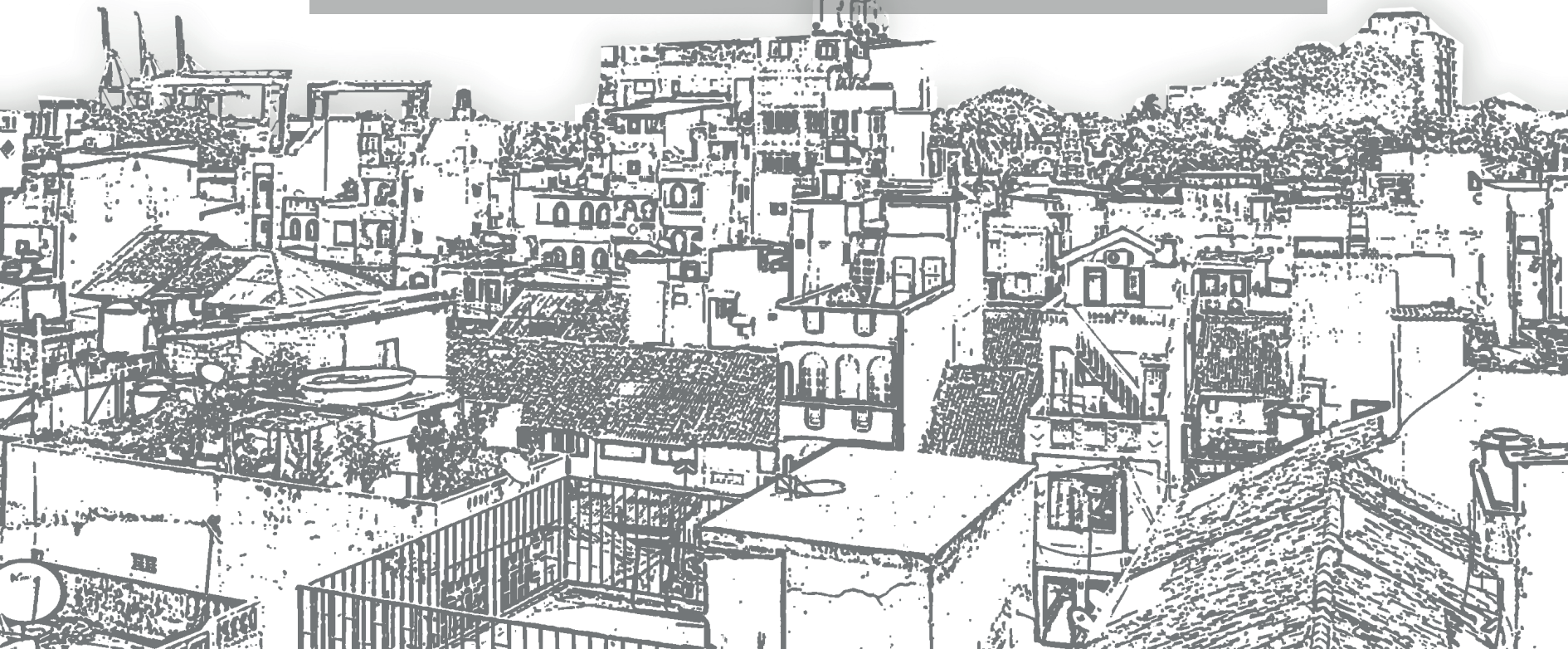
THE SPACIAL IN-BETWEEN, A CITY TO CONNECT WITH

Revitalising a historic urban district, Newham square, Colombo



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KU LEUVEN

FORWORD

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Master thesis title : the spacial in-between, a city to connect with
Subtitle : Revitalising a historic urban district, Newham square, Colombo
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CONTENT

ABSTRACT

This design takes part in a development cooperation program between the KU Leuven (lead by K. De Wandeler and A. De Meulemeester) and University of Morotuwa (Lead by Janaka Wijesundara). In that framework this mas-ter thesis , guided by Martine de Maeseneer, aims at proposing a new design perspective for bottom up interven-tions against the backdrop of large scale transitions in Colombo, Sri lanka.

A Tabula Raza design is set by the government to give Colombo a new start. But is this the most sustainable way ? The first two parts of the research try to give a better understanding towards the current socio-cultural affordanc-es. Why is this development needed and how is it going to affect the eleven million people living there. To fully understand the current way of living in Colombo the next chapter will show an analyzation about a historic part of town. This study about a region around the pettah district, Newham square, shows how the architecture grew and how the daily activities are affected by the lack of space. The last chapter uses a research by design approach. The concept of the design concept aims towards a more sustainable way of dealing with the low income housing in colombo starting with the case study of newnham square. The primary goal is to show the goverment that it is possible to have a low cost project to densify the site with respect for the existing heritage and the social infrastructure.

This buttom up project allows the population to consider their houses as an investment. Giving them the chance to go out of poverty and creating a better living conditions. In this way the people living in these kind of settlements become an asset to the city, providing them with a self sustainble system with a unique social structure.

GENERAL CONTEXT

A. LOCATION

B. HISTORY

1 Portuguese period
2 Dutch period
3 British period
4 Independence

C. GENERAL DEMOGRAFICS

1 Region and ethic communities
2 Age/gender

LOCATION

ASIA

Since I was a kid I wanted to travel the world. Not only to see it but to experience the culture, eat the local food, try to understand and speak the vernacular, just to live the way they do, for the time I'm staying.
Studying architecture (1st master) and interior design (1st master) only stimulated this curiosity for other cultures more: other ways of living, building, speaking, … I think it is important for an architecture student to travel. It gives a different perspective on designing. Each culture has its own point of view, it opens your eyes.

That is why I decided two years ago to do voluntary work in the Philippines (with Bouworde VZW). For 5 weeks we lived, worked and even sang with the locals. The project that I helped with was making a permaculture site.

The Philippinos taught us how to build with bamboo, make local sweets, speak their language and live with the concept of permaculture. It was an experience I will never forget.

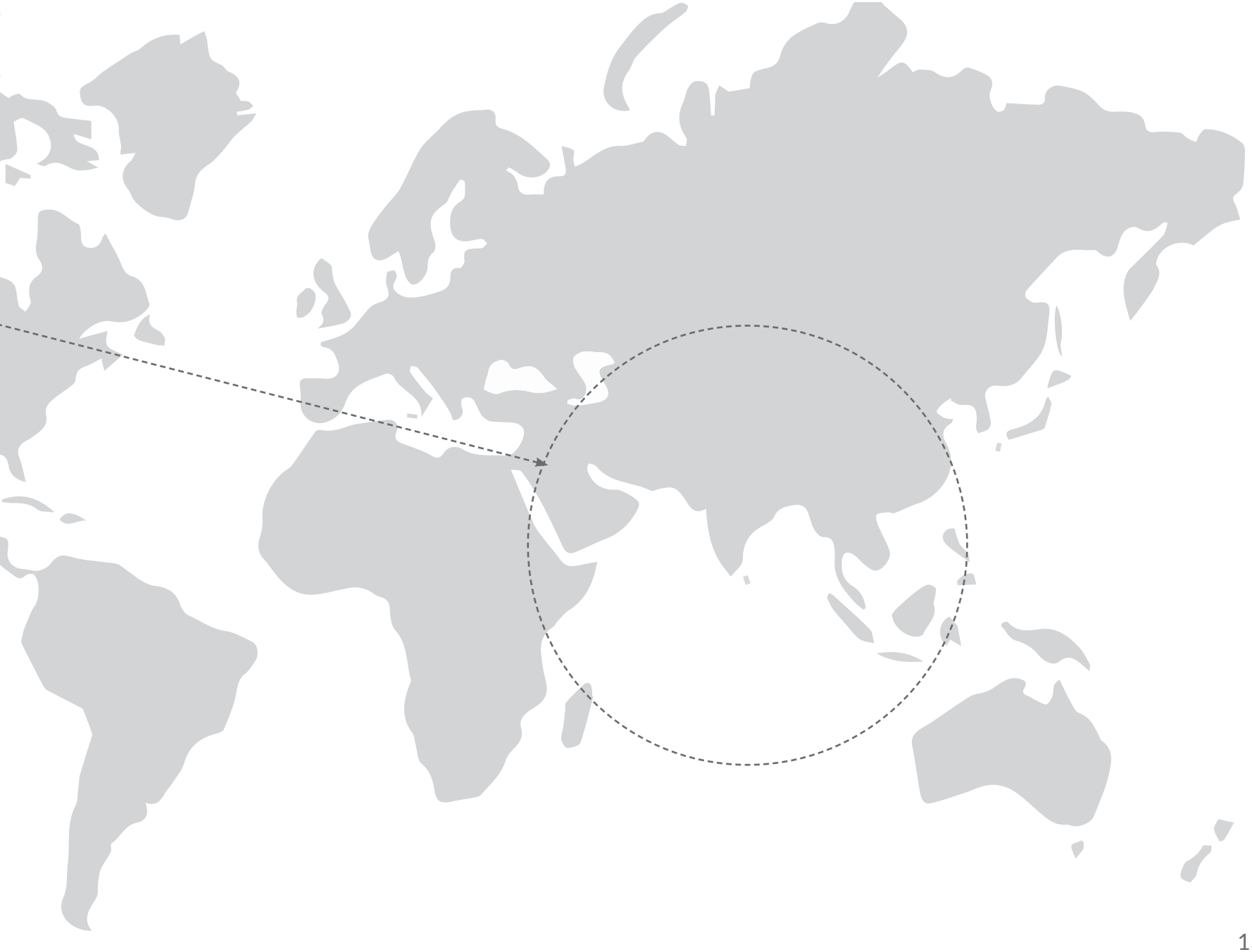
I got another chance to go to a foreign country and learn as much as possible. Out of the presented development cooperation projects I choose Sri Lanka because the country has a large variety of cultures within one place. Buddhism is the main religion, but the Buddhist culture is also tolerant of the Muslims, Christians and the Hindus in the region. Therefore, I think it is a very interesting place to study the historic growth, the culture and economic status and what the urban pressure will do with it.

The cooperation with the local university was also interesting because of the cultural differences.

Just to see how in the design studio (the Master Urban Design; University of Moratuwa) a project will be approached and in this way, learn from their way of doing. This was a huge challenge and an amazing opportunity, that took my abilities to the limits and broadened them.

This unique experience became the base for my master thesis.

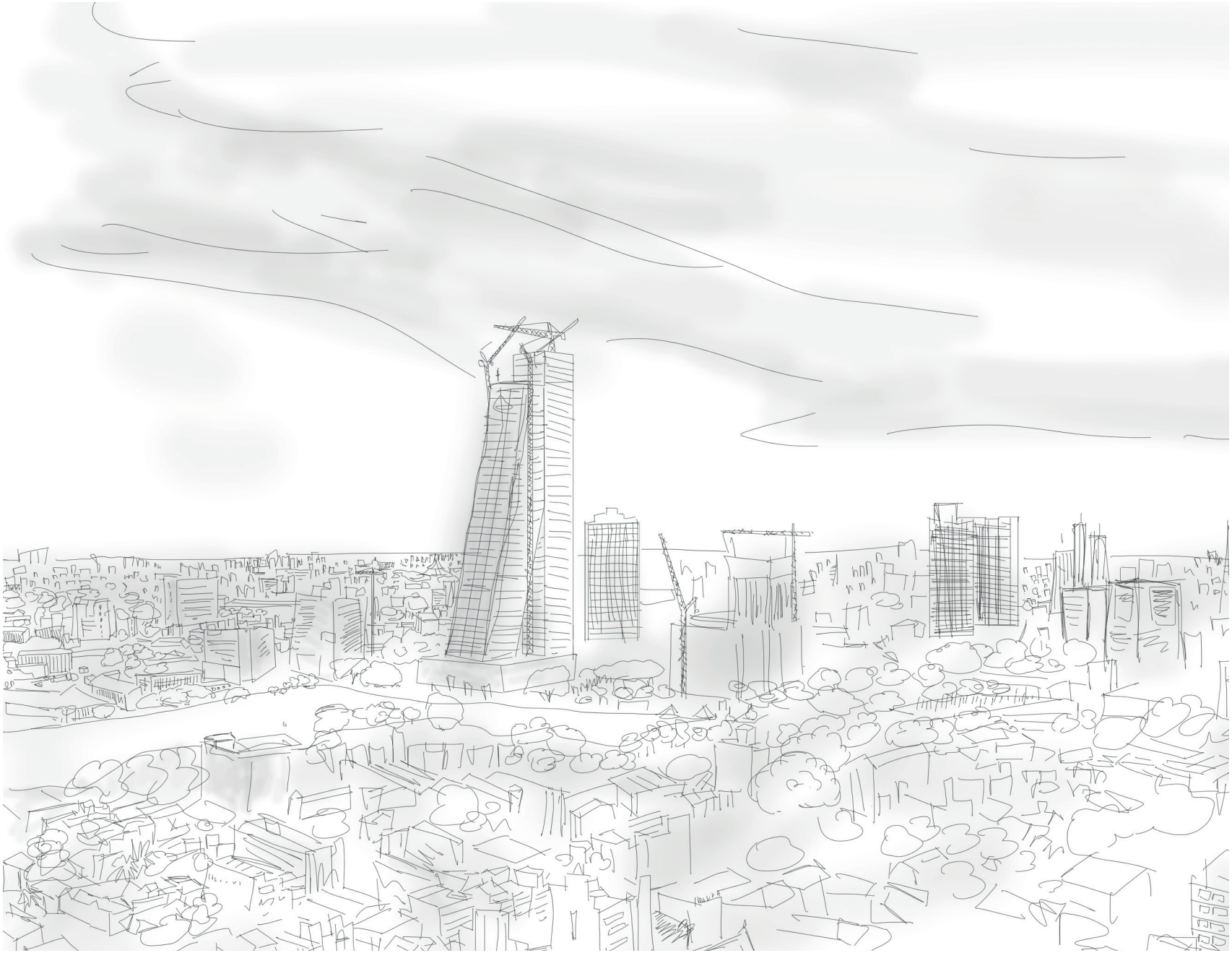
Linde Debbaut

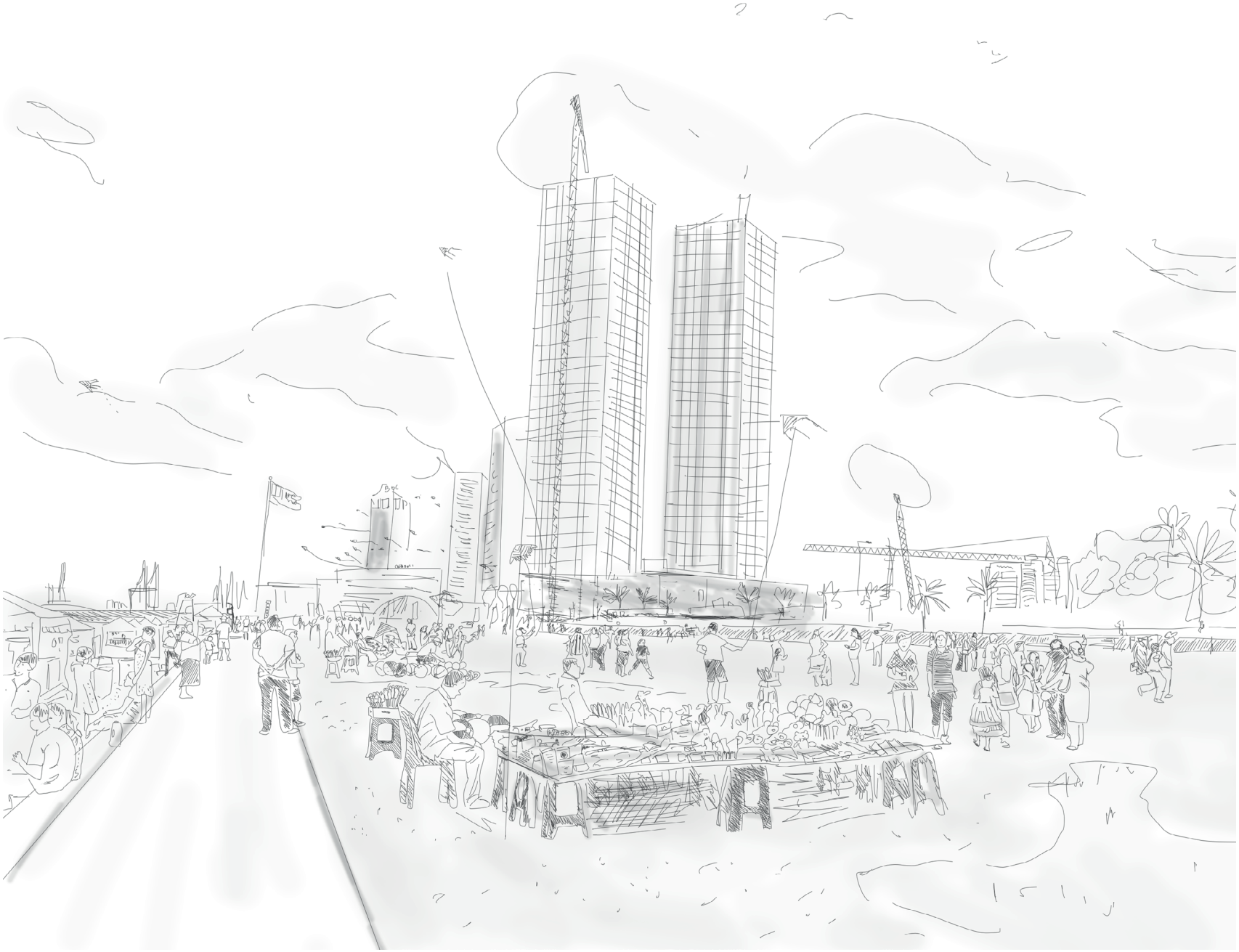


“Revitalising a historic urban District”
Gas works Junction and surrounding area at Pettah, Colombo

The largescale developments have emerged in the context of local neighbourhood places in and around Colombo City. Though they contribute to the city economy and modern urban character, they often conflict with the existing communities and local neighbourhoods with the mismatch of these two different entities. In this context it is important to explore how local urban districts can survive while recognising their values contributing to the liveness of the city. The inherent elements, patterns, and rhythms of these local urban neighbourhood districts are quite unique, and it is important to see how urban design can lead the process of making them more efficient and effective in the contemporary urban transformation. This studio project mainly involves with site studies, urban design visioning, concept formulation, and urban designing and presentation. The central aim of this design studio is to develop abilities and skills which will enable students to carry out urban design projects. The abilities and skills comprise investigation, problem recognition, analysis and interpretation, design development and presentation. These kills are to be mobilised for projects such as the preparation of strategies, frameworks, concepts and strategic planning scenarios in a professional and visionary manner. Students are expected to extend their presentation methods by developing illustrative, writing and verbal skills appropriate to the urban design. Visionary and innovative approaches are encouraged. Students carry out the following studies for the given streets/urban node/neighbourhood and will work on research investigations, analysis, urban design vision, a concept and urban design for the above study area: The urban design studies will be conducted as a group and the Place Performance Evaluation Game as presented by PPS will be used.

‘RESILIENT LOCAL URBAN INTERVENTIONS AGAINST THE BACKDROP OF LARGE-SCALE TRANSITIONS’
(Wijesundara, 2017)






ASMA

HISTORY

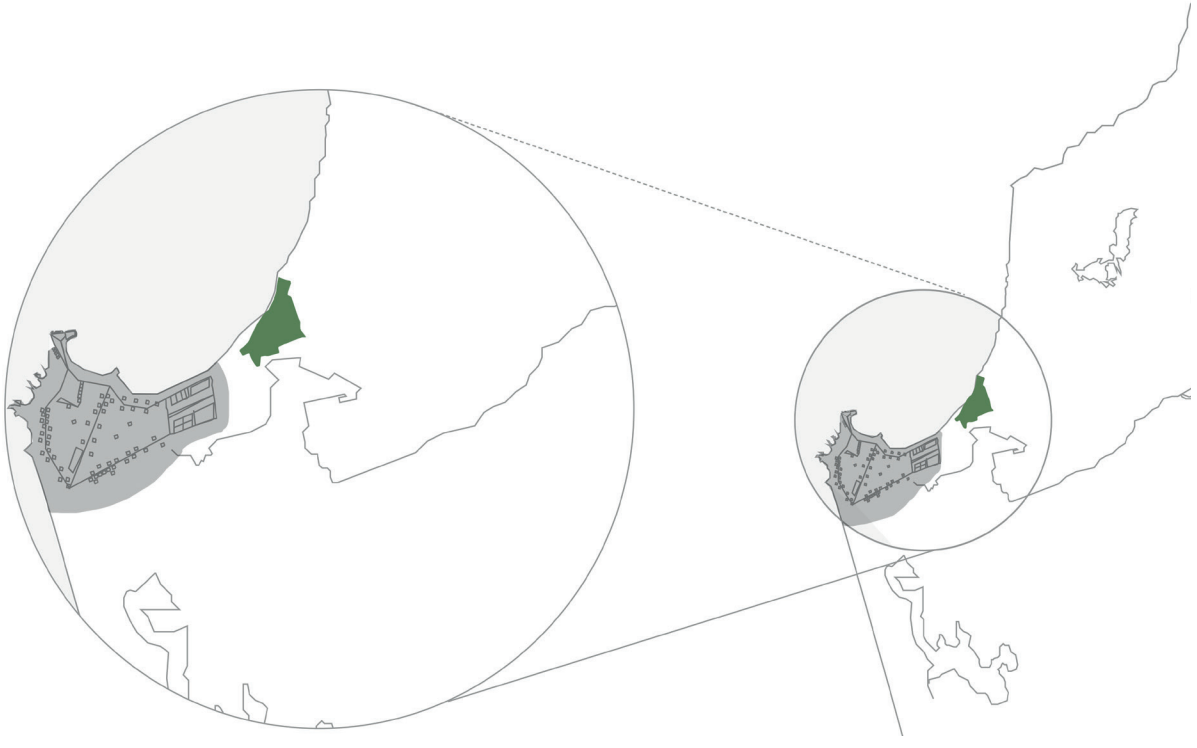
PORTUGUESE PERIOD

The first colonial European force were the Portuguese, who arrived in 1505 (Lanka, n.d). At that moment Sri Lanka had three kingdoms; the Tamil kingdom of Jaffna in the north and the two Singhalese kingdoms Kandy ad Kotte (De Silva, 1981).

In1505, the Portuguese Lorenco de Almeida arrived in Colombo, where they were rWeceived by the king of Kotte. The Portuguese quickly saw the commercial and strategic value of the island, which resulted in a trade permit and a fort in Colombo in 1518 (De Silva, 1981). The trade in spices and cinnamon soon became very important in Europe. Kotte mode attempts to use the power and protection from the Portuguese for their own gain, which resulted in Portugal gaining control over not only the region of kotte but almost the whole island. The only exception were the central highlands in Kandy, because they were distant and not easily accessible. Many Singhalese suffered forced conversion to Catholicism under Portu-guese also didn't understand the Singhalese social and economic structure. Due to the in-creasing resistance of the kingdom of Kandy against the Portuguese, Kandy started search-ing for an ally. This was found in Joris Spilkbergen from the VOC (de Reizigersgids, n.d)

Sri Lanka : portugese period

source: Introduction to Sri lanka, MarlousBredek, Atelier sud, Ku Leuven, 2nd semester 2017-2018



Colombo : Portugese period

DUTCH PERIOD

In 1658, the last Portuguese were repelled and the Dutch had taken control over Sri Lanka, which they called Ceylon (Lanka, n.d.). In 1665, the fort in Galle was fortified and almost im-pregnable. Even in the present, the fort remains standing and can be visited. The Dutch pe-riod was of great importance to the economic growth of Sri Lanka. Besides local products such as cinnamon, gemstones and elephants, the VOC introduced the production of coffee and tobacco. Three new canals were created in Sri Lanka due to the strong economic growth. Besides that, the Dutch also slowly integrated their own laws in Sri Lanka, which introduced the right to have private land and which also put an end to the polygamy (De Silva, 1981). Besides all of that, the Dutch also introduced Protestantism and banned Ca-tholicism. The Buddhist religion also revitalized in this period, because the Dutch allowed the transportation of monks between Sri Lanka, Thailand and Myanmar. In 1796, the British invaded Sri Lanka (Colonial Voyage, n.d.). They were afraid that Sri Lanka would fall under French rule now that the French, during their Revolution, invaded the Batavian Republic (currently the Netherlands). After a short battle, the Dutch surrendered.

