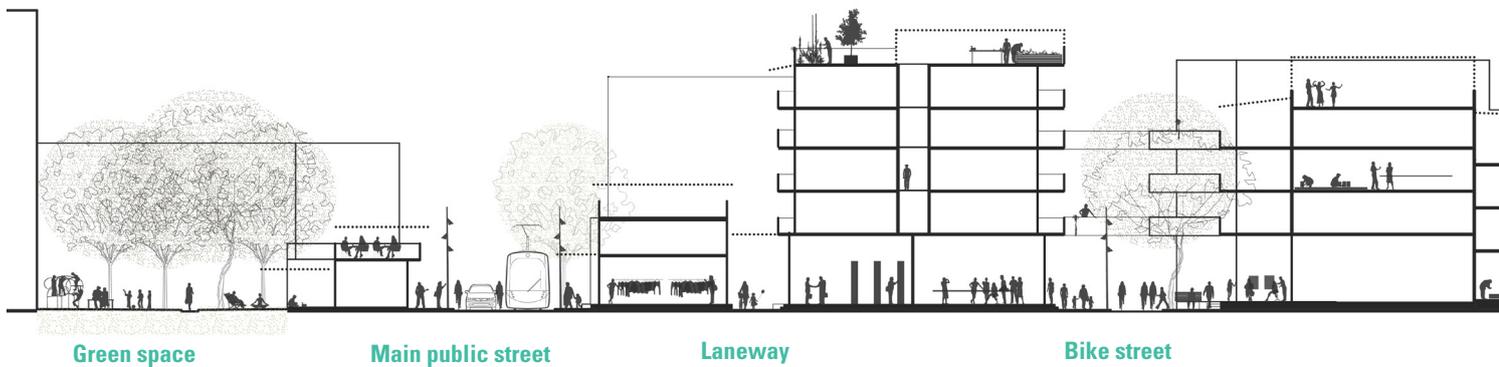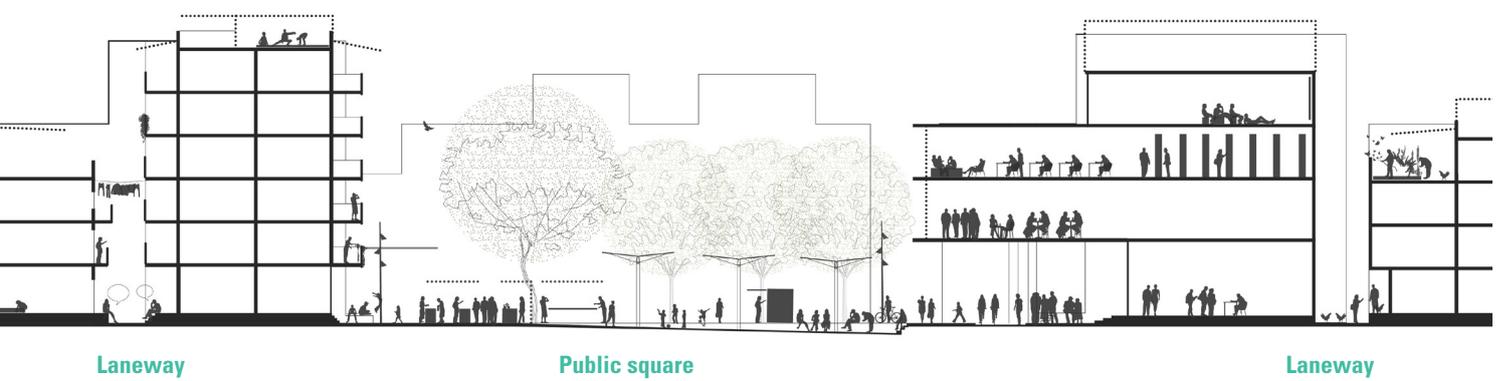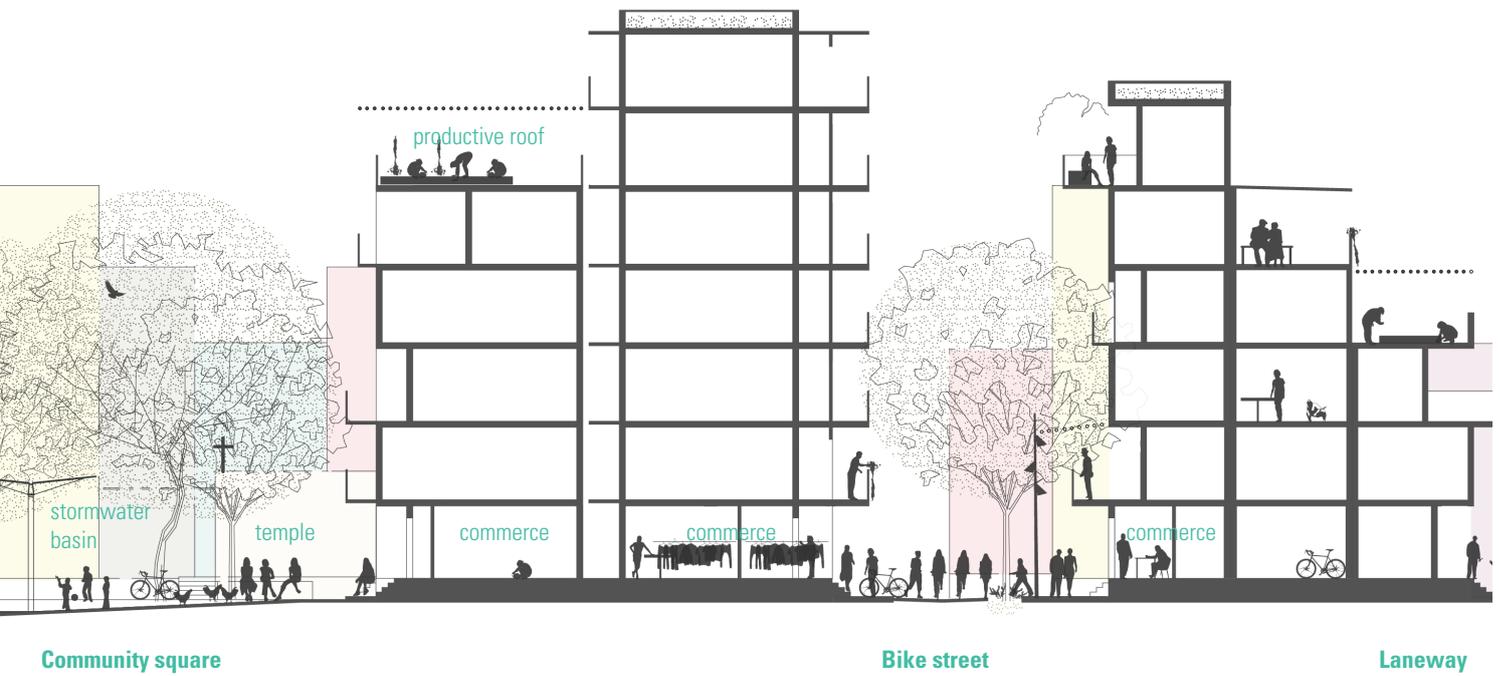
NEW CONNECTIONS WITH THE FORMAL CITY