Sri Lanka : Dutch period

source: Introduction to Sri lanka, MarlousBredek, Atelier sud, Ku Leuven, 2nd semester 2017-2018

Colombo : Dutch period

BRITISH PERIOD

During the end of the French Revolution in 1802, the treaty of Amiens declared that Sri Lanka was attributed to the British (De Reizigersgids, n.d.). In exchange, the British had to return Cape Town and the West Indies to the Batavian Republic. From this moment, Sri Lanka was officially a British colony and was renamed to Ceylon. In 1815, the kingdom of Kandy was defeated which made the British the first Europeans to control the whole island (FHP Holland, n.d.). Due to the changes in the law that regarded the right to own private land, a lot of British citizens were able to live in Sri Lanka, at the expense of the Singhalese (De Silva, 1981). English also became the official language, which can still be seen and heard in Sri Lanka today. British architecture is still prominent in Nuwara Eliya. Due to the in-creasing trade in coffee and cinnamon, many roads and railroads were built and cheap Tam-il-workers were imported from the south of India. Due to this, many Singhalese lost land to the Tamil, which was the beginning of the migration problem.

Sri Lanka : British period

source: Introduction to Sri lanka, MarlousBredek, Atelier sud, Ku Leuven, 2nd semester 2017-2018

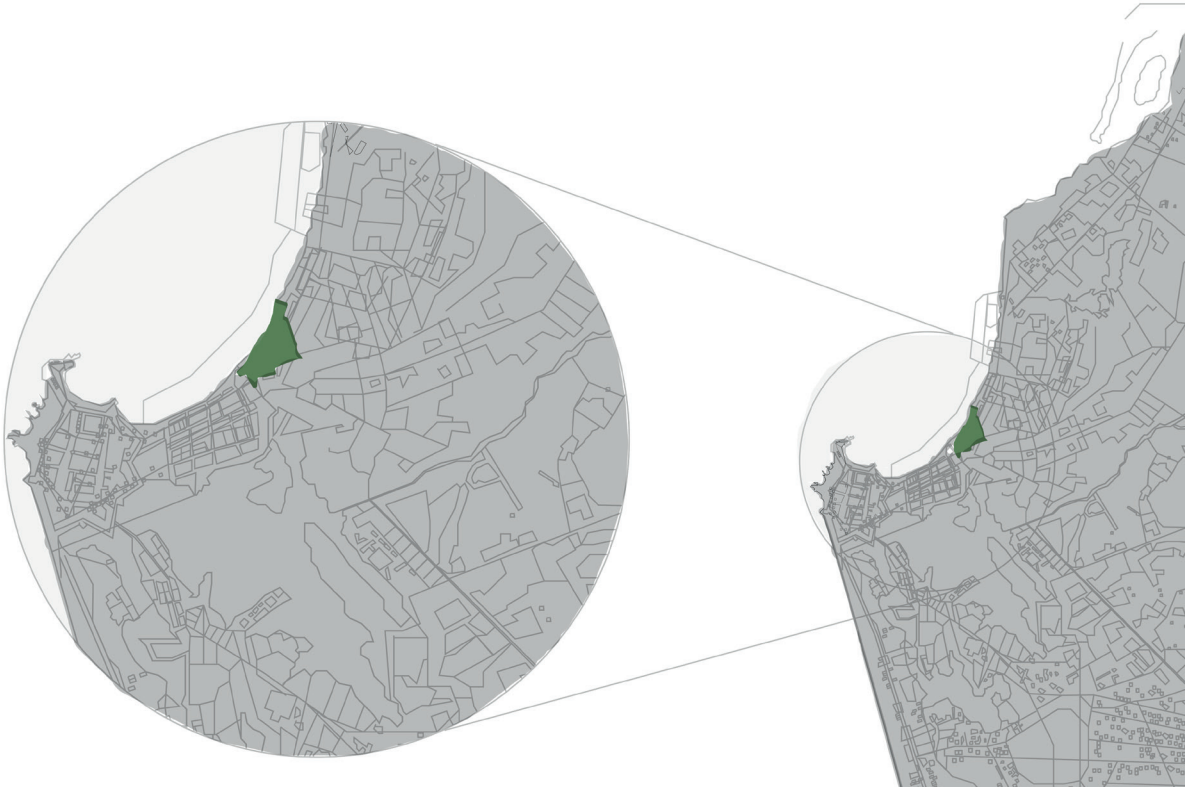
Colombo : British period

INDEPENDENCE

Sri Lanka, just like many other colonies around the world, became independent and became part of the British Common Wealth in 1948. From this point in time, the country was re-named to Dominion Ceylon (De Silva, 1981). One of the first actions of the independent government was retracting the citizenships and suffrage from the Tamil. The Sinhalese was also reinstated as the official language. In 1972, Ceylon became a republic and its name was once again changed to Sri Lanka. Kotte became the new (administrative) capitol of the re-public. The continued migration problem between the Singhalese and the Tamil resulted in a civil war from 1983 until 2009.

Sri Lanka : Independence

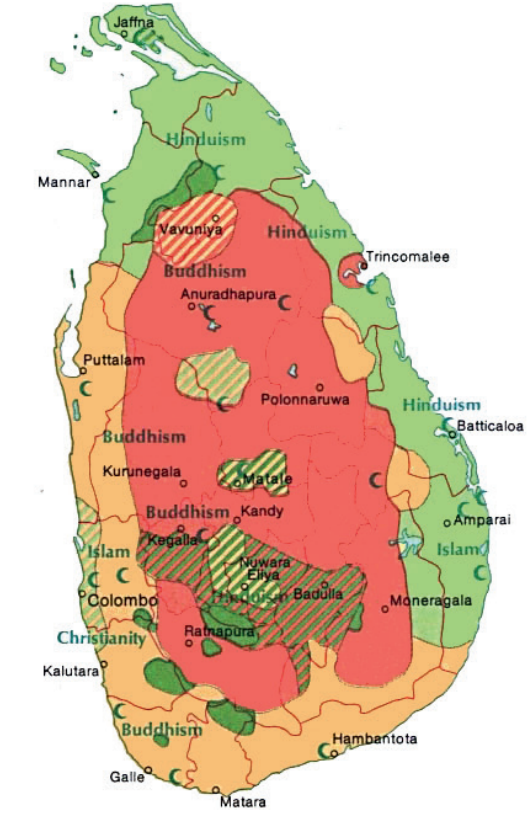
source: Introduction to Sri lanka, MarlousBredek, Atelier sud, Ku Leuven, 2nd semester 2017-2018



Colombo : Independence

DEMOGRAFICS

RELGION AND ETHIC COMMUNITIES



Sri Lanka : ethic communities

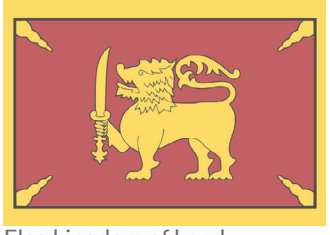
- Sinhalese Low country
- Sinhalese Kandyan
- Tamil Cylon
- Tamil Indian

The country exist out of 2 big groups of ethics Sinhalese and Tamil.

Like many other towns and cities of Sri Lanka, the capital city of Colombo is a multi-racial city where Sinhalese, Tamils, Muslims and other community groups have been living together for generations.

source: Sri Lanka Population 2019, world population review, 7/05/2019
http://worldpopulationreview.com/countries/sri-lanka-population/

ETHIC COMMUNITIES



Flag kingdom of kandy

Sinhalese

75%

16.320.000 people

Flag kingdom of Jaffna

Tamil

25%

5.440.000 people

RELGION

70.1%

12.6%

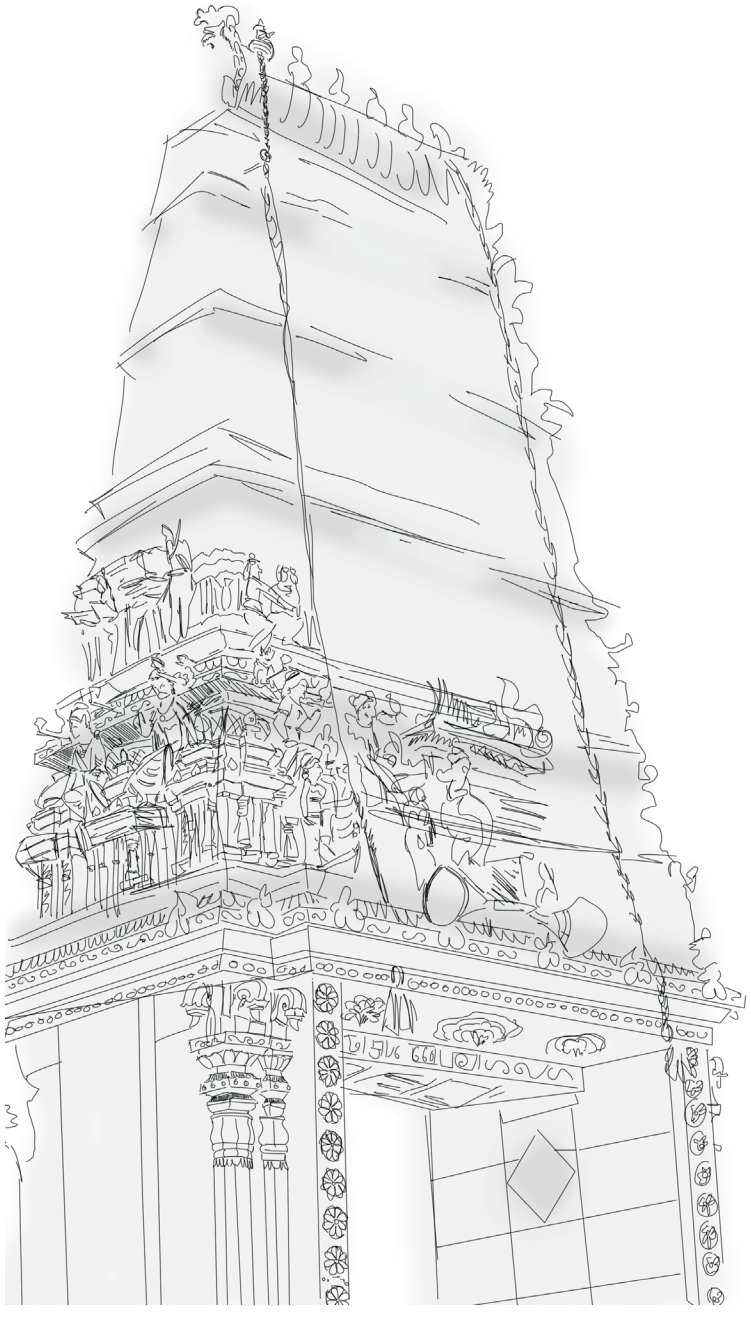
9.7%

7.6%

BUDDHISM

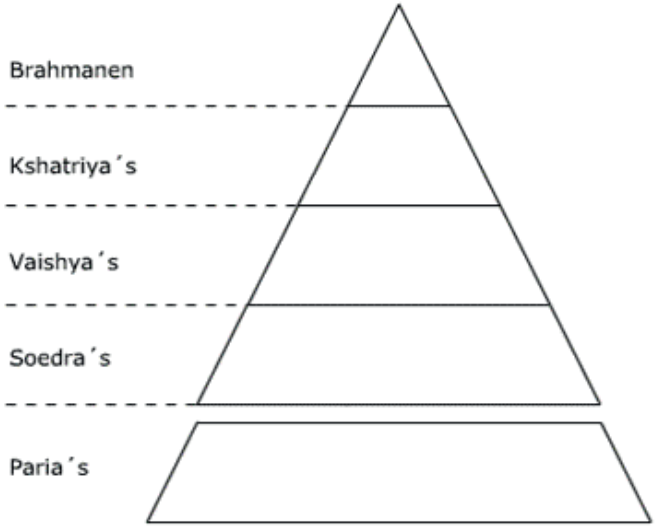
Theravada Buddhism is the State religion of Sri Lanka practiced by 70.2%. Buddhism has been given special privileges in the constitution and also declared country's official religion by 2nd president of sri Lanka J.R Jayawardene. Sri Lanka is traditionally oldest religious Buddhist country where Buddhist aryan culture is protected and preserved. The island has been a center of Buddhist scholarship and learning since the introduction of Buddhism in the third century BCE producing eminent scholars such as Buddhaghosa and preserving the vast Pali Canon. Throughout most of its history, Sri Lankan kings have played a major role in the maintenance and revival of the Buddhist institutions of the island. During the 19th century, a modern Buddhist revival took place on the island which promoted Buddhist education and learning. There are around 6,000 Buddhist monasteries on Sri Lanka with approximately 15,000 monks.

source: Buddhism, Wikipedia, 7/05/2019, https://en.wikipedia.org/wiki/Buddhism



HINDUISM

Sri Lanka has a caste system. The models are similar to those found in Continental India, but are less extensive and important for various reasons, although the caste systems still play an important and at least symbolic role in religion and politics.



You can see the caste system of the Hindu people as a cupboard. The people on the lower shelf do not have a good job and the people of the highest level have a very good job or a very high job. If you were born on the lower caste you can not go to college to get a job that actually belongs to a caste higher. You can not change caste during your life. Hindus believe in reincarnation, that is that you are born new. If you live well, so if you stick to the Hindu rules, then chances are that you will end up in a higher caste in your next life.

Buddha, who also came from India, found the caste system unjust and also allowed people from lower castes to become monks or nuns. The Harijans or tramps do not belong to the caste, because they are unclean. The people from the caste system are not allowed to touch a Harijan, because then they also become unclean and in a next life they will end up in a lower caste.

source: Caste system Sri Lanka, Wikipedia, 7/05/2019, https://en.wikipedia.org/wiki/Caste_system_in_Sri_Lanka

ISLAM

With the arrival of Arab traders in the 7th century A.D., Islam began to flourish in Sri Lanka. The first people to profess the Islamic faith were Arab merchants and their native wives, whom they married after having them converted to Islam. By the 8th century A.D., Arab traders had controlled much of the trade on the Indian Ocean, including that of Sri Lanka. Many of them settled down on the island in large numbers, encouraging the spread of Islam. However, when the Portuguese arrived during the 16th century, many of their descendants now called the Sri Lankan Moors were mainly traders and merchants with spice trading networks spanning to the Middle East. The Portuguese colonists attacked, persecuted and destroyed the Sri Lankan Moor settlements, warehouses and trading networks. Many defeated Moors refugees escaped from the persecution to the interior in central Sri Lanka. The population of Sri Lankan Moors significantly declined during the Portuguese colonial rule due to the pogroms against the Moors. The Sinhalese ruler King Senarat of Kandy gave refuge to some of the Muslims in the central highlands and Eastern Province, Sri Lanka.

source: Islam Sri Lanka, Wikipedia, 7/05/2019, https://en.wikipedia.org/wiki/Islam_in_Sri_Lanka

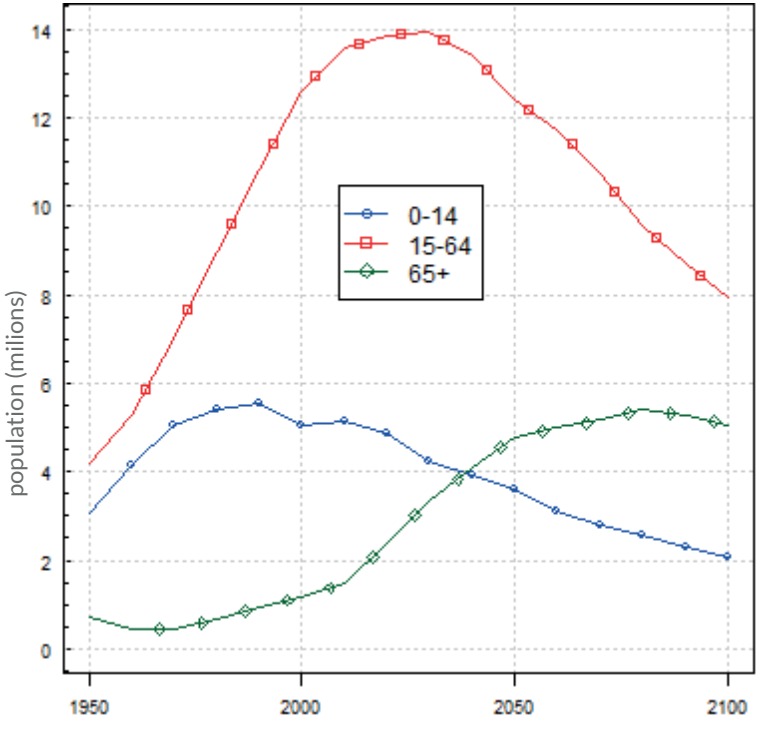
CHRISTIANITY

Christianity is a minority religion in Sri Lanka. Christianity was introduced to the island in first century, probably in AD 72. This is done after the invation of the portugese on the island. Later on the Dutch tried to introduce the protestantism but today most of the christians are Roman Catholics. On the left you see the oldest church in Colombo, wolfendaal hill build by the dutch.

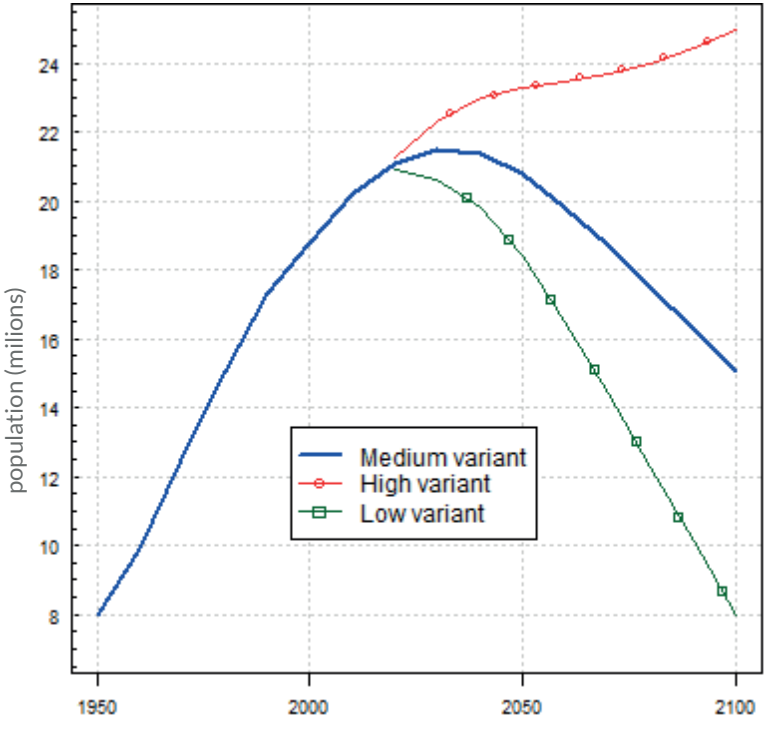
source: Islam Sri Lanka, Wikipedia, 7/05/2019, https://en.wikipedia.org/wiki/Islam_in_Sri_Lanka

AGE / GENDER

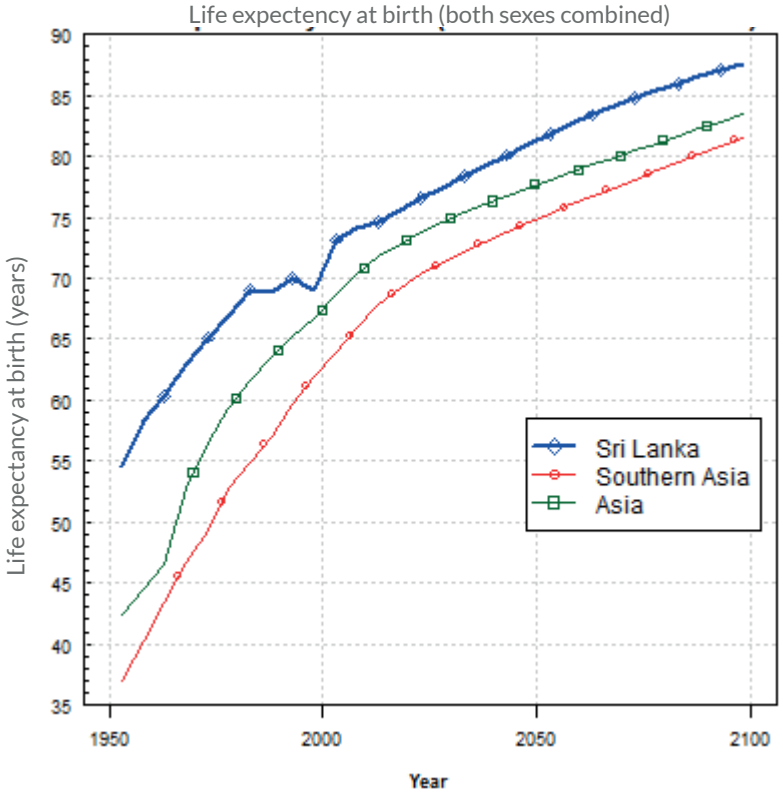
Total population by broad age group

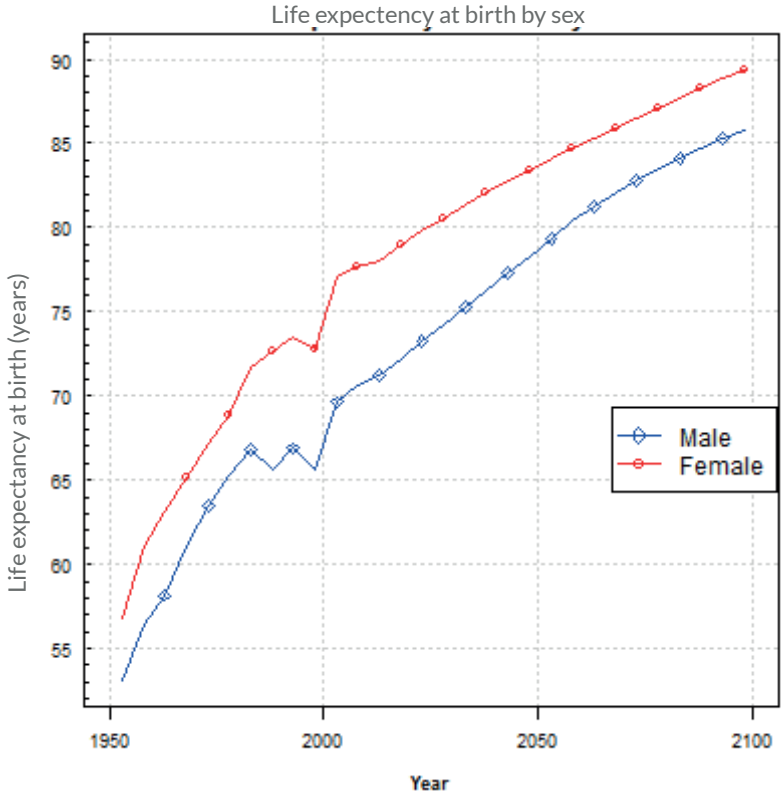


Total population by variant



"Census of Population and Housing of Sri Lanka, 2012 - Table A4: Population by district, religion and sex" (PDF). Department of Census & Statistics, Sri Lanka


Life expectancy at birth (both sexes combined)
Life expectancy at birth (years)
Year
Sri Lanka
Southern Asia
Asia
90
85
80
75
70
65
60
55
50
45
40
35
1950
2000
2050
2100


Life expectancy at birth by sex
Life expectancy at birth (years)
Year
Male
Female
90
85
80
75
70
65
60
55
1950
2000
2050
2100

RESEARCH: HOUSING SHORTAGE, COLOMBO

Why does the population of colombo grow so fast ?

What is the effect of the imigration on colombo ?

What is the solution of the goverment ?

Is this a sustainable solution ?

POPULATION GROWTH

Why does the population of colombo grow so fast ?

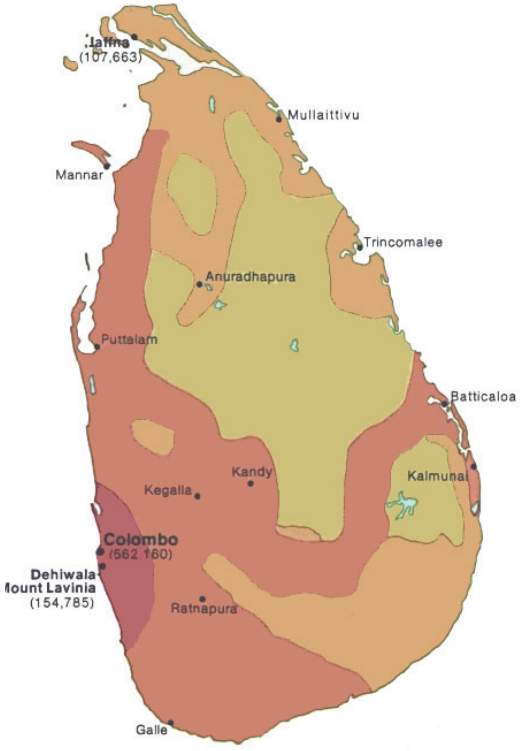
A. DEMOGRAFIC
B. TOPOGRAPHY
C. CONNECTIVITY
D. CLIMAT
E. NATURAL HAZARD
F. SUMMARY

DEMOGRAFICS

POPULATION DENSITY

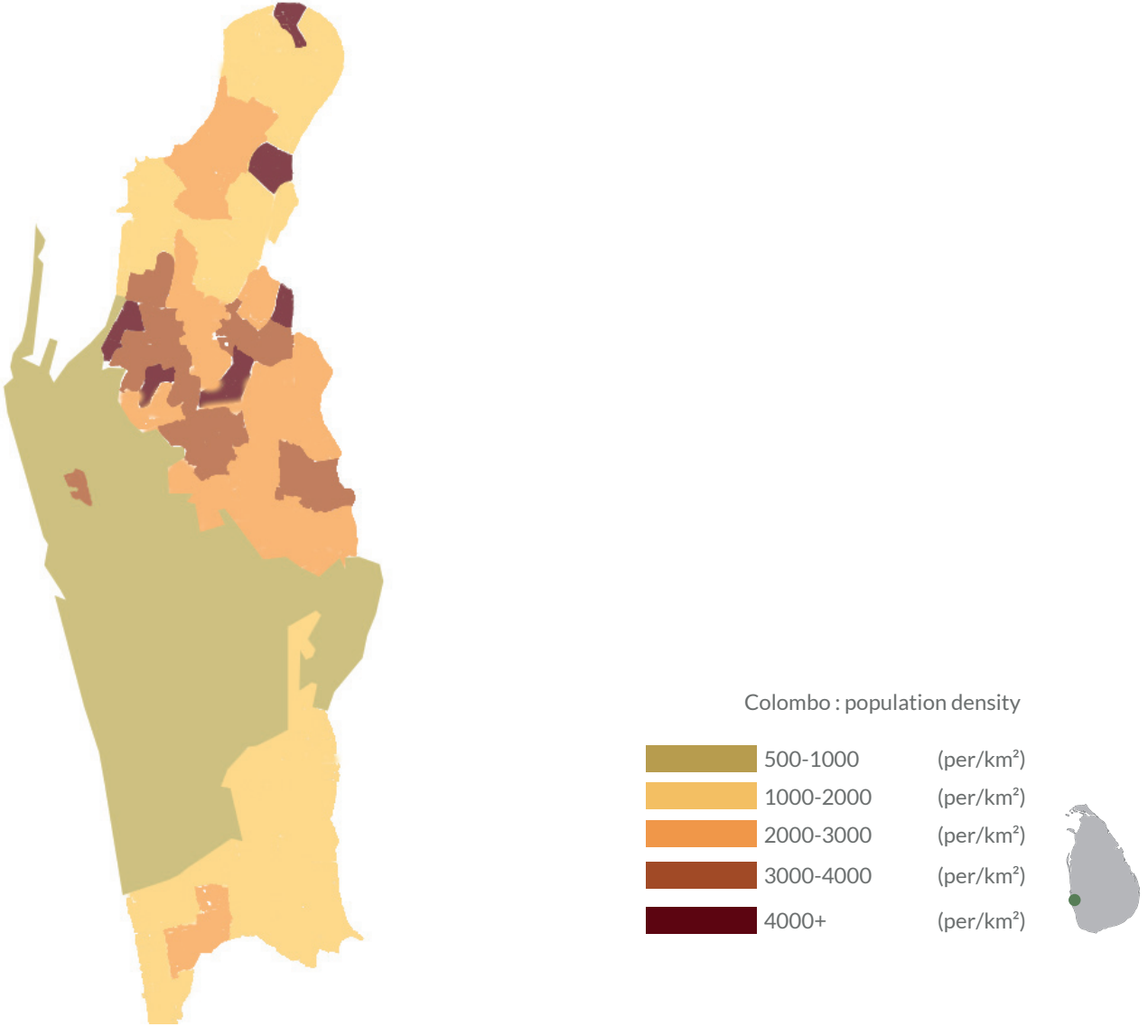
Sri lanka has a population of 21 444 000 people. The most populated city is the capital, Colombo, with 648 034 citizens. Then next areas with high population values are Mount Lavinia (a sub urban zone close to Colombo) with 219 000 people located here and Galkissa comes in with just over 215,000 residents.
All the locations with high densification are centered around the capital Colombo.

source: Sri Lanka Population 2019, world population review, 7/05/2019
http://worldpopulationreview.com/countries/sri-lanka-population/



Sri Lanka : population density

0-50	(per/km²)
50-100	(per/km²)
100-200	(per/km²)
200+	(per/km²)

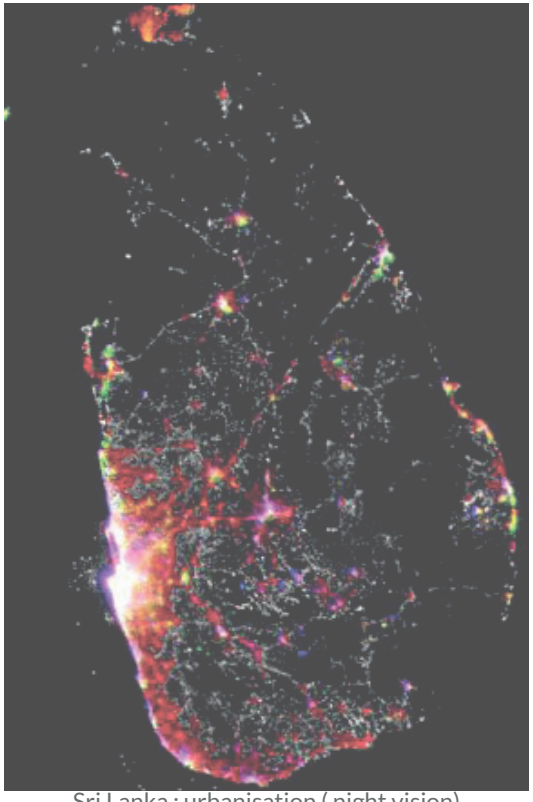

Colombo : population density
500-1000 (per/km²)
1000-2000 (per/km²)
2000-3000 (per/km²)
3000-4000 (per/km²)
4000+ (per/km²)

URBANIZATION

Most of the people live in Colombo the capital of Sri lanka. From there on most of the people keep to live on the coast line or close to the mountain cities where tea is being cultivated.

In the last years a lot of people from the country side move to the bigger cities and these already over crowed cities can't handle it anymore. So Colombo who was already camping with a housing shortage is getting more in trouble every day.

What makes the demographics so different from Belgium ?
If we compare Sri lanka to Belgium we can see that the country is about double the size of Belgium and has about the double amount of people living there. Although the density is just a little lower in average in compartment to Belgium the urbanization in the country is very low. So what is the main difference ?
In sri lanka the people mostly live in the cities where a lot of people live in a small place versus the country side that is almost empty what keeps the average density in the country low.
Where in Belgium people live spread over the country with only a few spots not being urbanized.



Sri Lanka : urbanisation (night vision)

South Asian Urbanization: Messy and hidden , Worldbank, 07/05/2019, https://blogs.worldbank.org/endpovertyinsouthasia/south-asian-urbanization-messy-and-hidden

SRI LANKA

Population
21 444 000

Density
327 hab/m²

Urbanization
18,4%

BELGIUM

Population
11 350 000

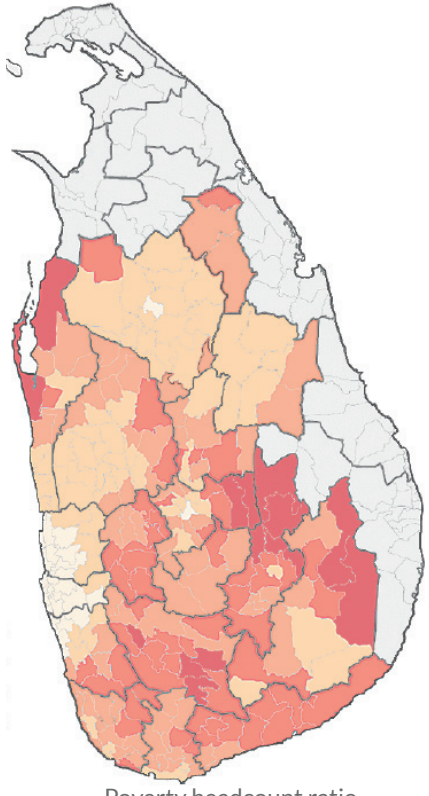
Density
374 hab/m²

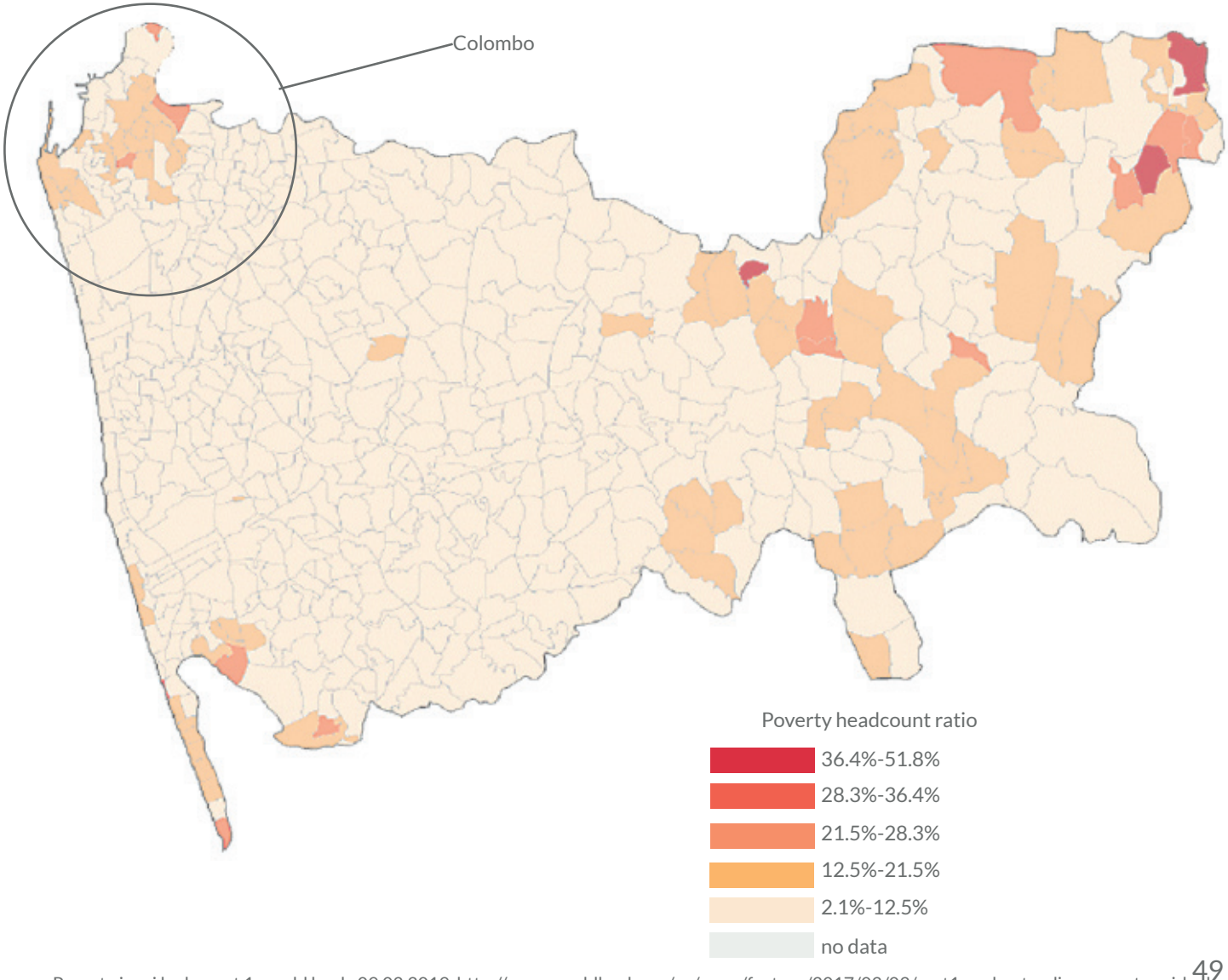
Urbanization
97,9%

POVERTY

In Sri Lanka, poverty figures refer to the share of individuals whose household per capita consumption falls below the official poverty line. This poverty headcount index is the standard measure of the incidence of poverty. The headcount index is calculated by taking into account all the food and non-food ex-penditures collected in the Household Income and Expenditure Survey (HIES). Differ-ences in the cost of living across different districts, and the number of people in the household are also considered. This per capita household consumption is then com-pared to the national poverty line. This line was defined as the expenditure for a person to meet the daily calorie intake of 2,030 kcal based on the Cost of Basic Needs approach, and was set at Rs 1,423 in 2002. To keep the national poverty line constant, this line has been inflated in subsequent years using the Colombo Consumer Price Index (CCPI). - worldbank

First, as expected, poverty headcount ratios are substantially lower in Colombo District and neighboring areas. Second, high rates of poverty are much more common in areas in the deep south (Sabaragamuwa,Southern, and Uva Provinces) than in areas more to the center and north of the country (North Central and North Western Provinces). (Note that the darkest areas of the map denote projected poverty headcount rates of 36 per-cent and above, compared to the country's average of 22 percent.) Third, the map high-lights the pockets of extreme poverty in almost all parts of Sri Lanka, including districts with low aggregate poverty rates. For example, some DSs in the southern part of West-ern Province (Kalutara District) suffer from severe deprivation, and similar pockets of extreme poverty exist in North Central and North Western Provinces Fourth, extreme poverty seems to be concentrated in Sabaragamuwa Province and, especially,Uva Prov-ince.



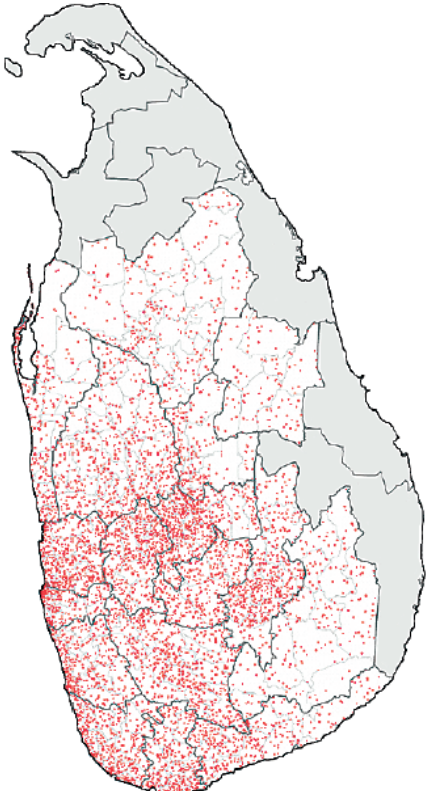


Poverty in sri lanka part 1, world bank, 09.02.2019, http://www.worldbank.org/en/news/feature/2017/03/02/part1-understanding-poverty-sri-lanka

However, high headcount ratios do not always indicate that there is a large population of poor people in a DS since he poverty headcount ratio in an area depends on the area's total population, as well as the number of poor people.

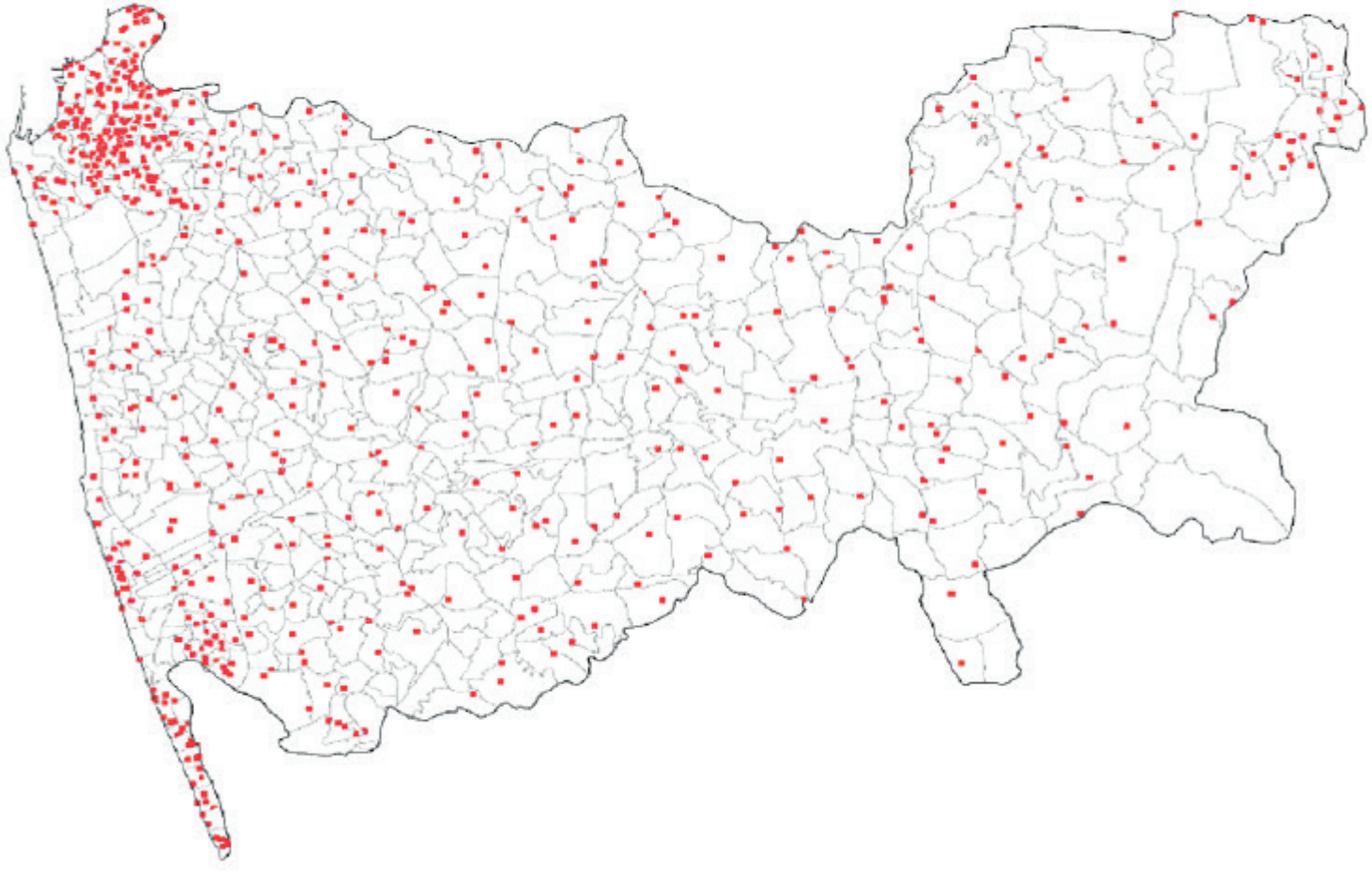
The estimated distribution of poor people clearly shows this. even though the headcount ratio in Colombo District is only 6 percent, the population of poor people in the district is high, especially
in Colombo city areas, because of the large population. Furthermore, the coastal areas from southern Gampaha District to the western part of Hambantota District record high numbers of poor people despite the relatively low headcount ratios. On the other
hand, many of the DSs in Monaragala District record the highest headcount ratios in the nation, but there are lower numbers of poor people because of the low population density.

Poverty in sri lanka part 1, world bank, 09.02.2019, http://www.worldbank.org/en/news/feature/2017/03/02/part1-understanding-poverty-sri-lanka



Estimated distribution of poor people

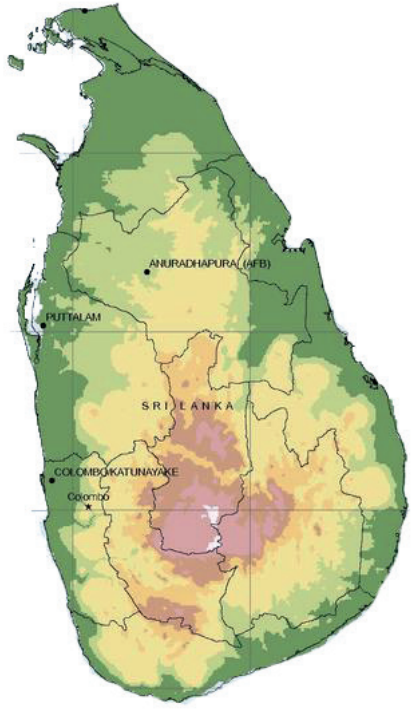
● 500 poor people



TOPOGHRAPHY

In the center of sir lanka around the region of Candy mountains dominate the landscape.
Here the famous Ceylon tea is grown and the climate is a bit colder creating the wet zone around Colombo because of this.
The other parts of the country are completely surrounded by the sea making it more flat towards the borders of the country.

Poverty Maps in Sri Lanka Policy Impacts and Lessons, T. S. Vishwanath, Nobuo YoshidaPublished 2007

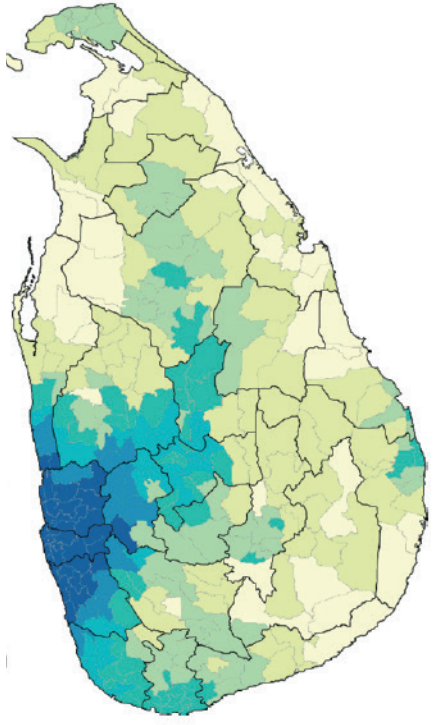


Sri Lanka: Topography

	Above 2000	(m)
	1000 - 2000	(m)
	500-1000	(m)
	250-500	(m)
	100-250	(m)
	50-100	(m)
	Bellow 50	(m)

CONNECTIVITY

ACCESIBILITY



Sri Lanka: Assecibility index

Geographical isolation as measured by the distance to the nearest market or city seems to be highly correlated with poverty incidence. To illustrate this relationship in detail, the map shows an accessibility index for each area. The accessibility index is calculated for every point as the sum of the population of surrounding cities and towns,
inversely weighted by the travel time on the road network to each town. It requires data on the populations of major cities and towns and a detailed road map, which are both available from a recent assessment of the investment climate in Sri Lanka (World Bank
and ADB 2005). We can see that the areas surrounding Colombo District in Western Province (the blue areas on the lower left side of the map) are well connected to cities and markets, while, for example, most of Uva Province (the yellow and light green area near the lower right corner of the map) is geographically isolated.
Apparently, as one travels away from the area surrounding Colombo, the accessibility index becomes lower.