THE MAIN STREET

Linking to the rest of the city trhrough public transport, public space and activites. The main streets are widened versions of the existing main links in Dharavi, where the new tram lines go. They connect the new public places with their surrounding neighborhoods within Dharavi but also with the areas outside.

MEASURE

PILOT?

TEST

REFINE
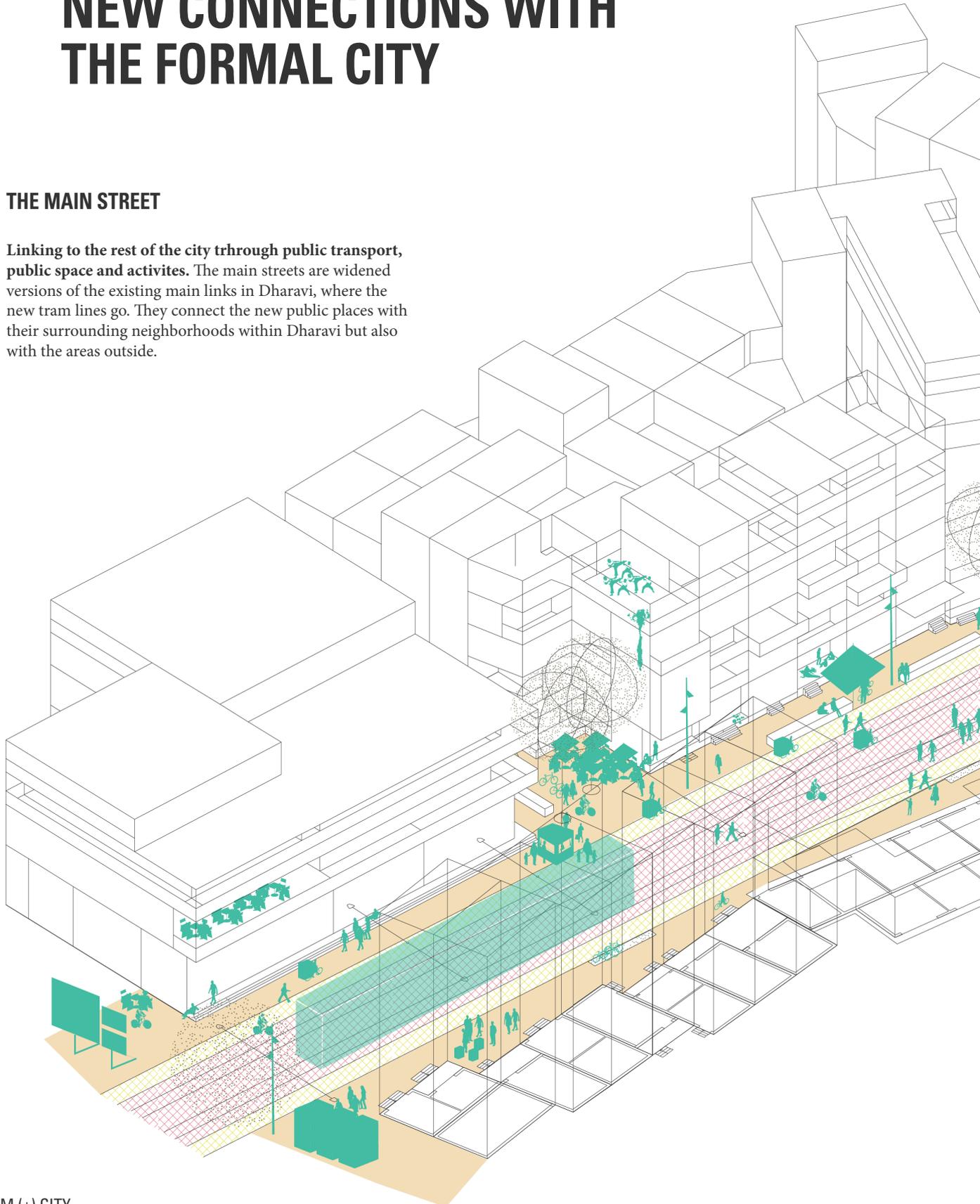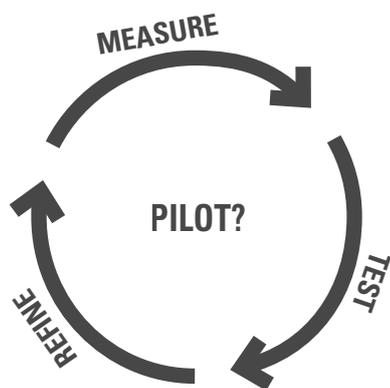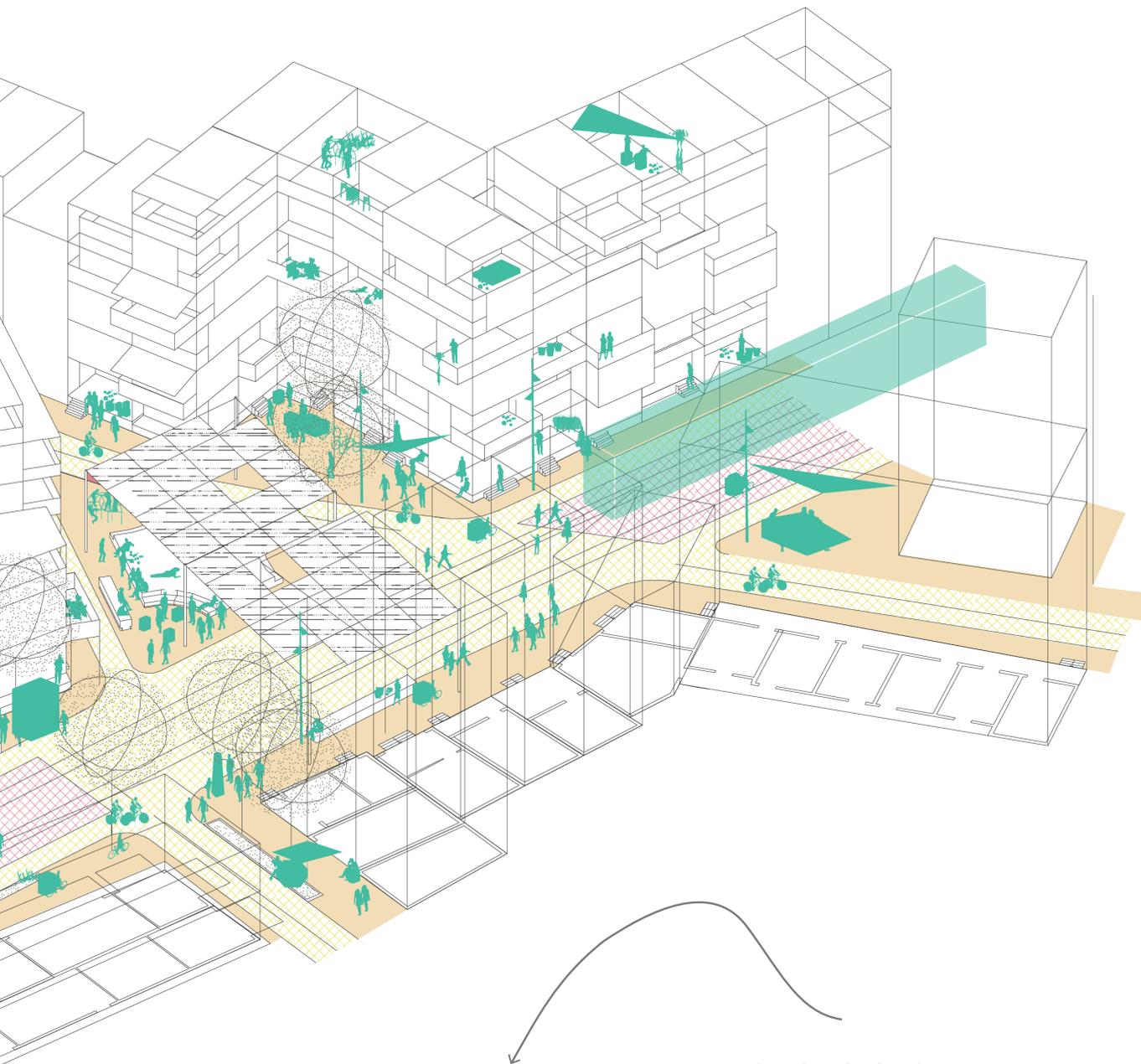
A PILOT TO TEST OUT?