Poverty Maps in Sri Lanka Policy Impacts and Lessons, T. S. Vishwanath, Nobuo YoshidaPublished 2007

TRANSPORT

Transport in Sri Lanka is based on its road network, which is centred on the country's capital Colombo. A rail network handles a portion of Sri Lanka's transport needs. Sri Lanka has an extensive road network with better density and coverage compared with most developing countries.

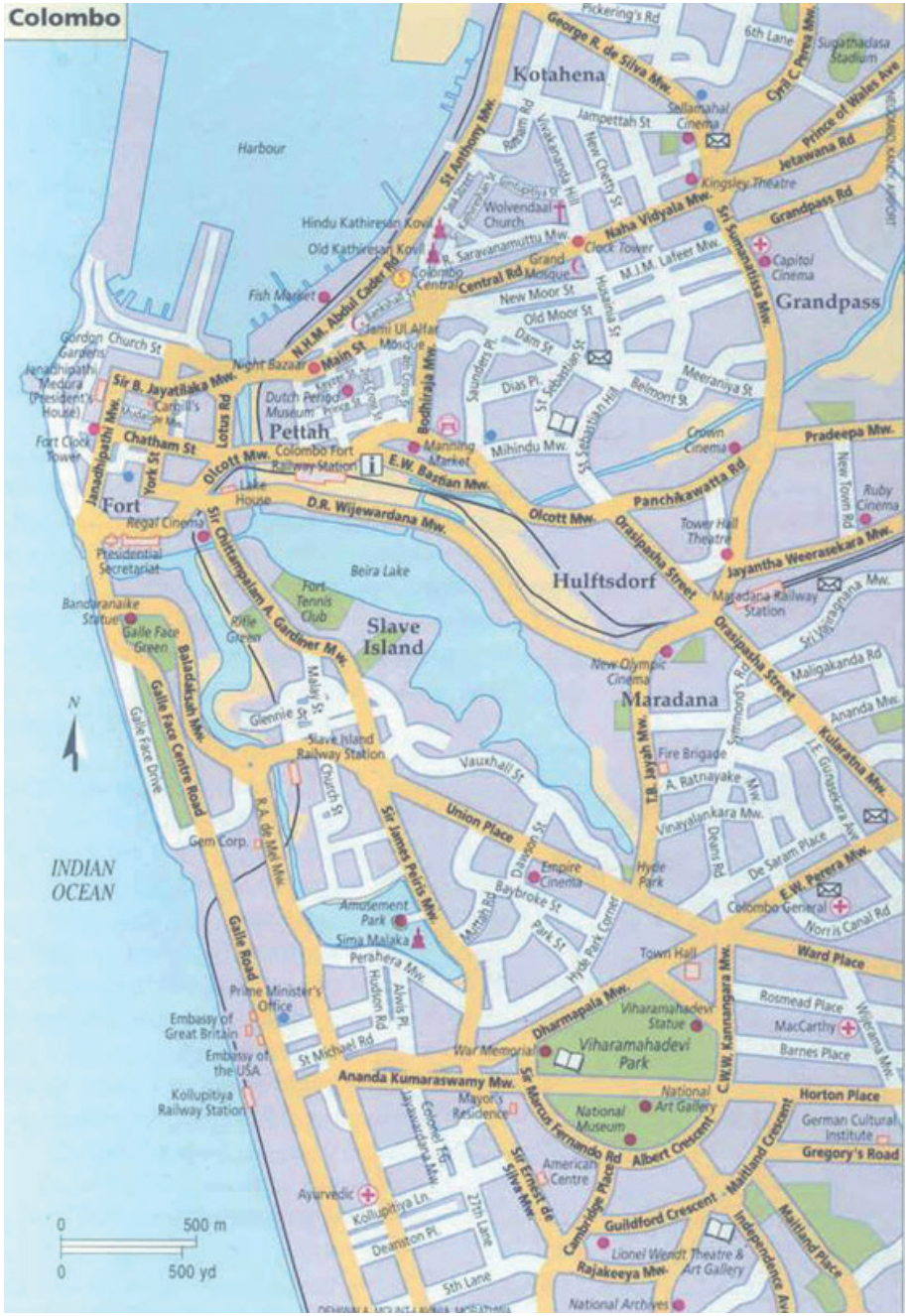
The Sri Lanka Railway Department (more commonly known as Sri Lanka Railways (SLR))is Sri Lanka's railway owner and primary operator. As part of the Sri Lankan government, it is overseen by the Ministry of Transport. It connects the capital with the more touristic areas.

The Sri Lankan rail network is 1,508 km (937 mi). Some of its routes are scenic, with the Main Line passing (or crossing) waterfalls, mountains, tea estates, pine forests, bridges and peak stations.

The train tracks in Sri lanka are considered a national monument definitly the train ride from colombo to kandy and Nuwa Elya. it takes the fasted train up to 4 hours to go from Colombo to Kandy most of the time not driving more than 20km an hour making a journy by train a long trip.

Sri Lanka: Transport

Sri Lanka Railways, Wikipedia, 07/05/2019, https://en.wikipedia.org/wiki/Sri_Lanka_Railways



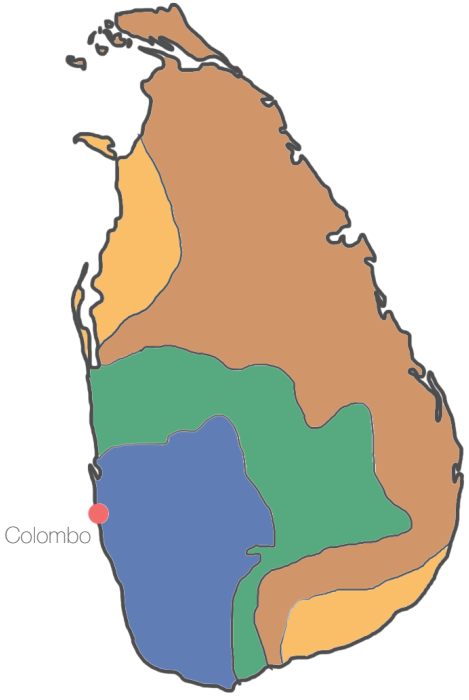
Colombo : road map

Maps, Colombo, 7/05/2019, http://www.orangesmile.com/travelguide/colombo/high-resolution-maps.htm

CLIMATE

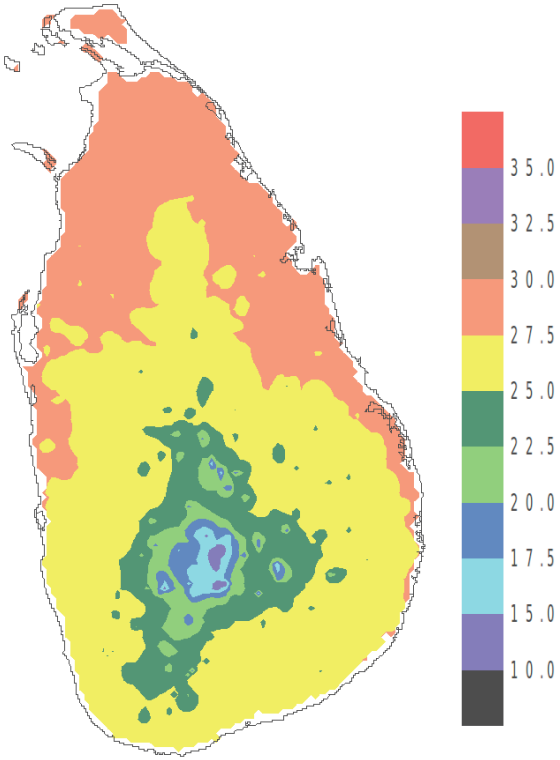
GENERAL INFORMATION

Sri Lankas climate, due to its location in the tropics, can be characterized as tropical with the mean annual temperatures in the lowlands between 26.5 °C to 28.5 °C (Sri Lankan De-part-ment of Meteorology, 2018). In the highlands, however, the temperature decreases with the increasing altitude. The main annual temperature varies from 27.5°C to 16°C in the central highlands. Just like many other countries around India, Sri Lan-ka's climate is dictat-ed by monsoons. The Sri Lankan climate over a year can be divided into 4 different climate seasons (Sri Lankan Department of Meteorology, 2018). The first is the in-ter-monsoon sea-son which lasts from March until April and consists of thunderstorm type rainfall with warm and uncom-fortable conditions. The second is the Southwest-monsoon season which lasts from May until September which consists of warm and windy weather and rain is al-most an everyday occurrence. The third is the second inter-monsoon season and lasts from October until November. During this season, the whole island experienced heavy rainfall and cyclones in the Bay of Bengal are not uncommon. The fourth and final season is the Northeast-monsoon season which lasts from December until February and consists mainly of dry and colder weather filled with sunshine.



Sri Lanka: Climate Areas

international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/



Sri Lanka: average temperature

TEMPERATURE

Regional differences observed in air temperature over sri lanka are mainly due to altitude, rather than to latitude. The mean monthly temperatures differs slightly depending on the seasonal movement of the sun, with some modified influence caused by rainfall. The mean annual temperature in Sri Lanka manifests largely homogeneous temperatures in the low lands and rapidly decreasing temperatures in the highlands. In the lowlands, up to and altitude of 100 m to 150 m, the main annual temperature various between 26.5 °C to 28.5 °C, with an annual temperature of 27.5 °C. In the highlands, the temperature falls quickly as the altitude increases. The main annual temperature of Nuwaraeliya, at 1800 m sea level, is 15.9 °C. The coldest month with respect to mean monthly temperature is generally January, and the warmest months are April and August.

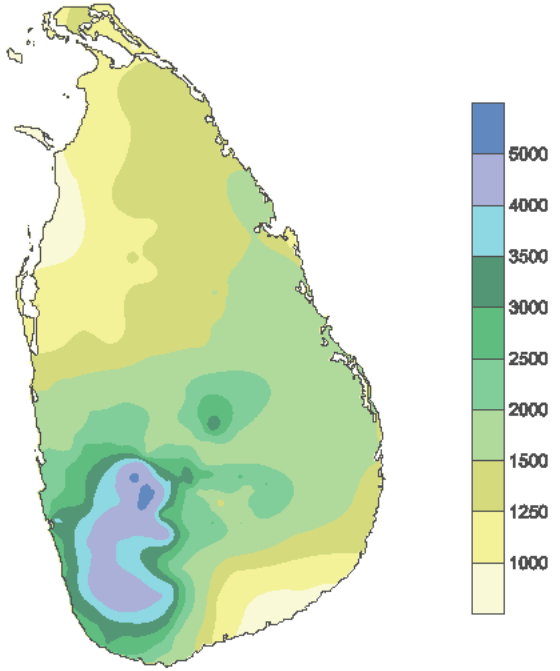
The mean annual temperature varies from 27°C in the coastal lowlands to 16°C at NuwaraEliya, in the central highlands (1900m above mean sea level). This relatively unique feature manifesting as sunny beaches to rain forests inland is a tourist attraction.

international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/

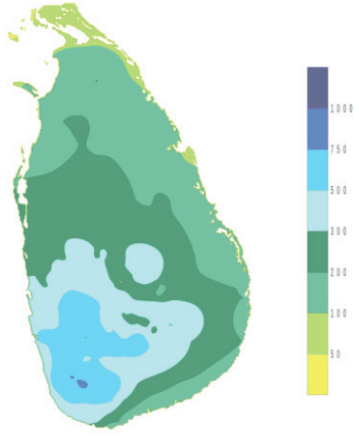
RAINWATER

Rainfall in Sri Lanka has multiple origins. Monsoonal, Convectional and depressional rain accounts for a major share of the annual rainfall. The mean annual rainfall varies from under 900mm in the driest parts (southeastern and northwestern) to over 5000mm in the wettest parts (western slopes of the central highlands)

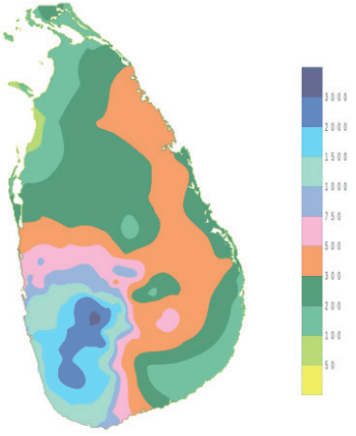
international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/



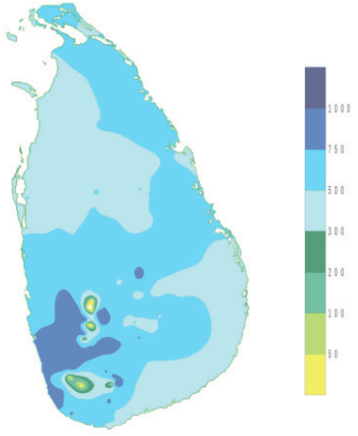
Sri Lanka: Rainwater



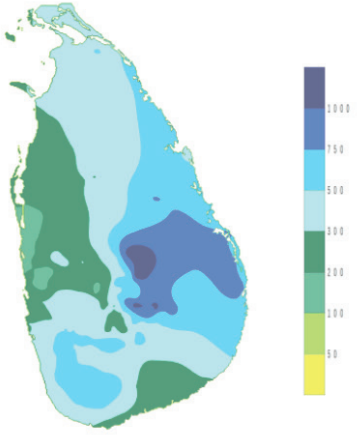
First Inter-monsoon Season



Southwest-monsoon Season



Second Inter-monsoon Season



Northeast-monsoon Season

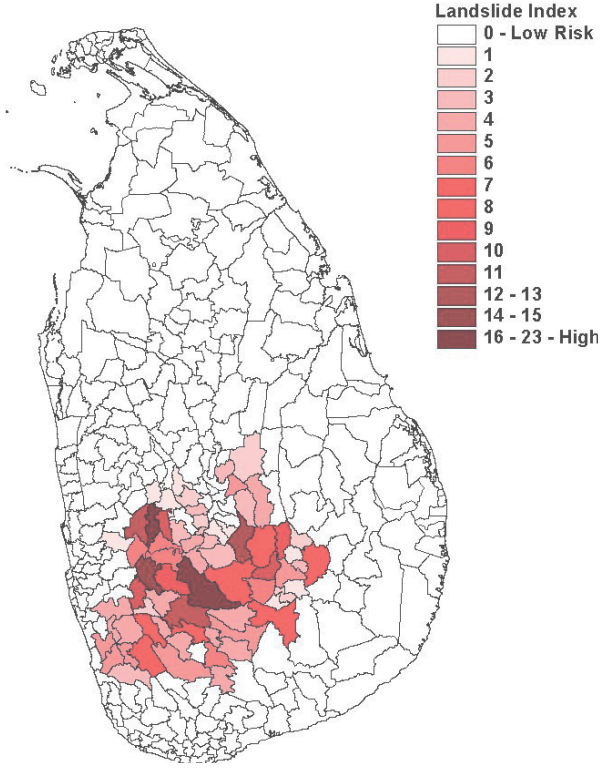
NATURAL HAZARDS

The most frequent natural hazards that affect Sri Lanka are droughts, floods, landslides, cyclones, vec-tor borne epidemics (malaria and dengue), and coastal erosion (Tissera 1997). Tsunamis are infre-quent but have caused severe damage. Recent understanding of the tectonics of the Indian Ocean region points to an increasing risk of earthquake.

LANDSLIDE RISK

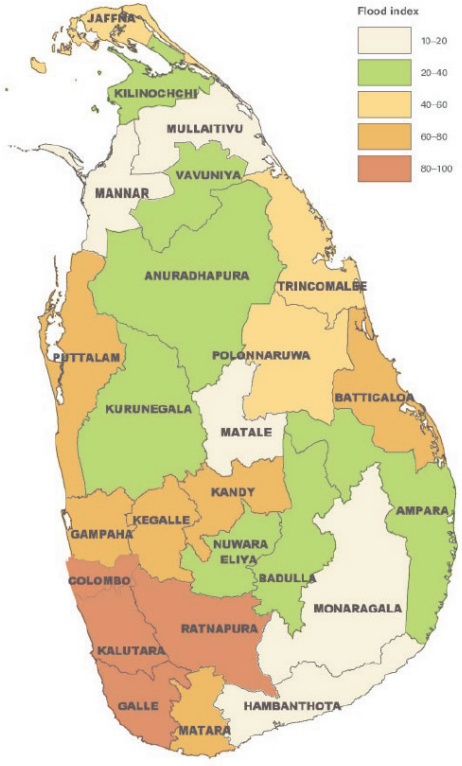
Eight districts in the central highlands are at risk of land slides. The highest risk is in the Kegalle Dis-trict followed by Ratnapura and Nuwara Eliya Districts. Even within these districts there is spatial var-iability at the danger level. The Kalutara, Kandy, and Badulla Districts have moderate risk, and Matale and Kurunegala Districts have slight risk.

The frequency of landslides has increased in recent years. Changes in land use—including cultivation of tobacco on steep slopes, land clearing in the hills, blocking of drainage ways, and the impact of the large reservoir construction—may be due to the increase. Sometimes, soil conservation programs, such as contour ditches, contribute to increases in landslide hazard risk by increasing soil saturation.



Sri Lanka: landslide risk

Sri Lanka: Floods and landslides
Situation Report No. 2 (as of 26 May 2016), OCHA



Sri Lanka: floods

FLOOD

Flood hazards are mapped by identifying instances in which extreme rainfall events were detected in the past. When in a month a threshold of 600 mm rainfall is excided the chance of a flood is high.

A map of floods was constructed by using the number of major floods in the last 50 years at district level using data from the Social Services Department and Dartmouth Flood Obser-va-tory .

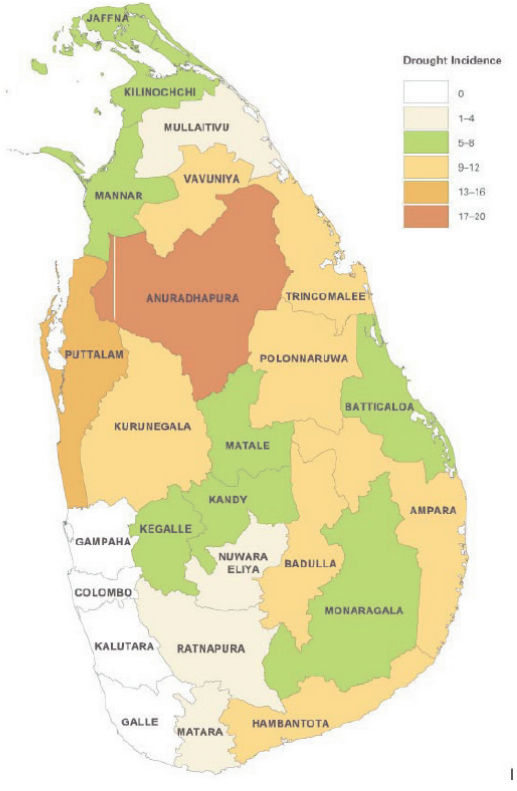
The flood hazard maps show high risk in the western, southwestern, northern, northeastern, and eastern parts of the country. The western slopes show the highest risk followed by the Batticaloa and Badulla Districts. The most flood-prone districts are Kegalle, Ratnapura, Kalutara, Kandy, Colombo, and Galle. These districts are located in the southwest part of the island. Flood occurrences in the eastern slopes and the northern plains coincide with the period of heavy rainfall (September to January) during the Maha. In the western slopes, floods do occur during the Maha, but are more common in the mid-Yala season, which lasts from May to August.

Factor Analysis of Water-related Disasters in Sri Lanka, ISSN 03865878 Technical Note of PWRI No.4066 , june 2007

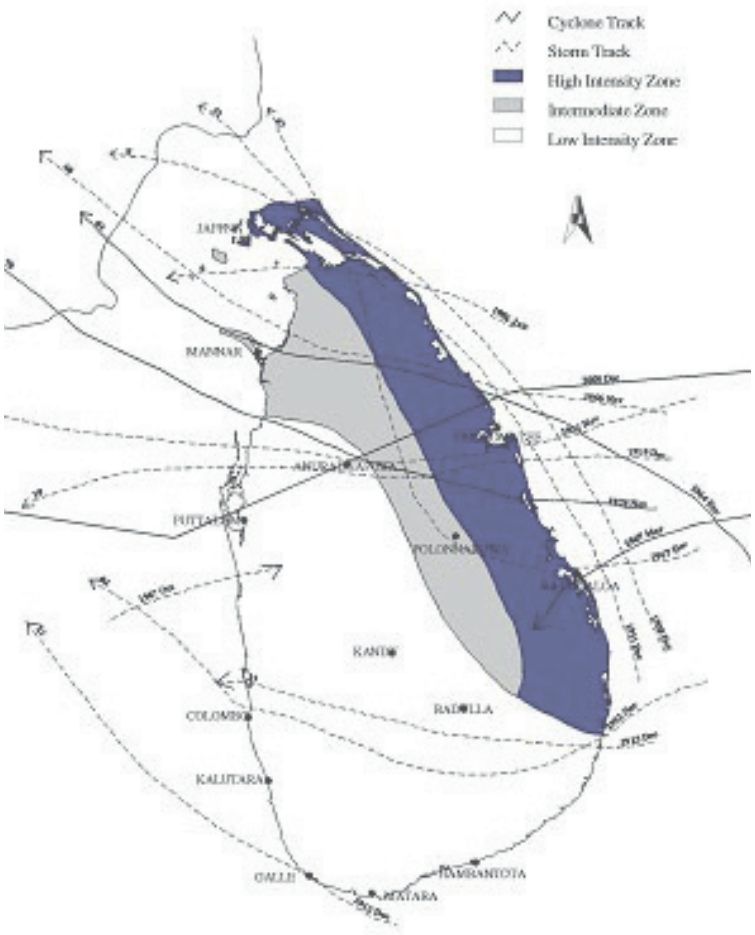
DRAUGHT

Drought hazards can be estimated through the use of several methods, here a system based on rain-fall alone.is chosen There is a stronger tendency toward drought in the southeastern district of Ham-banto-ta and the northwestern region, which includes the Mannar and Puttalam districts. The drought tenden-cy is markedly less pronounced in the southwest cor-ner of Sri Lanka where here is heavy rain-fall. There is low drought disaster risk in the western slopes and high drought disaster risk in the southeastern, northern, and northwestern regions.
The highest drought disaster risk is in the Anuradha-pura District followed by the Badulla and Battica-loa Districts.

international research institute for climate and society , university of colum-bia, 07/05/2019, https://iri.columbia.edu/



Sri Lanka: draughts incidence



Sri Lanka: cyclone risk

CYCLONE RISK

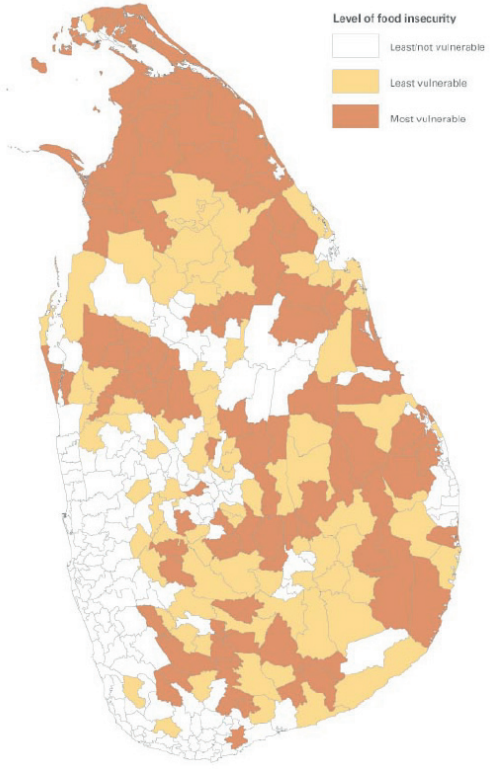
The high-risk areas for a cyclone are in the north and the eastern seaboard. Intense rainfall that comes along with cyclones creates floods and flash floods. Cyclones and storms have made landfall only in the eastern coast of Sri Lanka, except for a single storm in 1967. The majority of cyclones and storms pass through the northern and north-central parts of the island. The cyclones that pass through Sri Lanka originate from the Bay of Bengal during the northeast monsoon. Incidences of cyclones that pass through Sri Lanka in other seasons are rare due to geography and the regional climatology. here have been four severe cyclones during the last 100 years as well as a number of severe and moderate storms.

international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/

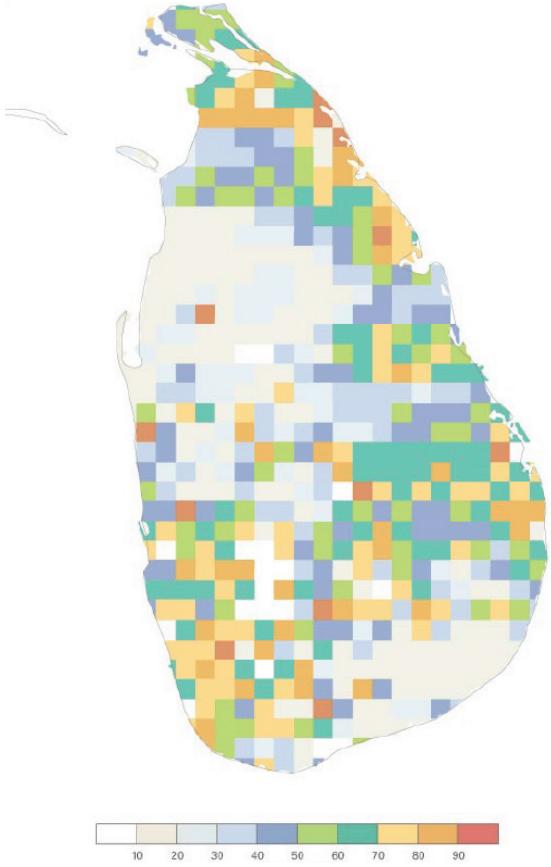
FOOD INCECURITY

Food security measures a community's resilience to the hazards and often its exposure. Food security calculated was based on the availability of food, access to food, and utiliza-tion of food. Based on this study, 93 areas were categorized as "Most Vulnerable," 82 as "Less Vulnerable," and 148 as "Least/Not Vulnerable" (World Food Program 2002). The spatial variability of the Least/Not Vulnerable category shows two contiguous regions and some scatte-red areas. One contiguous region is the western coastal region, which has high-er rainfall, better infrastructure facilities, and industry. A second contiguous region with high food security is the area around Kandy which also has higher rainfall and better infra-structure facilities. A third contiguous areas is the region around Anurhadhapura, which has improved infrastructure, increased irrigation and lower population density. The higher food insecurity in the northern and eastern areas is due to a combination of a postwar and dry climatic conditions punctuated by cyclones and heavy rainfall.

international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/



Sri Lanka: food incecurity



Sri Lanka: hazard index

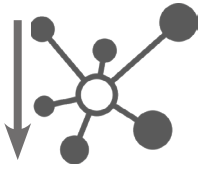
HAZARD INDEX

A multihazard map was constructed by aggregating the hazard indexes for droughts, floods, cyclones, and landslides. With the assumption that the future occurrence of hazards, exposure, and vulnerabil-ity is similar to past occurrences. This assumption, while not precise, does enable us to provide an es-timate of the variability of risk.

Three regions emerge as having high risk in the map. One is the region with sharp slopes in the south-west: the Kegalle District is the most risk prone, with significant risk of landslides and floods and mod-erate risk for droughts. The Ratnapura and Kalutara Districts also have high risk of floods and land-slides. A second region is in the north-east: the Batticaloa, Trincomalee, Mannar, Killinochchi, and Jaffna Districts along the north-eastern coast show high multihazard risk. A third region is along the mountain massifs with the sharpest hill slopes—this includes parts of the Nuwara Eliya, Badulla, Am-para, and Matale Districts. Some of the high-risk regions have concentrations of economic output, agriculture, and industrial concentrations. Some regions in the southwest with high multihazard risk also have high food insecurity. The north shows high multihazard risk as well as high food insecurity. Rice cultivation in these regions is particularly vulnerable to drought and flood hazards.

international research institute for climate and society , university of columbia, 07/05/2019, https://iri.columbia.edu/

SUMMARY : WHY IMMIGRATING TO COLOMBO ?



Low connectivity

The first reason for people to immigrate to Colombo is due to a lack of connection, the compete circulation system revolves around the capital. Due to this circulation system the other roads are badly maintained and the trains to other areas are slow. It can take days to cross the country if you, like most of the population, are depending on public transport. This isolates areas, killing business opportunities. By moving to a better connected urban area there is a possible economical benefit.

Natural hazards

Sri lanka is "hit" on a daily base with a lot of natural hazards; cyclones, landslides, draught, tsunamis, ….

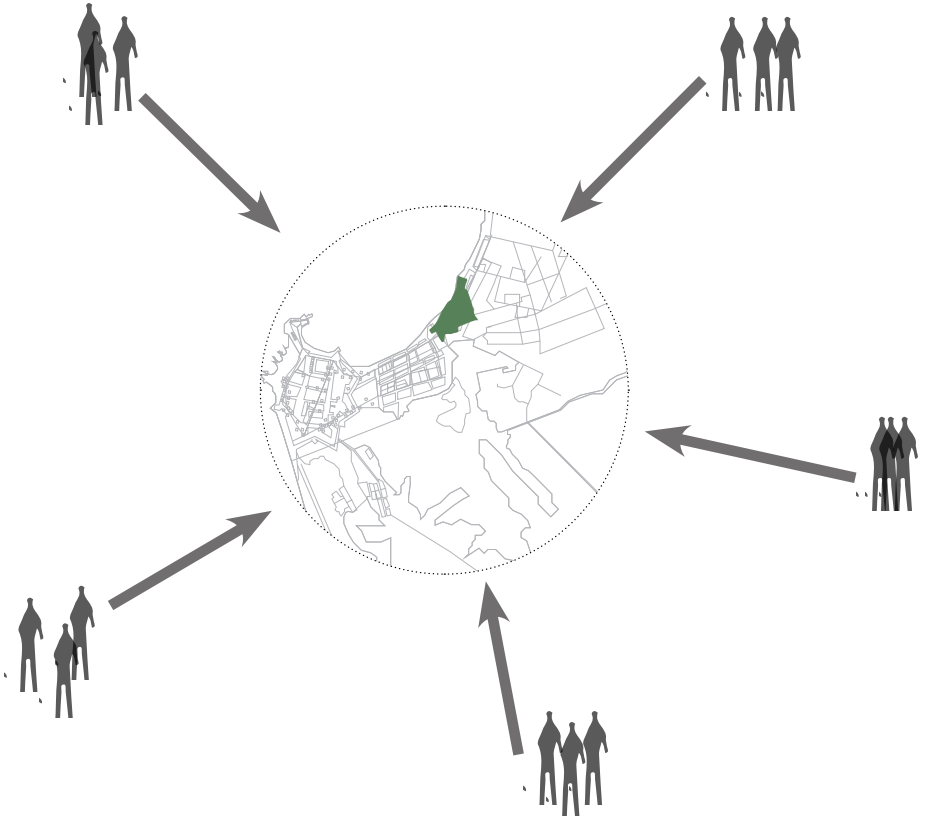
Due to this a lot of people lok for the safety of the city.

Low income

A lot of the population in Sri lanka is poor. There is a strong believe among the people that Colombo is the "Sri Lankan dream".
By moving to the city their living conditions will automatically be better. Sadly most of the times this is not true. Most of these people end up in the slums of Colombo or just sleep in the streets.

Low job oppurtunity

Due to low connectivity and almost no urbanization, there are almost no job opportunities out of the Colombo district. This is why a lot of people come to Colombo looking for a job, a chance to a better life.



IMMIGRATION EFFECTS

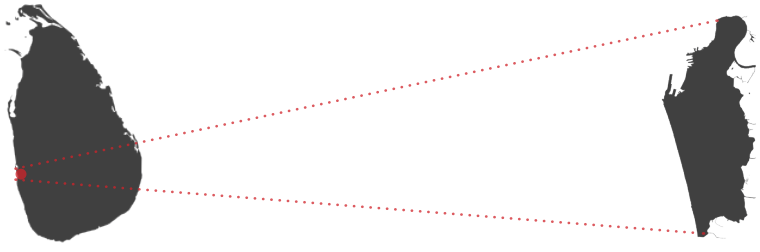
What is the effect of the immigration on colombo ?

A. MIGRATION
B. LOW INCOME HOUSING
C. OPEN/ GREEN SPACE
D. SUMMARY

MIGRATION

+/- 100 000
NEW PEOPLE A YEAR

Every3 years ± 236 000 people are born in Sri lanka, about 115 000 of them are born in the capital. On top of that the life expectancy of the elderly in Colombo did rise about 2 years.
+177 000 people moved in the last 3 years to the urban settlements (Colombo district) not even calculation non-Ceylon citizens. All of it together there are about 100 000 people a year new into the city. Even more people are expected with the extension of the harbor, especially Chinese workers.



Urban

2015
20.714.040 people

2018
20.950.041people

+ 236 001

2015
2.324.349 people

2018
2.439.600 people

+ 115 251

2015
3,966,971 people

2018
4,143,722 people

+ 176 751

LOW INCOME HOUSING

Four main types of low income housing have been identified in Colombo (Upgrading Steps – Ministry of Local Government Housing and Construction, 1984) :

Slums

Old deteriorating tenements or subdivided derelict houses. The slum tenements, built mostly of permanent materials, are very often singled roomed and compactly arranged, in back to back rows. The occupants have a definite legal status of occupancy.

Shanties

Improvised and unauthorised shelters, constructed by the urban squatters on state or privately owned land, without any legal rights of occupancy. The areas are badly serviced and very often unsanitary.

Unserviced Semi-urban Neighbourhoods

Badly serviced residential areas in the suburban areas of Colombo and secondary towns. One difference from the squatter areas is that residents of these settlements have definite legal titles and the plot sizes are relatively larger than the shanties.

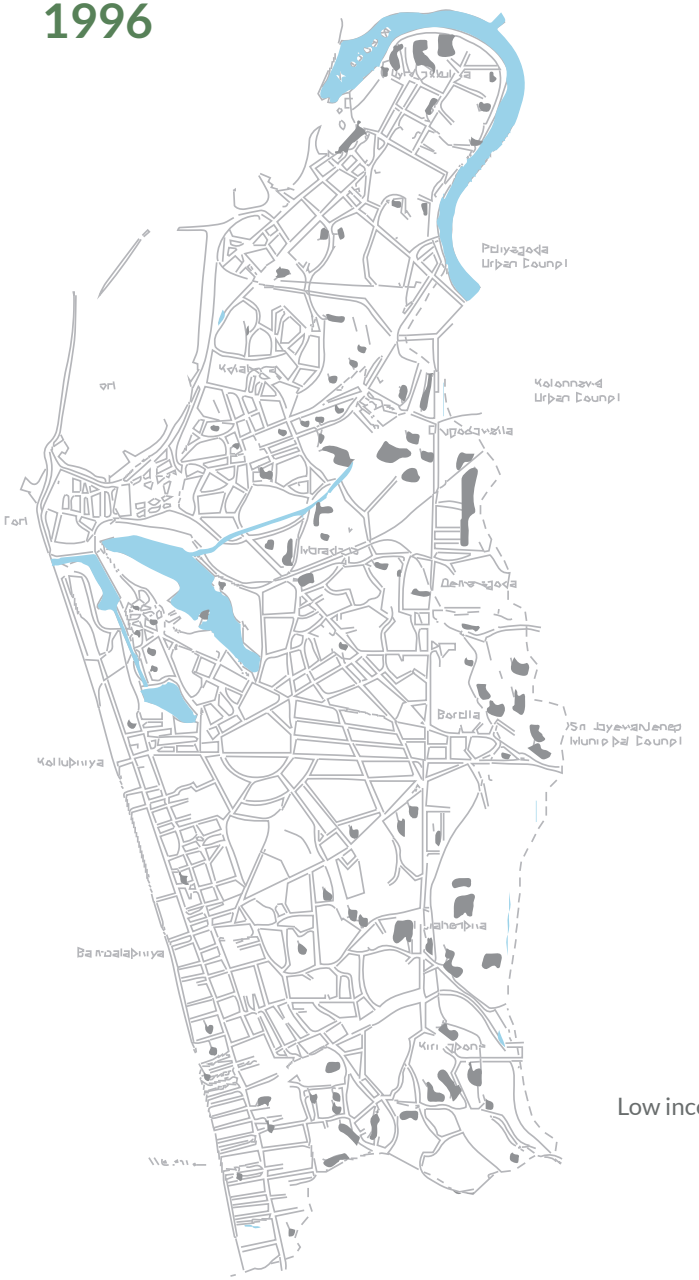
Labour Lines or Derelict Living Quarters

These are derelict housing areas belonging to the local authority or government agencies occupied by temporary or casual labourers. These settlements are in unsanitary and derelict conditions due to lack of maintenance over a period of long time.

THE MOST COMMON SLUMS IN COLOMBO ARE THE INNER CITY SLUMS AND THE SHANTIES.

Slums are located on highlands in the old parts of the inner city areas.
Shanties are mostly located in the periphery of city on road and canal reservation lands that are mostly low-lying areas liable to frequent floods.
Other types of slums are scattered through out the city.

1996

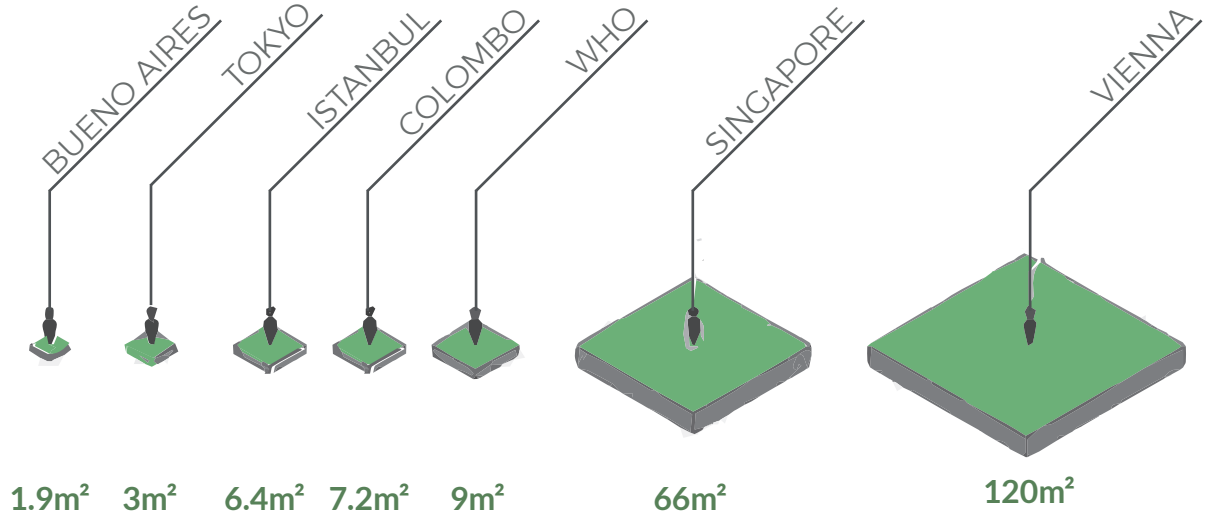


Existing low income settlements , Colombo(1996)

2018

Existing low income settlements , Colombo(2018)

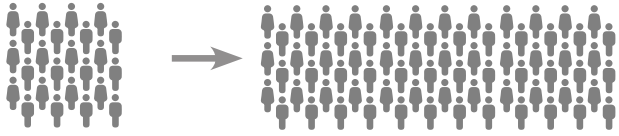
OPEN/GREENSPACE



Colombo does not meet up with the WHO's (world health organisation) minimum area of green m^2/person, this is about $3m^2$/person more than Colombo has at this moment. (WHO, 2018)
Altough different studies show that more green/open and public space benifits the entire city

"WHEN THE SOIL DISAPPEARS,
THE SOUL DISAPPEARS"

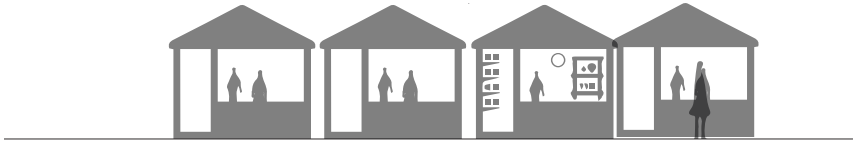
SUMMARY



Densification of Colombo

The densification of Colombo is getting more sincere, about 100 000 people every year are arriving in the town and the area can not keep up with it anymore.

Although there are a lot of developments and new ground to the city none of them is provided for low cost living situations. Making that the ground assigned for living has to densify extremely.



Creation of slums and unothorised building

Due to the strong densification in Colombo, a lot of new people are arriving. Most of them are coming here to live the “Sri Lankan dream”, they come here to get a better live, find a job, get out of poverty, … Most of these people don’t get out of that and end up in the slums in and around Colombo.

Low living qualities

A lot of people living in the slums live with a lot of people on a very small area. These people live in the waste lands, not having access to water electricity, …
Barley able to provide themselves with the basic needs.

Lack of open and green spaces

Colombo does not meet up with the WHO's (world health organisation) minimum area of green m^2/person, this is about 3m^2/person more than Colombo has at this moment. (WHO, 2018)
Altough different studies show that more green/open and public space benifits the entire city

REACTION OF THE GOVERMENT

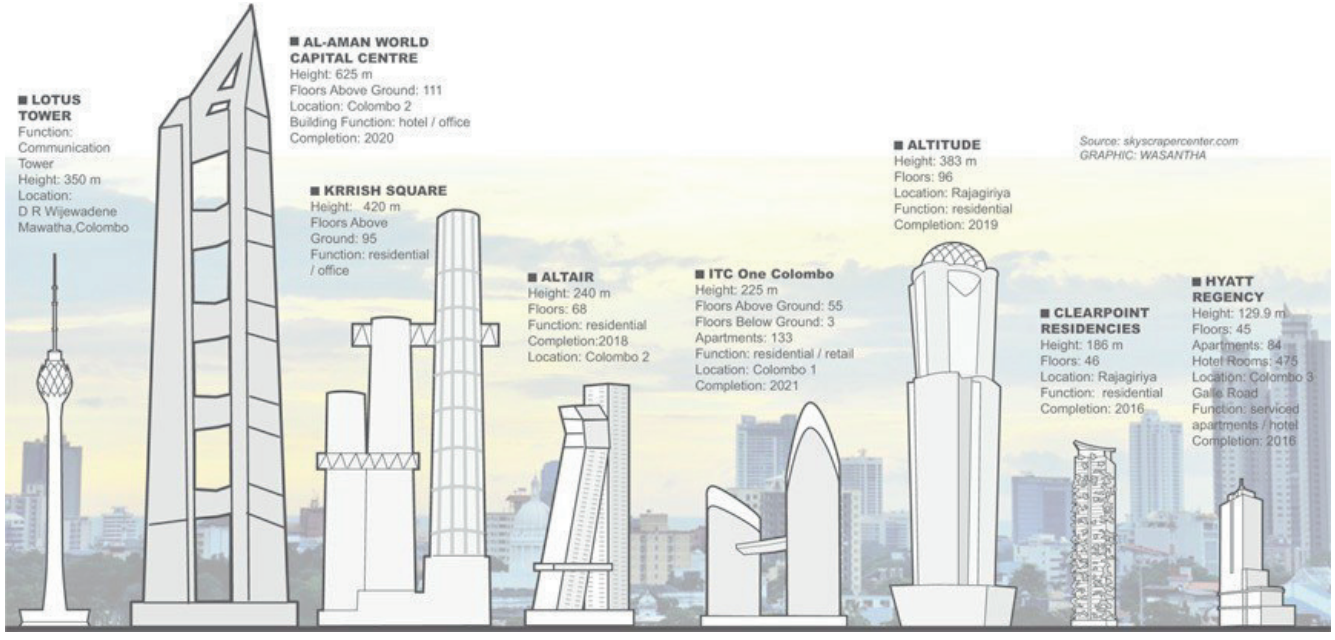
What is the solution of the goverment ?

A. REINVENTION COLOMBO
B. COLOMBO PORT
C. RELOCATION
D. SUMMARY + CONCLUSION

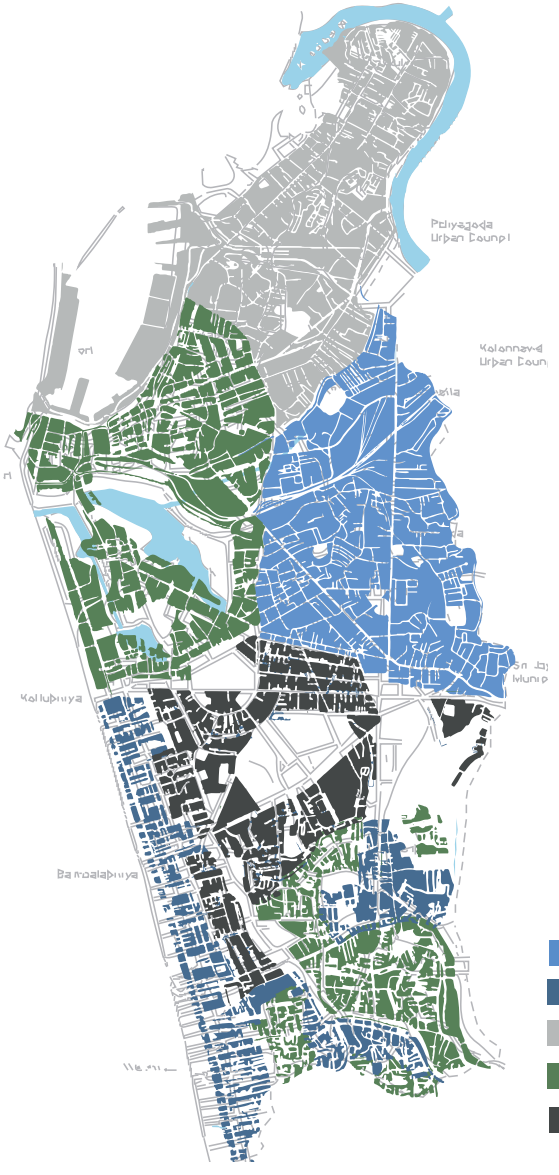
REINVENTION COLOMBO

“To eliminate slums, shanties and other dilapidated housing from the city of Colombo by relocating dwellers in modern houses to upgrade the living standards of the Citizens. “ this is the goal of the goverment of Sri lanka.

Colombo is trying to generate a new image for the country. This is done by “redeveloping the complete city affecting more than half of the existing citizens.
The upper part of the city where the most low income housing is located, will completely be broken down to make space for Harbor activities.
The city is growing, sadly there is no new space for living altough the population is increasing drasticly and with the current development plans it looks like the population will increase even more.