All buildings in Dharavi will not be replaced by the same typology - one typology cannot fit everyone's needs. Nor will all buildings be replaces at the same time. As a way to try out how the right units for the upgrading one street or community could be choosen to do a pilot project, where the new housing typology could be tested out. The things that did not work can be adjusted for the next phase and continuosly be redfined throughout the process.

(Diagram redrawn from Gehl Architects.)

RE-THINK THE UNITS

THE NEIGHBOURHOOD

To give the people of Dharavi the same opportunities as everyone else in the city, new public functions, public transport, job opportunities and opportunities for education, health and recreation are crucial. On top of connecting each neighbourhood to its surrounding through the improved street network, as introduced in the previous chapter, new public functions and spaces are also introduced at neighbourhood level.

NEW PUBLIC SPACES

In this chapter sector 3 (neighbourhoods 8, 9 and 10) will be used to exemplify how the toolbox of streets, new functions could look in a "finished" version.

The center of the three neighbourhoods - a key area due to the meeting of several existing larger street - is marked below and showed in the zoom to the left. Here is a new redevelopment center new to the existing school, a number of taller buildings that allow for new workshop- and studio spaces on the ground floor, new public spaces and functions, such as a library, women's centers, schools and student housing. The tram runs through the area, with a stop at the redevelopment square.

<u>Roughly estimated</u> this sector houses around 120.000 people. For perspective - this is the same size as Lund in Sweden, and there is only 12 cities in Sweden with a population larger than that.

~ 120.000 people

kindergarten roof top yard

existing school

redevelopment center

existing

library square

higher
education

stormwater
basin

school

library

Section A
p.100

workshops
& studios

library

workshops
& studios

toilets

community
courtyard

existing trees

student housing

workshops
& studios

women's
center

student housing

health
center

hospital

existing housing

BUILD ON TO THE EXISTING

**THE STRUCTURE OF THE NEIGHBOURHOOD IS KEPT IN THE DEVELOPMENT**

Factories & production areas

Marked out areas show textile, leather and sari production. Clusters of various factories mapped in 8 and 9.

Education & religion

Religious buildings (tempels, churches, mosques) are often important meeting places in the communities. Schools marked in red.

Commercial streets

Clusters of shops, restaurants or services along the existing main links.
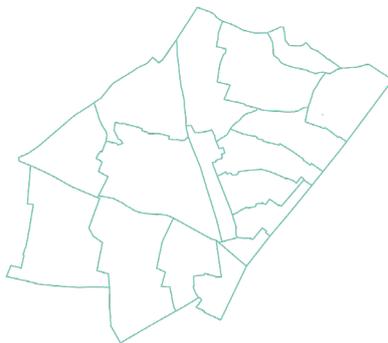
Nagars

Existing community divisions.

Existing main streets

Two important main streets go through the area between neighborhood 9 and 10.
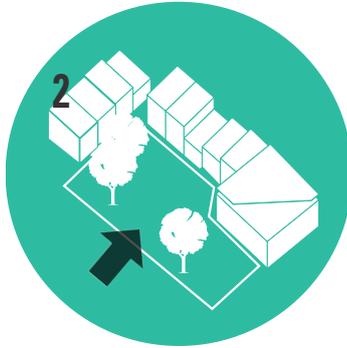
DESIGN TOOLBOX

Design strategies for the neighbourhood to provide a framework for community based redevelopment.

Extrovert public squares	Semi-private community space	Green and open space

| New public functions	A connected street grid

... AND IS USED TO CREATE A NEW NETWORK OF STREETS AND PUBLIC SPACES

The new network of streets is supposed to both invite outsiders to come to Dharavi, with new types of public spaces (green), as well as maintain the semi-private community streets and squares (grey).