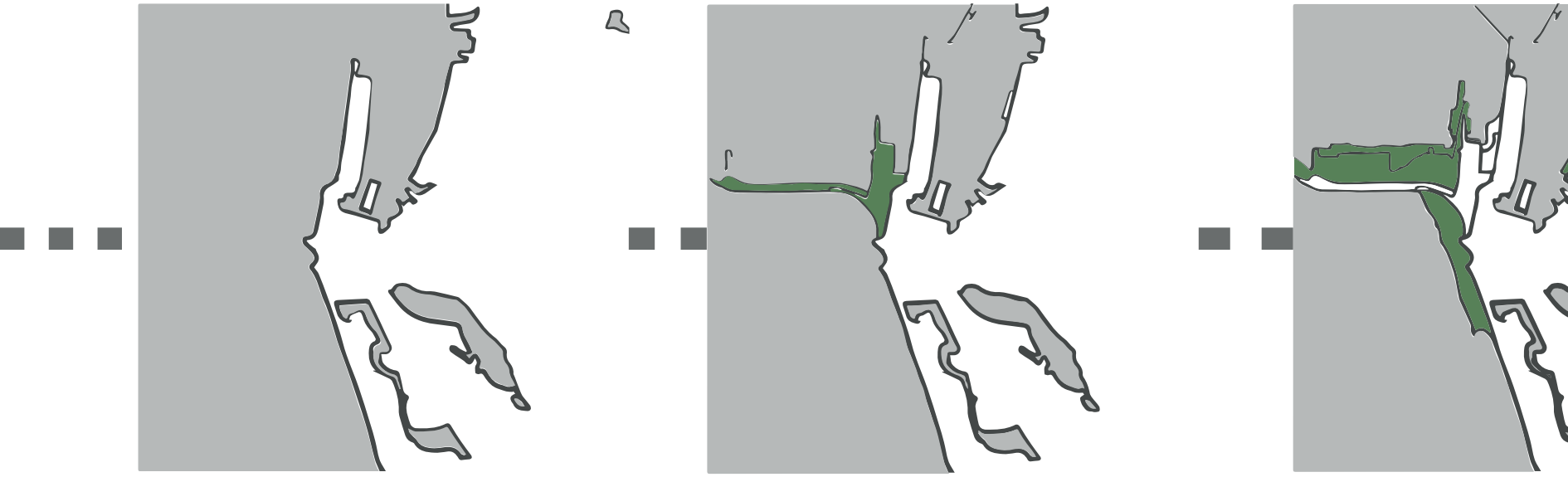
Low income settelments



Commercial
Residential
Harbor
RedevelopmentS
Special residential

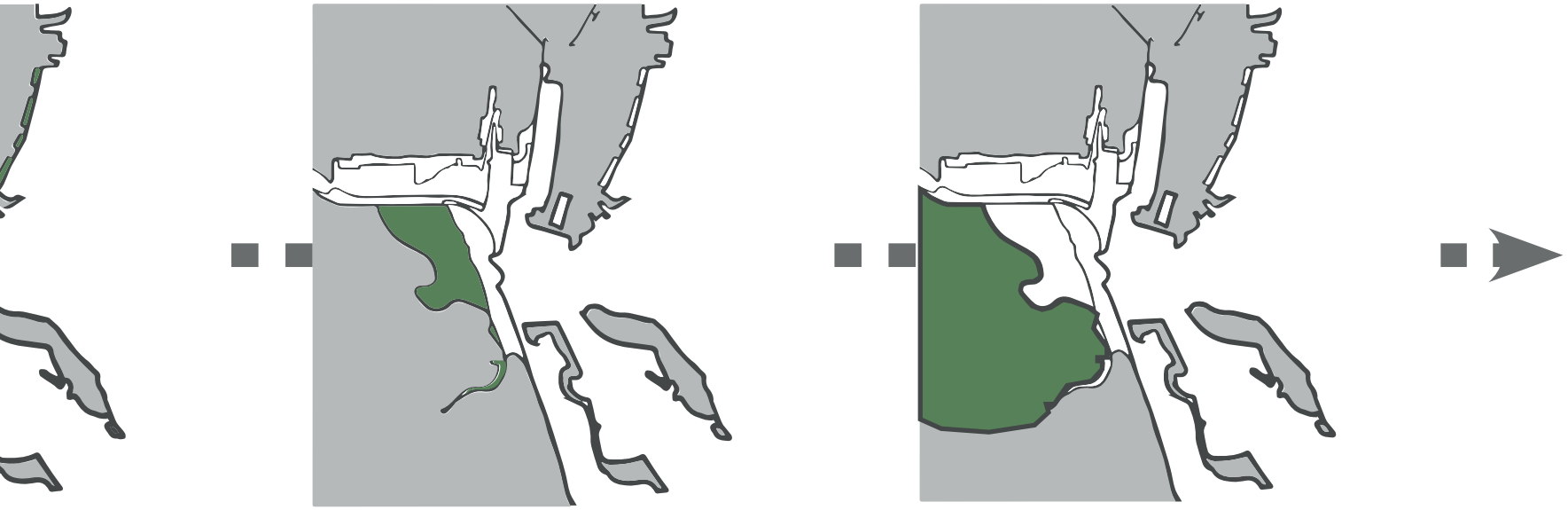
PORT COLOMBO

The Port city is aiming to improve economical development of Sri Lanka in general and promote tourism. The plan includes special funding for fishermans income support, impovement of waste and utilities, development of transport infrastructure.



Harbor (land) addition

Comprising 269 hectares, Port City Colombo is a new city development built as an extension of the existing Colombo Central Business District (CBD). The Financial District and Marina District make up the central area of Port City. When complete in 2041, the master plan will transform Port City Colombo into a hub for commerce, tourism, and culture in South Asia. The project is developed thanks to Chinese investments.
they owed China 8 billion dollars, whih together with all the debt to other countries is 94%of their GDP.



RELOCATION
GOVERNMENT PLANS

"Construction of 30,000 low cost housing units within the next 3 years and another 40,000 units during the following 3 years for relocation of households presently located in undeserved settlements in the city of Colombo. Identifying all households located in undeserved settlements in order to plan and implement a relocation program with better living conditions. Relocation of 70,000 households in the newly built houses through a community development and marketing program."

These are the official plans of the government, although the plans are made for the next 3 years until today there are no concrete plans to provide housing for the relocation of the affected families. The only visualization that is accessible for the public is the on the right of this text, showing a 2 bedroom apartment for 4 persons.
Considering that the common family exist out 8 people shows that there is absolutely not been taught about how people will live here.

They have to relocate 75 000 families so the capital can attract new investors to make the city 'beautiful" again. The goal is to make a more densified city without respect for the existing by 2020 all the un-authorized housing needs to be replaced by apartment-blocks.

3D view of the Housing Unit

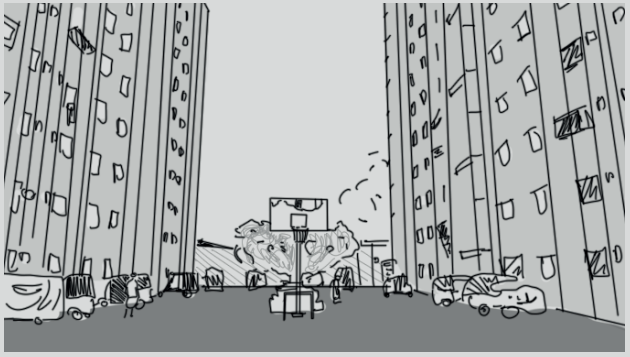
TYPICAL UNIT VIEW

CASE STUDY: SAHASPURA HOUSING

The government has attempted to convince urban slum dwellers to relocate to nearby high-rise apartments and, thus, reclaim encumbered lands for commercial and city development. The “Sahaspura” high-rise low-income housing project was the first attempt in this direction and it consisted of 14 floors with 670 housing units in 2001.

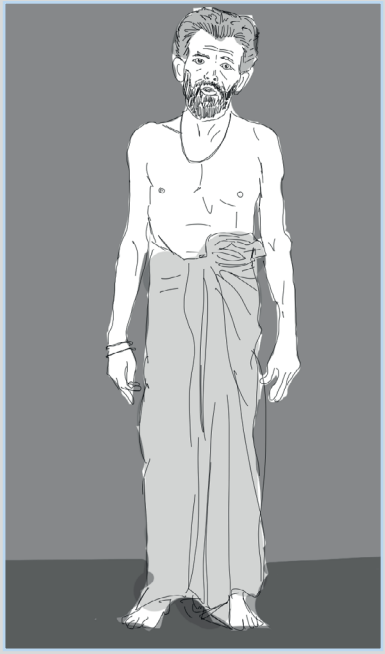
This system is based on the tower int the parc mentality of Le corbusier, a system that is proven not to work in a lot of different spaces. Chicago’s Cabrini Green, Toronto regent parc, ... all these project have been broken down or are currently redeveloped due to increased crime, bad maintainance, low life qualities, ...
The moment this kind of social housing is build it loses it value.

In Sahaspura it is no different. Interviews with the dwellers show that the people are unhappy with their current living facilities and would prefere to return to the slums they lived before. It limits their way of living.



Nona Balkis, a senior citizen, misses her old life. She bemoans the lack of facilities compared to her old home in Kompanna Vidiya, and the high expenses here. “We pay 2600/- rent per month, with utilities it comes between 5000-7000 per month. We also have to pay the garbage collectors Rs. 1000 per month. There’s a playground in the other block of apartments, but they don’t allow children from this block to play there.”

A Look Inside The Lives Of The Families Relocated To The Sahaspura Housing Scheme , Roarmedia, 09/05/2019, https://roar.media/english/life/srilanka-life/a-look-inside-the-lives-of-the-families-relocated-to-the-sahaspura-housing-scheme/

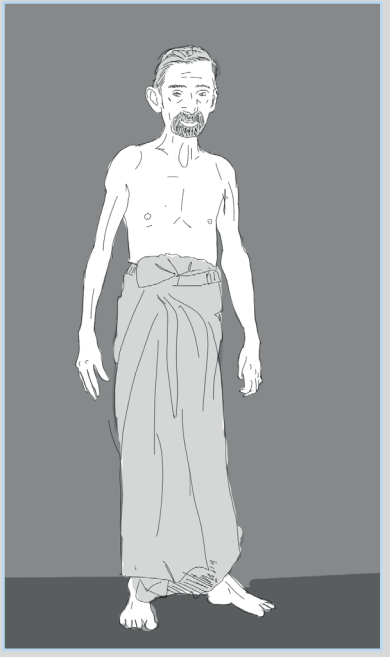


Ratneswaran, 52 years. “We used to live in Maligawatte for generations and then my father wanted me to leave the house once I got married, so I bought a land in Applewatte for Rs. 35,000 in 1981 and built a house from ground up. I worked very hard to get here, whatever money I earned from working at the garage I invested in the seetu (an informal financial savings scheme) and saved slowly, I never spent on unwanted things. I haven’t gone to work for a month now, I’m not well. I have three daughters and my brother has three sons. (He laughs). At the time everyone from the area used to make fun of us, and wanted us to exchange one daughter for a son. There were things that used to happen in Applewatte that cannot be spoken of; now we are able to live like human-beings in this place. Some people think that since I grow a beard that I’m a heroin addict, but we aren’t like that. Only if we go to work are we able to earn 1,000/- per day.

A Look Inside The Lives Of The Families Relocated To The Sahaspura Housing Scheme , Roarmedia, 09/05/2019, https://roar.media/english/life/srilanka-life/a-look-inside-the-lives-of-the-families-relocated-to-the-sahaspura-housing-scheme/

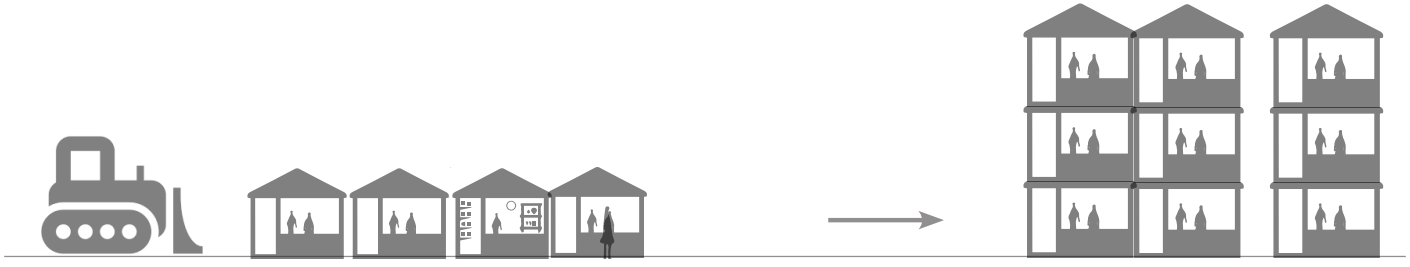
“We used to live in a Muslim neighbourhood. Mosques were just a step away, and we had plenty of halal meat shops. It was good for the children also. But now, people from all sorts of neighbourhoods are here, be they Tamil, Sinhalese, or Muslim.”

A Look Inside The Lives Of The Families Relocated To The Sahaspura Housing Scheme , Roarmedia, 09/05/2019, https://roar.media/english/life/srilanka-life/a-look-inside-the-lives-of-the-families-relocated-to-the-sahaspura-housing-scheme/



SUMMARY + CONCLUSION

SUMMARY



Sri lanka is at the start of huge changesets. The government made plans to change the complete city with a Tabula Raza concept.
The harbor gets extended and redevelopment in the complete city is planned.
For this new economy to start they are erasing half of the city and start all over again with a more densified Colombo.

About 11 million people will be effected by these changes. By 2020 all the slums have to be erased form the city.
75 000 families , who already have it difficult, will need to find a new home .
Although the government promises a lot for these people not a lot is planned to make this come true.

CONCLUSION

WHAT ARE YOU GOING TO THROW DOWN ? WHAT STAYS ? WHAT ARE YOU BUILDING IN-STEAD? WHERE DO THE PEO-PLE GO ? WHAT PREVENTS THEM FROM BUILDING SLUMS AGAIN ? ISN'T IT A RELOCATION OF THE PROBLEM ? DON'T SLUMS HAVE VALUE ? WHAT WITH THE EXISTING LOW RISE HERITAGE ? WHAT WITH THE IDENTITY OF THIS AREA ? WHAT WITH THE DEMOLISHED MATERIALS ? WHAT WITH THE ECOLOGICAL FOOTPRINT OF A DEMOLITION ? WHAT ABOUT THE DYNAMIC OF THE COMMUNITY? HOW ACCOMMODATE ALL AGES AND ALL FA-MILY TYPES? WHY NOT DENSIFY THE EXISTING STRUC-TURE ? WHY NOT MAKE THE LIVING CONDITIONS BETTER IN EXISTING STRUCTURES ? WHAT MAKES THIS DIFFERENT FROM THE SO-CIAL MODERNIST CONSTRUCTIONS THAT FAILED ? IS A CLUSTER OF LOW INCOME HOUSING NOT ALREADY PROV[illegible]BO , WITH + 70 000 LOW COST HIGH RISE BUILDING UNITS ? WHERE DOES THE MONEY FOR COMPLETELY NEW HOUSING UNITS COME FROM ? WHEN IS WHAT PART GOING TO BREAK DOWN ? WHAT TO DO WITH THE POPULATION ? HOW IS THE DEMOLITION GOING TO TAKE PLACE ? WHERE DO WE LIVE ? WHY DOES THIS HAVE TO HAPPEN ? IS THERE NO BETTER WAY TO DO THIS ? WHO WILL BE AFFECTED ? WHAT WILL THE EFFECT BE ? ARE ALL THE STREETS GOING TO BE REMADE ? HOW DOES THE NEW ARCHITECTURE LOOK LIKE ? WHAT IS OPEN SPACE ? WHAT IS PUBLIC SPACE ? WHO DE-CIDES THIS ? W[illegible]AT LIVE HERE ? WILL SPON-TANEOUS ECONOMIC GESTURES STILL BE ALLOWED ? WHAT WITH THE WASTE ? ISN'T THIS WAY OF LIVING PART OF THE CULTURAL HERITAGE ? WHAT IS DEFINED TO BE HERITAGE ? WHAT IS THE COST OF THE DEMOLITION ? WHO IS A POTENTIAL INVESTOR ? WHO IS GOING TO INVEST IN LOW INCOME HOUSING ? ARE THOSE HOUSES LIVABLE? WHAT WITH THE IDENTITY OF THE PLACE ? DOES ARCHITECTURE AF-FECT THE DWELLERS ? WHO IS GOING TO PAY ? WHY BREAKING EVERYTHING DOWN ? WHY HIGHRISE ? WHY NOT WORKING WITH THE EXISTING ? ARE THERE NO ECONOMICAL SMARTER CHOICES ? ARE WE NOT MAKING THE SAME MISTAKES ? WHY A CITY IN THE PARC DESIGN ? WHO ARE YOU BUILDING FOR ? WHEN ARE THE BUILDING PLANS TO BE MADE PUBLIC ?

This development raises a lot of questions not only do questions like what are you exactly going to demolition appear but the questions about the population and their relocation popping up. On top of the pure technical questions about the what and how the economical as-pect also seems to be forgotten. Who is going to pay for these houses ? Because the people who have been evicted from the slums don't have the money to build it. And even if you find an investor for these projects who is going to maintain it ? Isn't this city making the mistakes from Chi-cago and Toronto over again ?

SITE

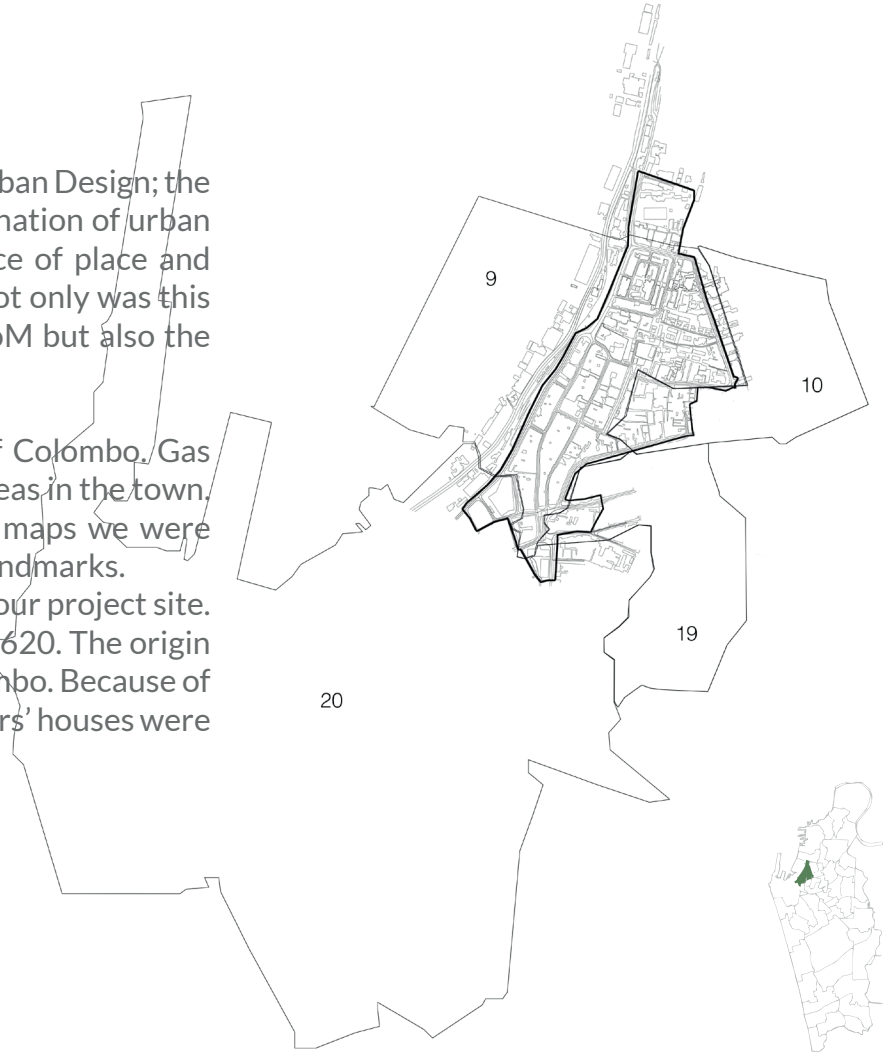
What can we learn from the current living conditions?

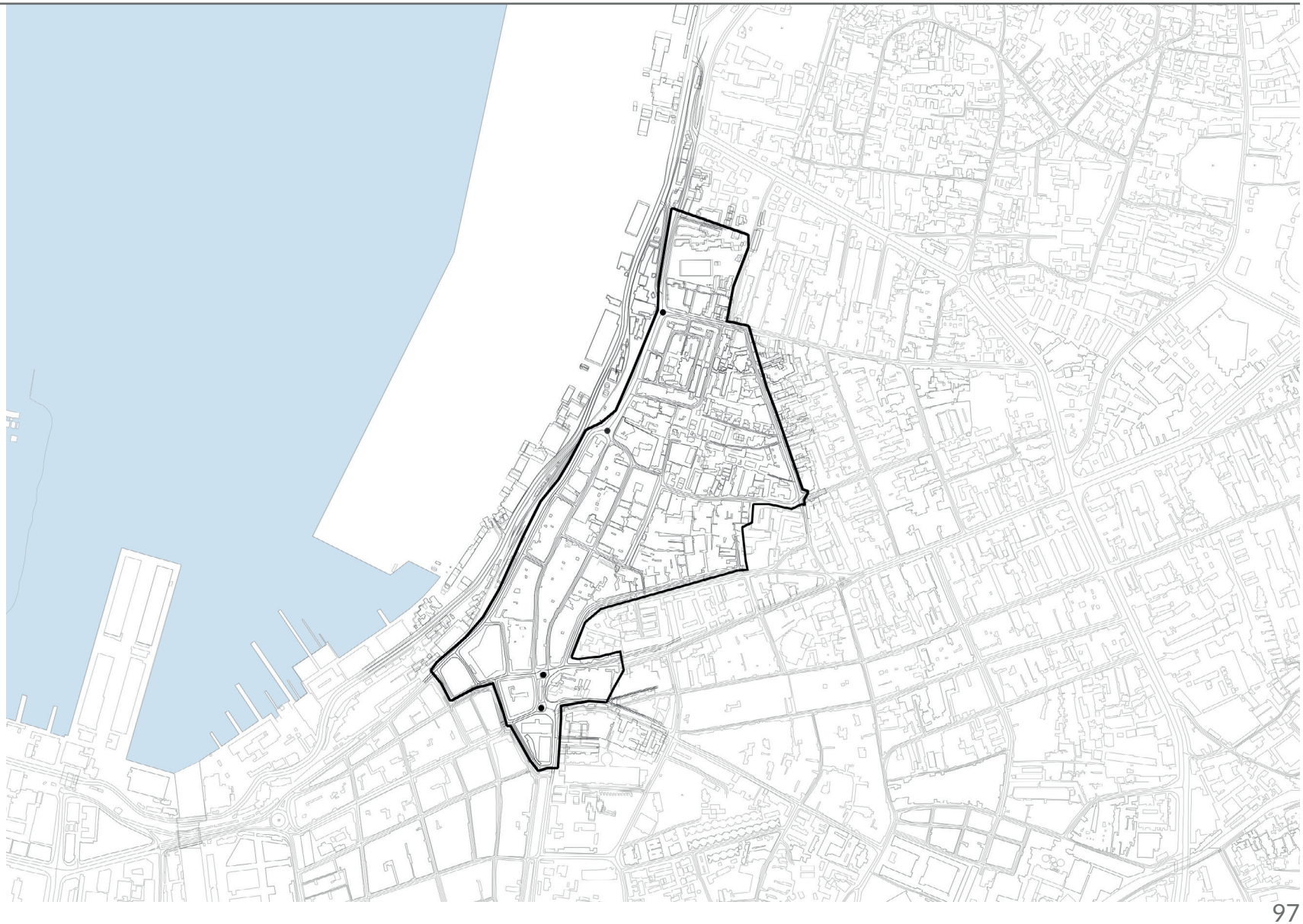
A. RESEARCHED ZONES
B. NEWNHAM SQUARE
C. LEARNING FORM THE SLUMS
D. SUMMARY

RESEARCHED ZONES
GENERAL INFORMATION

In Colombo,UoM, me and Yasmine were enrolled in Urban Design; the key feature of the urban design program is the combination of urban design theory and the design studios. The importance of place and fieldwork represents a significant component here. Not only was this work made with the guidance of a professor from UoM but also the wider public has an involvement in the studio.

The zone is situated in a historically valuable area of Colombo. Gas work region is close to Pettah and one of the oldest areas in the town. By analysing the old Portuguese, Dutch and English maps we were able to identify the oldest areas and define the main landmarks.
Colombo expanded form Colombo Fort to Pettah and our project site. The first drawings of Sea Street are already found in 1620. The origin of these houses can be traced back to the port of Colombo. Because of the number of workers in the old port a series of workers' houses were provided.





ZONE INDICATION

Our study area is the region around Gas Works region, the Pettah. The zone is located in the 4 different wards, named Grandpass north (9), Demathagoda (10), Keselwatta (19) and Aluthkade (20). Most of the study area is found in ward 9; Grandpass north.
Because Gas Works Region is a large zone we decided to divide the region into smaller areas.: Newham Square (red), Wolfendaal Hill (yellow), Sea Street Section (blue) and Gas Work Region (grey)
Every zone is chosen by type of living:

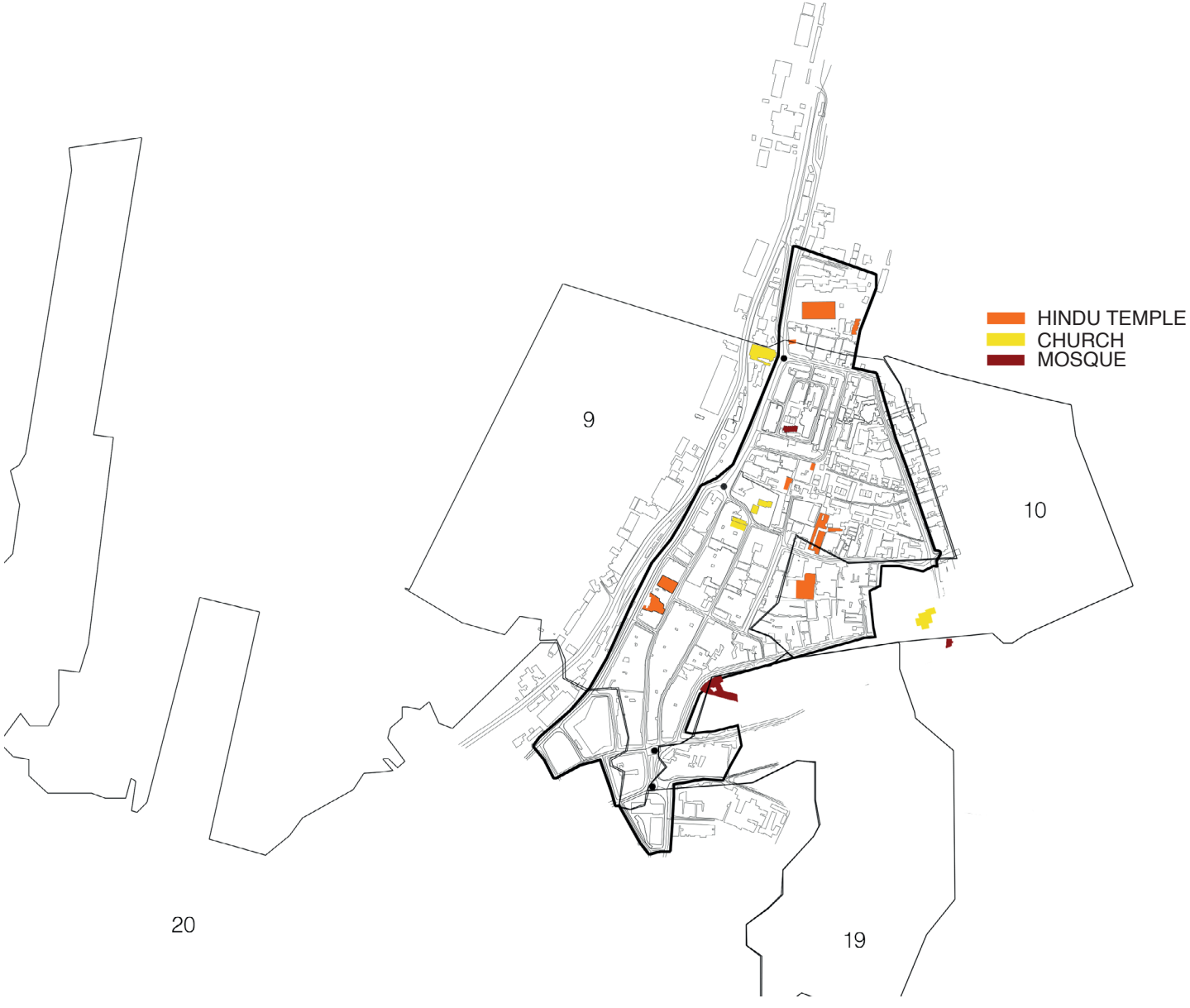
- Newham Square is an enclosed community, with mostly residential areas.
- Wolfendaal Hill is an open residential area with different communities.
- Sea Street Section is a combination of residential and commercial buildings where different communities live.
- Gas Works region is a historic valuable space with a combination of historical, commercial and residential buildings.


NEWHAM SQUARE
WOLFENDAAL HILL
SEA STREET SECTION
GAS WORKS REGION
9
10
20
19

RELIGIOUS LAYER

Sri Lanka is a remarkable country when it comes to religion. Buddhism is the main religion but the Buddhists live in harmony with Hindus, Christians, Muslims and they even tolerate atheist like me. If you compare this to let's say Belgium, the people in Sri Lanka are, on first sight, much more tolerant of other cultures. It is even possible to have a church next to a mosque, and across the street a Hinduist temple and this all in the middle of a Buddhist community. This unique thing is something that we can learn from in Belgium and that should be treasured.

To prove this statement, we wanted to investigate the religion of the people in every household but due to language problems we eventually only could map the different kinds of "temples" . But even here you can already see the diversity of the culture.

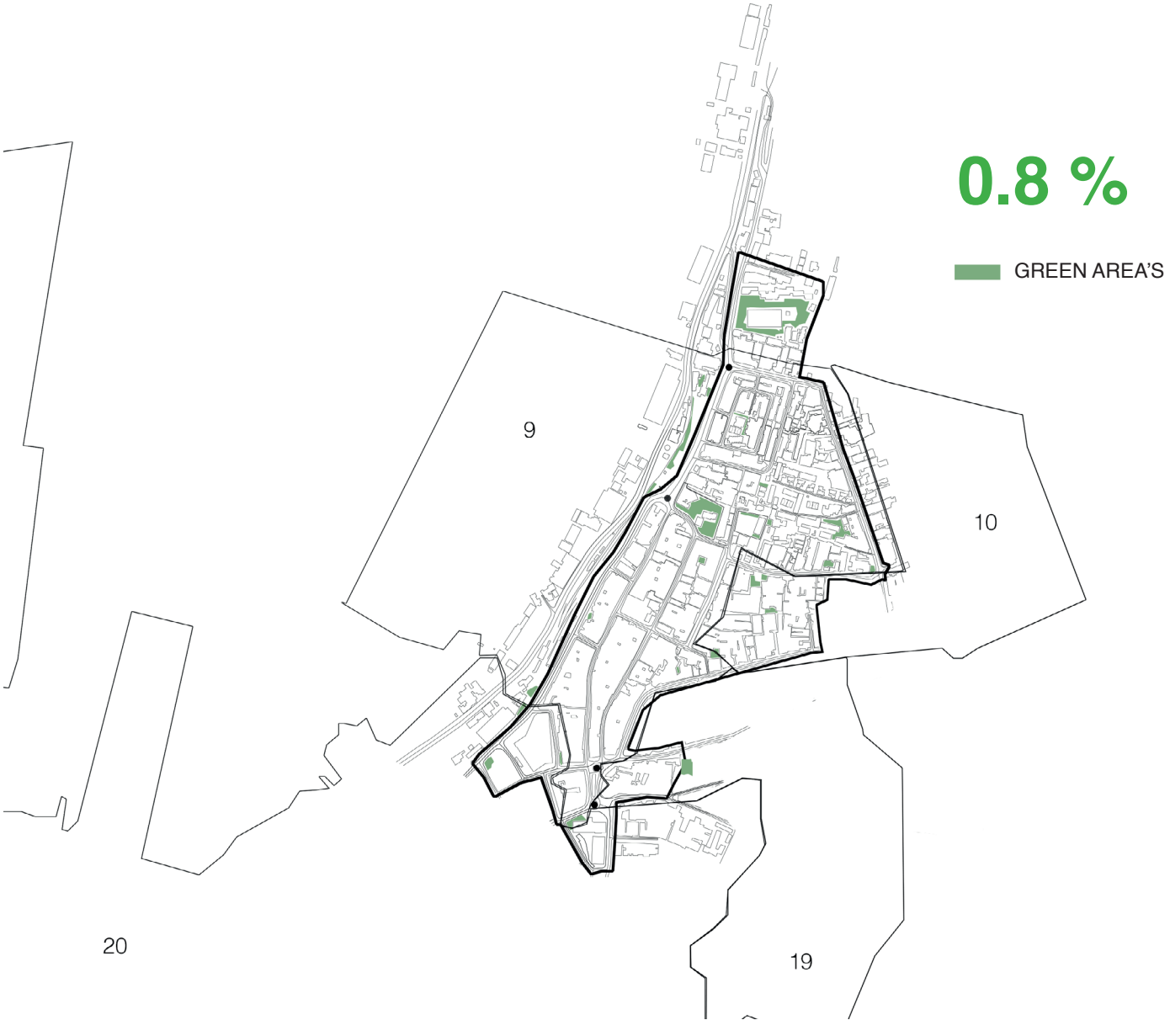

HINDU TEMPLE
CHURCH
MOSQUE
9
10
20
19

GREEN SPACES

“the measures of any great civilisation are in its cities, and a measure of a city’s greatness is to be found in the quality of its public spaces, Its parks and its squares”- John Ruskin

Like the quote of John Ruskin beautifully said: “the greatness of a place can be found in the quality of its public spaces”. So to be able to measure the civilisation of our site we started to analyse the public spaces. The first step in this process was for us to assess the amount of green in the city.

After mapping all the green in our zone, we concluded that we only have 0.8% green in the complete zone. This is about 0.4m² a person. If we compare this to Colombo (7.16m²) in general, it is incredibly low. It does not even reach one 10th of the green that is in the other areas of the city. But even Colombo does not meet up with the WHO’s (world health organisation) minimum area of green m²/person, this is about 3m²/person more than Colombo has at this moment. (WHO, 2018)


0.8 %
GREEN AREA'S
9
10
20
19

NEWHAM SQUARE

BUILDING HEIGHT

1 level

2 levels

3 levels

4 levels

5 levels

6 or + levels

HERITAGE
MEASURING SYSTEM

The buildings were originally built as workers' houses for the employees of the port at the time of the English domination. These houses were one story or two-story buildings with typical features like the ventilation openings, the small wall in front, only one window, ….

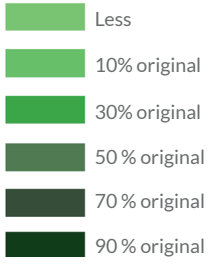
We made a specific measuring system for this analysis on which we will rate the originality of the building's façade. In the following section of facades, a colour is given to be able to better understand the score given. The lower the score the less original the façade is and the lighter the green becomes.

Levels
Amount of levels 1 100%
Amount of levels 2 95%
Amount of levels 3 or more 25%

Ventilation holes
Square 100%
Decorations 95%
None/other 75%
Windows

1 window 100%
2 or more windows 25%

Other additions 95%



EXAMPLE

For example if we take a look at the sixth building, this is only one story high. If you then take a look back to our rating system you will see that the first thing on our list is building elevations. The original workers houses that were built here tended to be one or two levels. So the buildings with a building height of three or more stories automatically get a lower score. So in the case of building number six, it is at the optimal height , of one story, giving it a score of 100%. Considering building number six, as our example, the next thing we will look at are ventilation holes. This could come in the form of squares or decorative flowers. In the case that it is a square this house will get a rating of a 100%, in case it is a decorative flower the house will get a rating of 95%, if there

were to be none the score automatically will be 75%. Going back to our example ,building number six, will get a score of 95% because it has flower decoration ventilation holes.
Next up on our list is the amount of windows the buildings possess. To keep things simple we will continue to use building number six as our example. Looking back to the street section you can see that building number six only has one window. Referring back to our measurement chart it shows that building number six would get a score of 100%
In the case that there are any other attributes violating the authenticity of the building a certain amount of the score will be withdrawn.
Every building has been given a score of one after every façade attribute measurement a percentage is taken off. For example in the case of building number six the marking system will take as following:
Levels
Amount of levels 1 100% 1

Ventilation holes
Decorations 95% 0.95
Windows

1 window 100% 0.95

Other additions 95% 0.90
So the final score of building number six is 0.9 or 90% what refers to a dark green (see chart next page)


Less
10% original
30% original
50 % original
70 % original
90 % original

AUTENTICITY

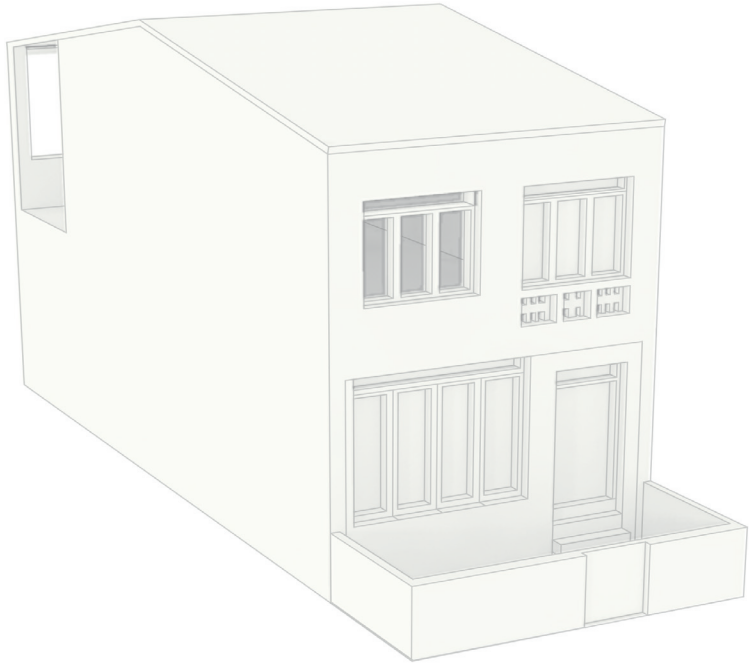
The subject of authenticity in the conservation of monuments needs to be seen in the light of its own creation in term of its birth, be it for royalty or for labourers.
The vital responses for data gathering would be to record answers for the following:

- For whom were these monuments built?
- Who designed them
- For what purpose were these erected?
- Of what materials were these constructed?
- In which environment were they constructed?
- In which geographical area of the world were these edifices located?
- To which historical period(s) do these belong?
- Under which stylistic influences were these designed?

source: Revisiting authenticity in the Asian context Edited by Gamini Wijesuriya and Jonathan Sweet

PHYSICAL HERITAGE

The site Newnhamsquare is built during the time of the British occupation in Cylon (Sri lanka). In 1930 they expanded the harbour and with this a series of workers houses was builded next to it by them. These buildings were the start of the expantion of the city an unique mix of native and the british architecture style.
A lot of these los rise buildings in the area have been preserved well due to a a lack of financial supply to adjust housing to current needs.

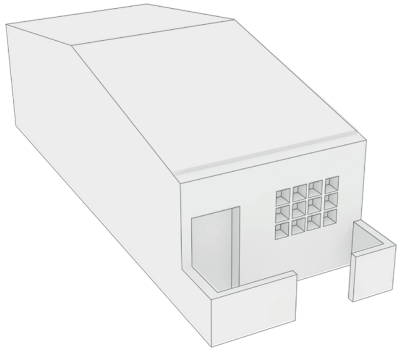


SOCIAL HERITAGE

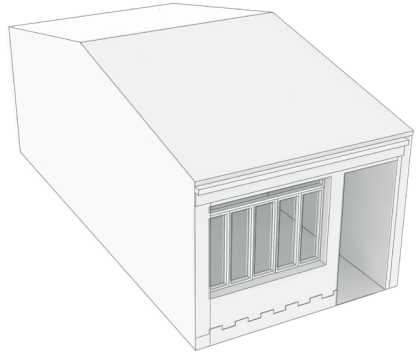
Newnhamsquare has a unique social infrastructure due to the original building form. The area is build in such a way so it provides the people with the infrastructure to build a community. This is done by the alleyways who provides the housing with an outdoor extention. These outdoor living spaces are the base of the community.

ORIGINAL VOLUME

ONE LEVEL HOUSING

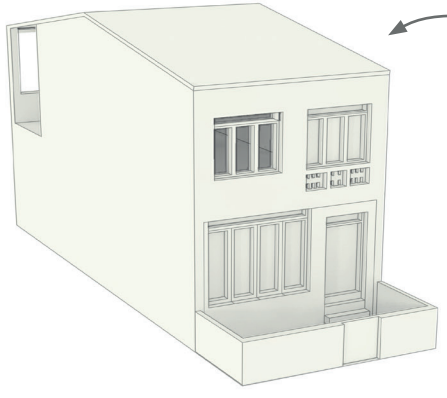


Type 1

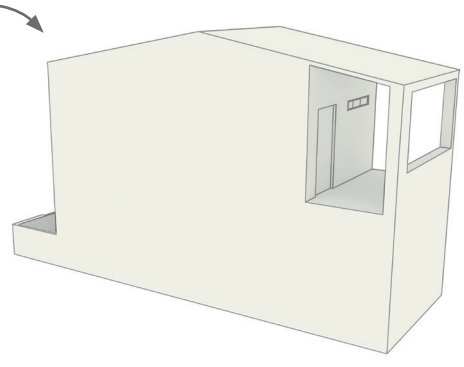


Type 2

TWO LEVEL HOUSING

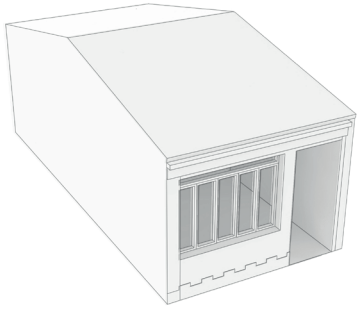


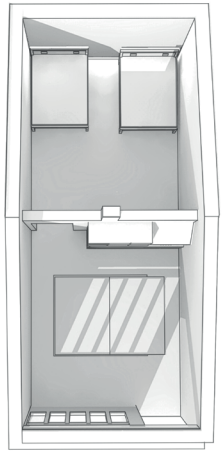
Front facade



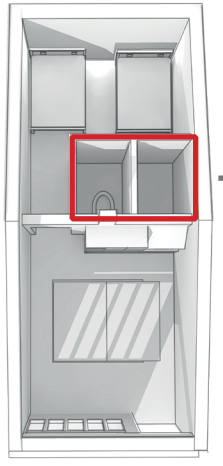
Back

ONE LEVEL HOUSING



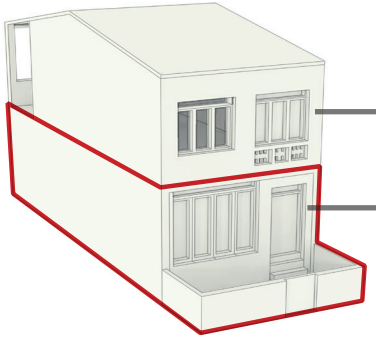


Original



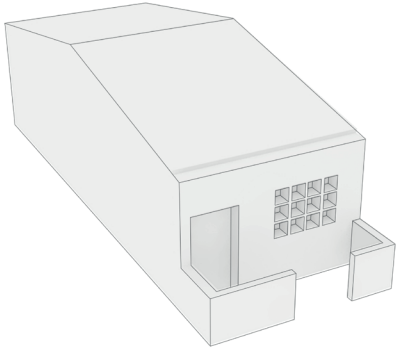
Later update

TWO LEVEL HOUSING

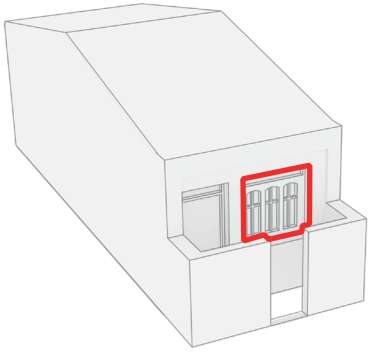


ORIGINAL FACADE

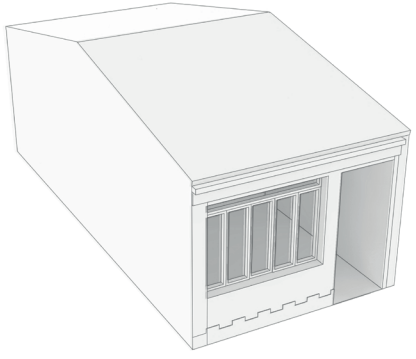
ONE LEVEL HOUSING



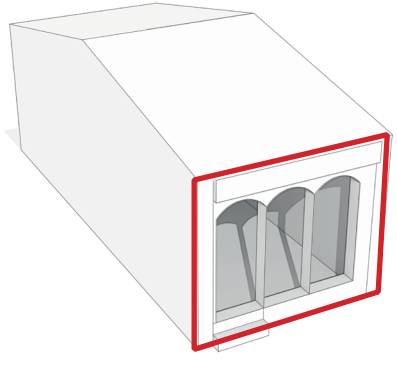
Original type 1



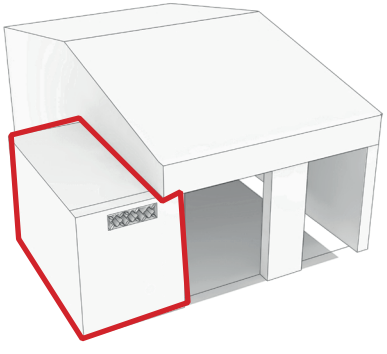
Adjusted window



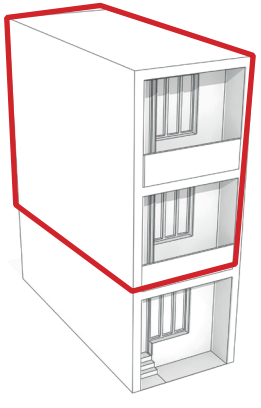
Original type 2



Adjusted facade

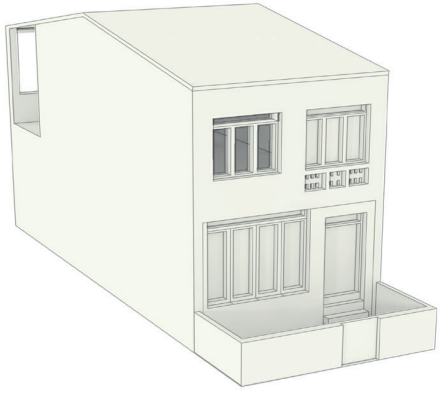


Aditional block

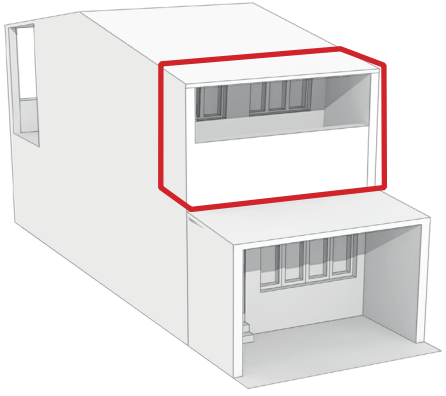


Extra level(s)