... and leave the rest to the residents

STEP-BY-STEP

1. REDEVELOPMENT CENTERS

The Redevelopment Center is where the dwellers get information about the redevelopment process, get help and meet with councellors. Plans and other information can be exhibited here and courses of various kind can be held.
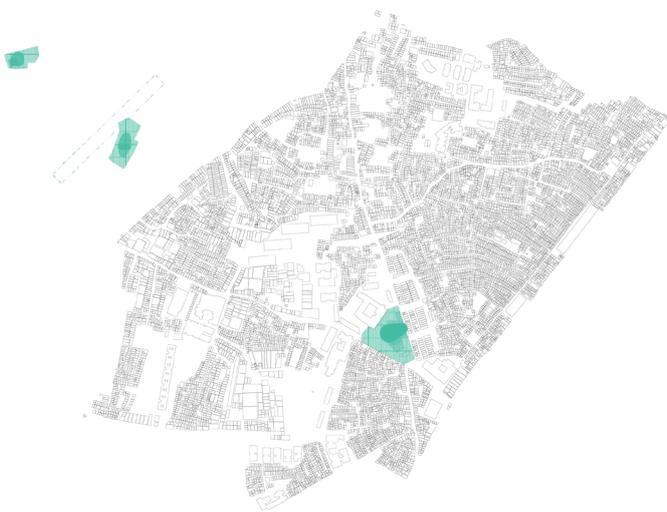
2. MAJOR STREET CONNECTIONS

The already established links are widened to make space for more activites. The metro and the two tram lines connecting to the surrounding areas are built. These can be used by cars but the traffic space is shared also with bikes, trams and pedestrians.

3. BIKE STREETS

The bike paths are the important new inner links of Dharavi, which will make it easier for pedestrians and bikes to get around in the area. They also connect some of the new public squares and parks that will be developed along the way.

4. PEDESTRIAN WORKSHOP STREETS

In between the more public bike streets comes the workshop streets - pedestrian links with a slower pace, with hared workshop buildings and where the street's ground floor can be used as a workshop space.

5. THE IN-BETWEEN DEVELOPMENT

When the major street links and moves are done the communities in between develop their space with smaller streets and community squares.

THE NEW NEIGHBOURHOOD

NEW PUBLIC SPACES AND FUNCTIONS IN SECTOR 3

Existing buildings shaded, new in white.
Public functions in dark:

1   Redevelopment center
2   Library
3   Hospital
4   Student housing
        (commercial ground)
5   Studios
        (housing, workshops, shops)
6   Higher education
7   School
8   Controlled factory area
9   Market hall
10   Reserach center
11   Language school
12   Health center
13   Women's center
14   Toilets
15   Workshop building
16   Temple/church/mosque
17   Police station
18   Business school
19   Sports center
20   Lab
21   Women only sports

existing
open
ground

park

market
square

main street
p.102

community square
p.92

new public spaces
p.106

library
square

redevelopment
square

tram
stop

innovation
square

park

market
square

tram
stop

REFLECTIONS

The most important take away from this project –from studying how cities around the world deal with slum areas, slum rehabilitation and rapid urbanization and trying to find a model for Dharavi, but above all from the time I spend there - is the importance of participation, involvement and understanding who you are designing for. The people living in Dharavi all have different stories, different ways of making their world go round, different constrictions, strive for and dream of different things, have different reasons for being there, believe in different Gods and have different traditions. It would be impossible for us as urban designers and architect to design a strategy that would suit them all from our desktop. Developing an area like Dharavi takes a lot involvement and bottom-up engagement, and not least a lot of trust from the citizens. For our role as designers, this means a lot of time on site, talking to a lot of people, in Dharavi as well as in the rest of the city, to really understand who and what we are designing for. And then in the end come up with design solutions that are adaptable and flexible, that can cater for different lifestyles and can be implemented together with the people who in the end will be the ones to live in it.

Although the design I am proposing might not be the right solution for all of Dharavi, I do think that the concept of building on to the key components of the area – among them the tool house, which for many enables them to live the life they do - and at the same time upgrading streets, to create better connections within the area and to the outside, and introducing new public spaces and functions is a strong base for starting a more inclusive and humanistic redevelopment process. The next step would then be to convince the municipality to invest the money and will needed to make sure that there is a place also for the weakest in the city.

A huge **thank you!** to the people of Koliwada, Dharavi, and to you, for reading this report.

Two girls playing in the local square in Koliwada.

SLUM + CITY /

re-connecting the city through
street-led slum redevelopment