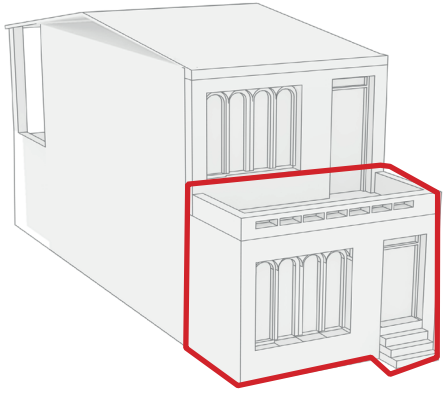
TWO LEVEL HOUSING



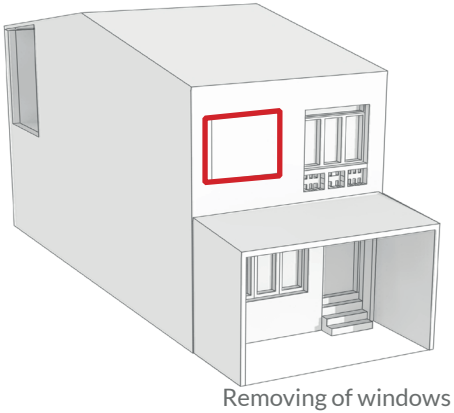
Original



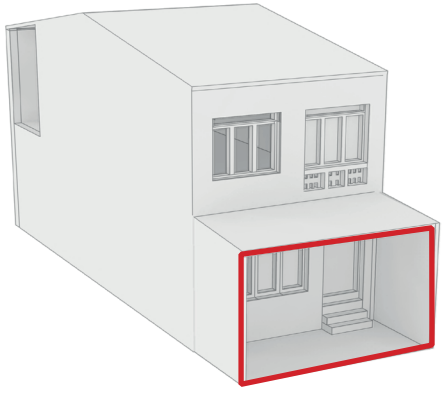
Covered terras level 1



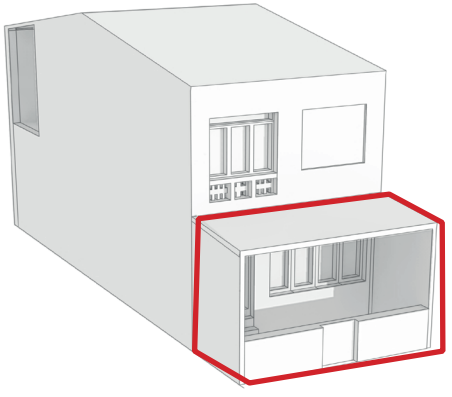
Extention level 0



Removing of windows



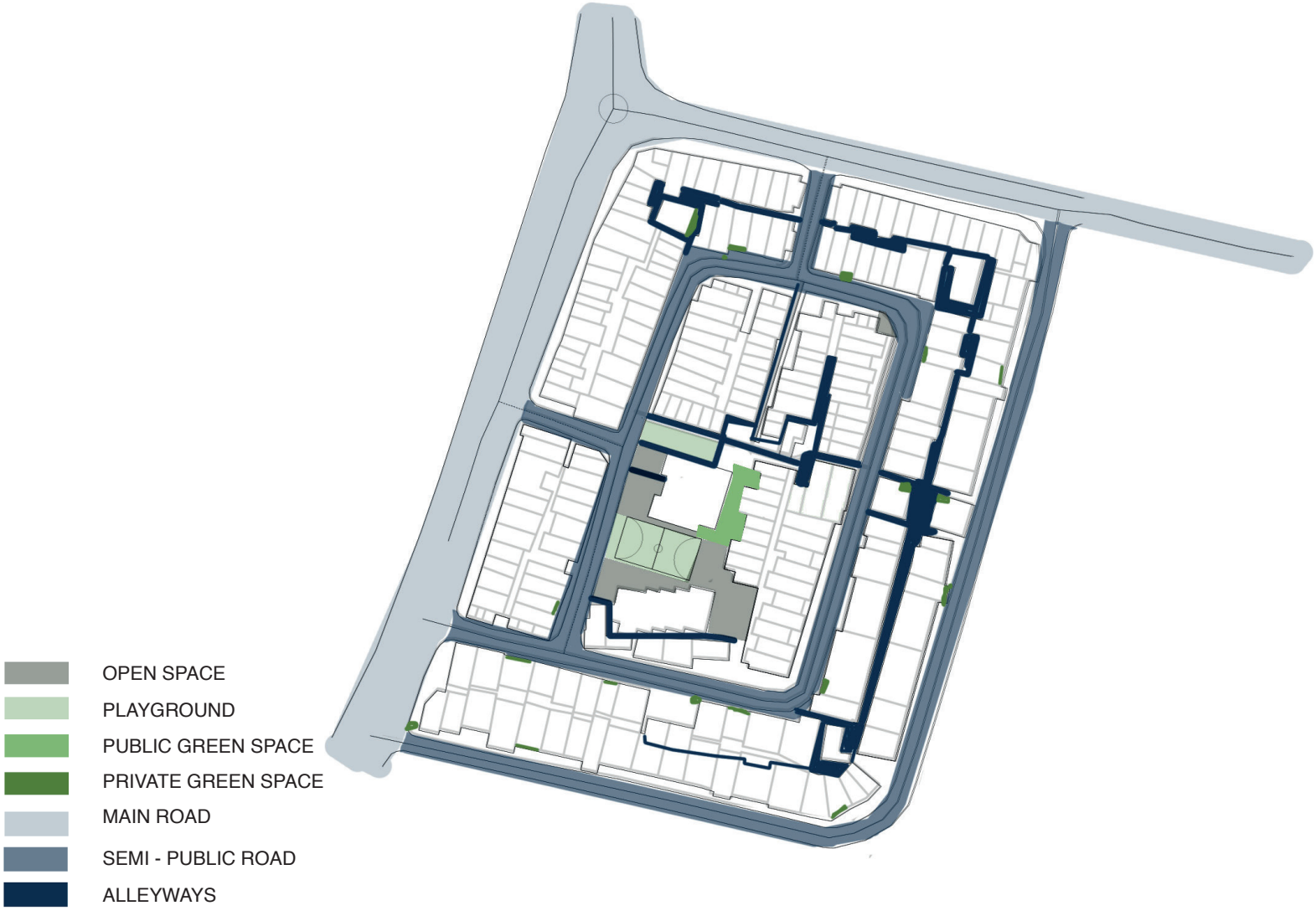
Removing front “garden” walls



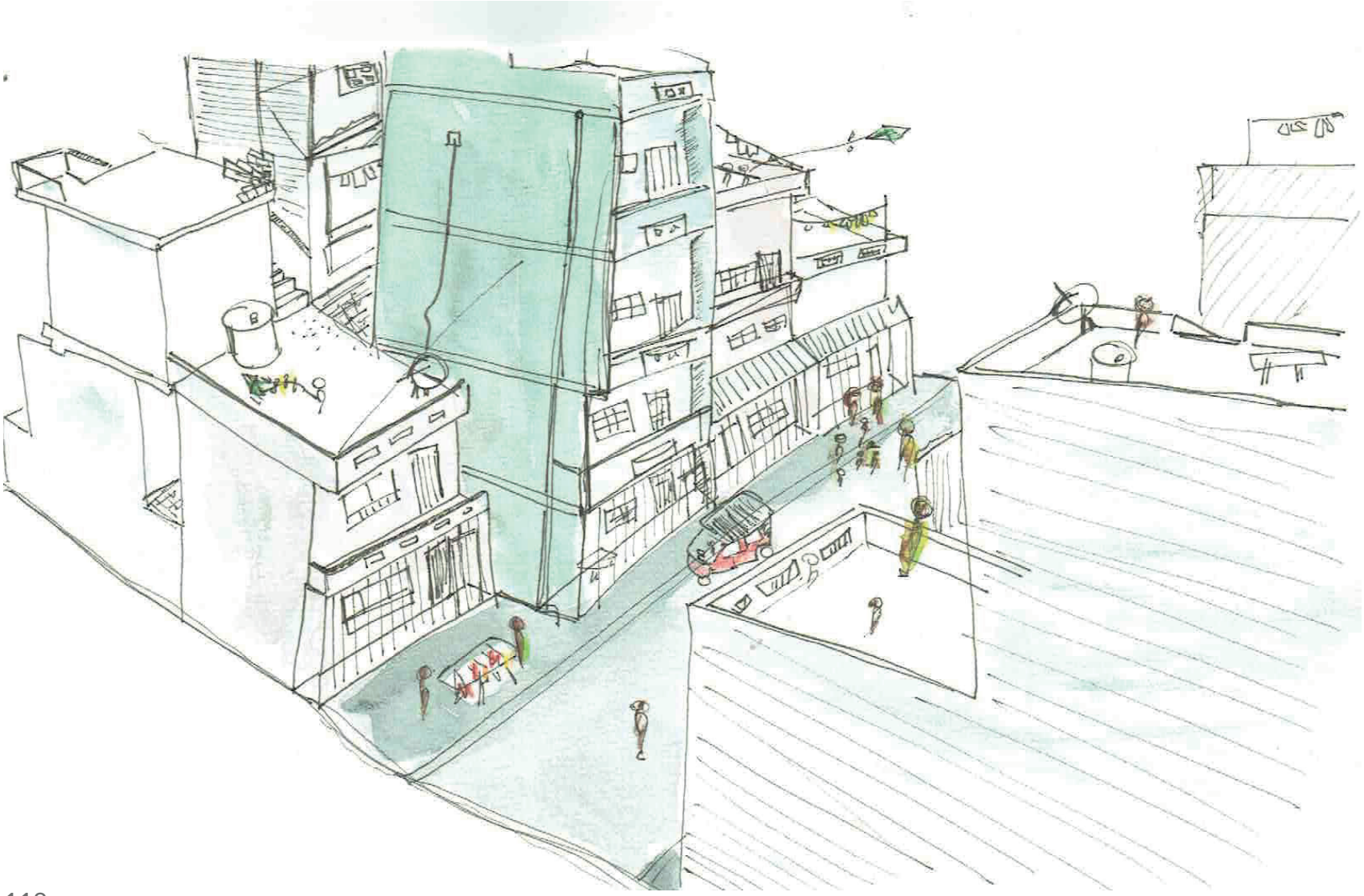
Adition of roof to “front garden”

PUBLIC SPACES

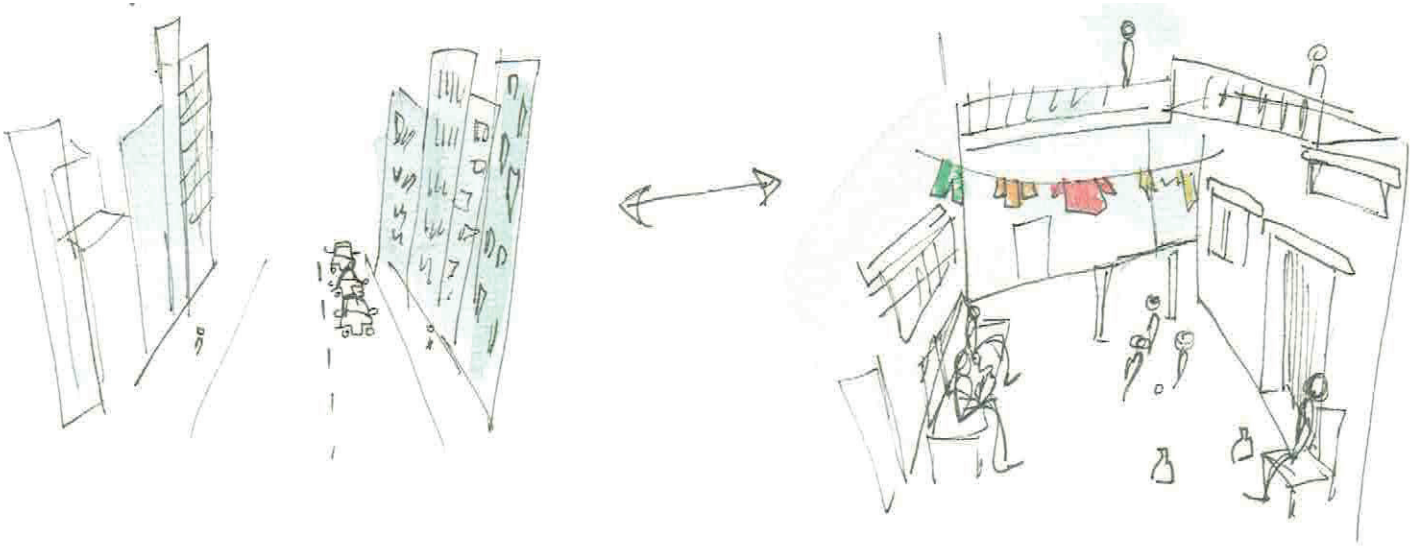
Out of this study the first thing we can conclude is that Newham Square does not contain a lot of green space. Almost no public green can be found in the area and the green that is there is mostly added by the local community or very hard to reach.
A decent number of playgrounds and open space is to be found next to the mosque that is in the centre of the area. The playgrounds are used by the children of the community in Newham Square and the communities close by. But the open space is barely used and functions just as a vague 'protecting' the mosque.
The last but maybe the most significant thing we found in this study is that this area does contain a lot of alleyways. They exist on the ground level and on level 1/2/3 (depending on the height of the building). These alleyways are not just used as a place to go from A to B but become a part of the homes. People are cooking here, children play with kides, the laundry is drying here, … Most greenery can be found in this kind of places.


OPEN SPACE
PLAYGROUND
PUBLIC GREEN SPACE
PRIVATE GREEN SPACE
MAIN ROAD
SEMI - PUBLIC ROAD
ALLEYWAYS

LEARNING FROM THE SLUMS

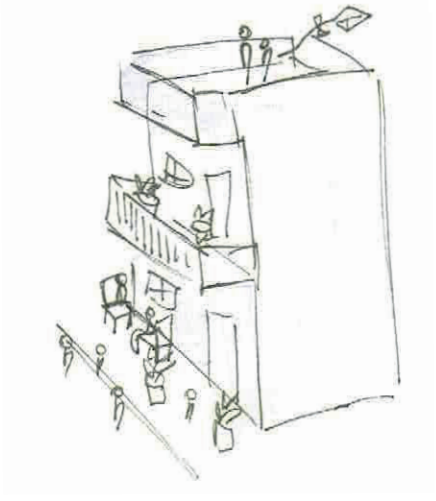


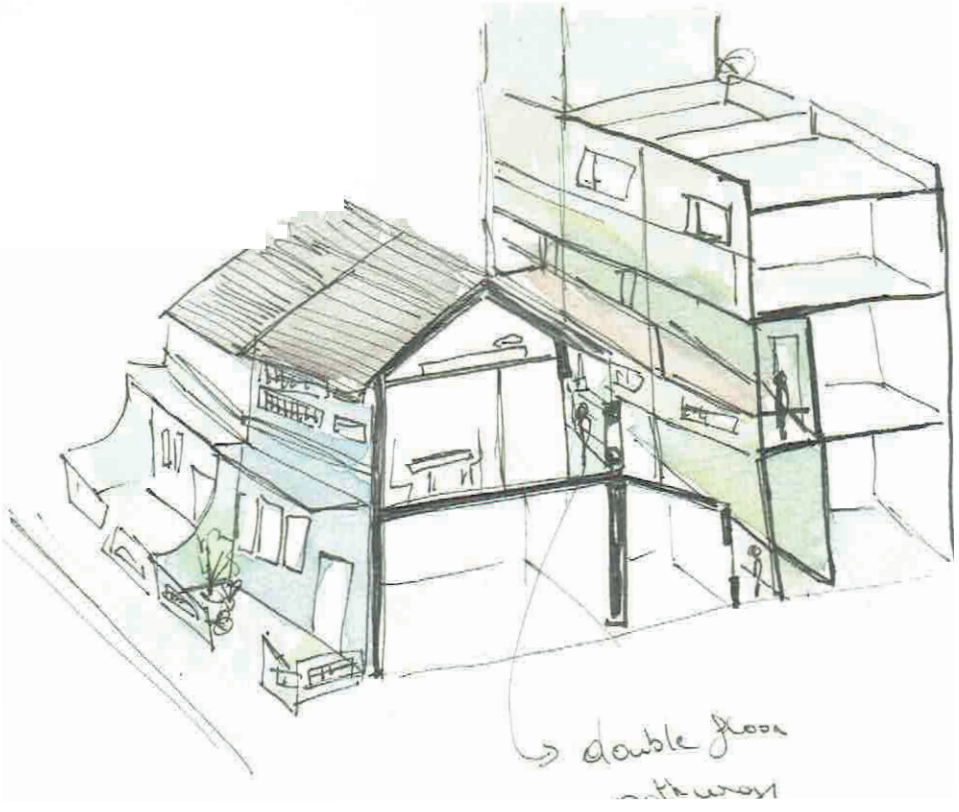
MORE THAN JUST A STREET



Narrow streets and a constant stream of activity forces drivers to circulate slowly within the fabric of the slums. The slow pace of traffic generates a social environment that is safer and quieter than other areas of the city that are engineered for the flow of automobiles. Here the streets become a meeting point — a place of casual exchange and frequent encounters. Even from an early age, young children can gather to play outside their home unattended but within shouting distance from an adult. Walking through the streets of the area, you see families pull their chairs in front of the house to chat with neighbors or look over the kids. You see older residents engage in conversation with passersby from their living room window or balcony. A small ground floor unit allowes an elderly person to live independently and still engage in the life of the community.
(GHEL-architecten investigation slums)

INNOVATIVE SYSTEMS FOR CLAIMING SPACE



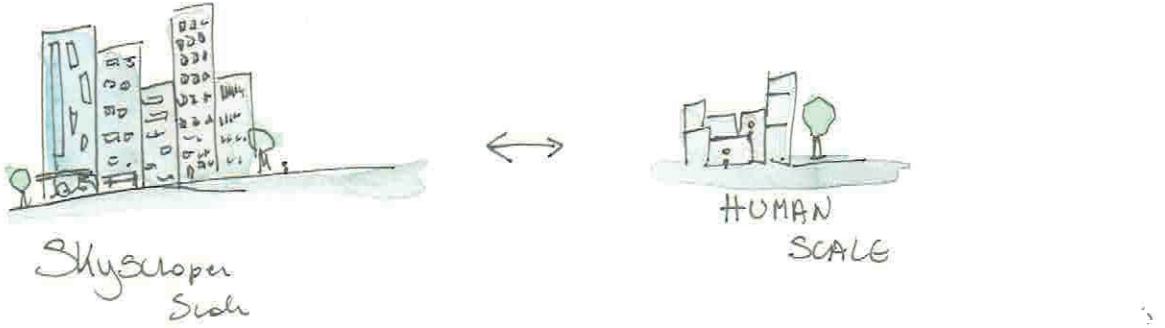


No space is left unused, all spaces double as a livingroom

- street
- roof
-terrases
-...

Slums are peoples own siolution to their housing needs. They can be found in any underused space in the city.

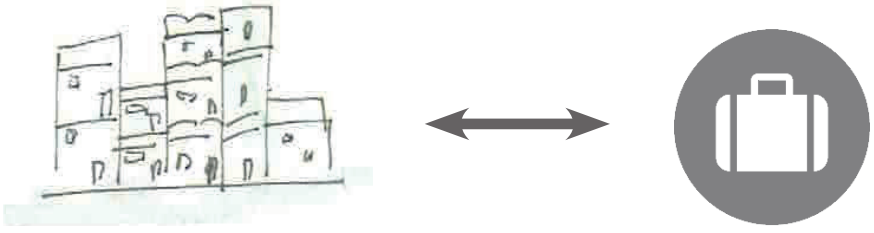
DENSE AND HUMAN SCALE



80% of the ground is used in slums. Because of this the area allows more people to live on the same amount of m^2 without losing the contact to the ground. Most of the time the slums exist out of 1 or 2 story buildings connected by narrow streets that are used as an extention of their own livingroom.

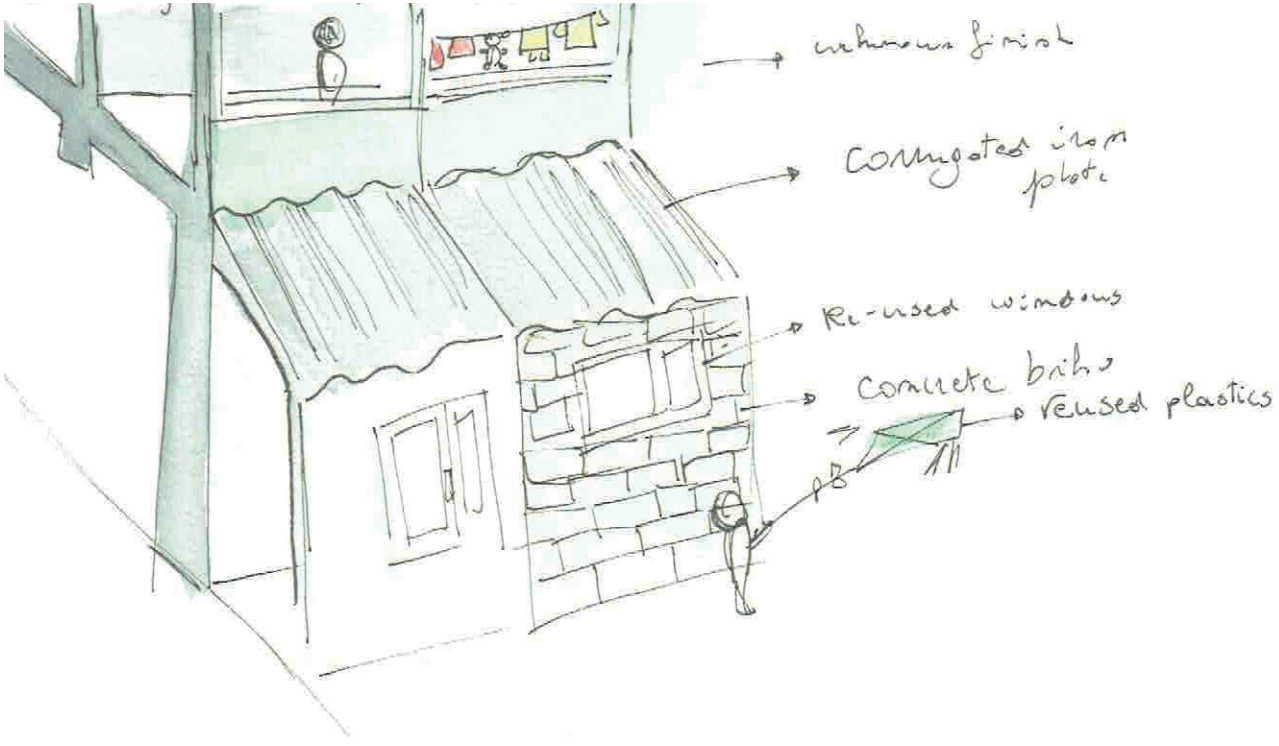
If we compair this to the planned highrise dwellings, in this case the people will have no contact anymore with the floor nor with eachother. The community feeling that strongly exist in slums dissepairs. Studies show that if the community is less strong the level of crime and pollution will go up.

PROXIMITY MATTERS



Built by the residents on publicly-owned land near the main transit hub in the city, the area has offered migrants and low-income families something that neither the market nor most government programs could offer: the opportunity to live in proximity to the jobs, services and amenities the city has to offer. In Sri lanka, like in the United States and Europe, there is an unmet demand for affordable housing near employment centers. Unfortunately, the supply of affordable housing, including public housing, is often confined to residential areas in the periphery that lack adequate jobs and public transit. This limits residents' opportunities and condemns them to wasting valuable time and money on a senseless commute. (GHEL-architecten investigation slums)

LOCAL /CHEAP MATERIALS



The slums mostly are constructed out of material that are naturally in the surroundings of the dwellers, this is variating from local materials like bamboo, mud and stones to waste materials like plastic or left over steel.

SUSTAINABLE DEVELOPMENT

At the core slums are a concept of sustainable development. The slum dwelllers are a community they make the councios decisions for every individual, group or community action trough a critical analysis for its necessity, viability and priority as a sustainable development action. This enables the slums to sustain its development and consolidate its exictence in an urban area.

PERSONALITY SHAPES PLACES

raditional public housing projects place people into regulated, standard modules; they are predictable shapes repeated in orderly rows. Personalized changes to the exterior of the homes are discouraged or forbidden as they affect the architectural purity of the vision. Free from monolithic aesthetic ideas, Newnham square allows people to project their personality onto the houses. An attentive walk in the villa reveals the pride that many people have in their home, as they choose colors and materials that reflect their taste and preferences. On a quiet street, a family places a hand-painted tile with the house number and their name; the painted house reminds people passing by of the family who proudly lives there.

SUMMARY

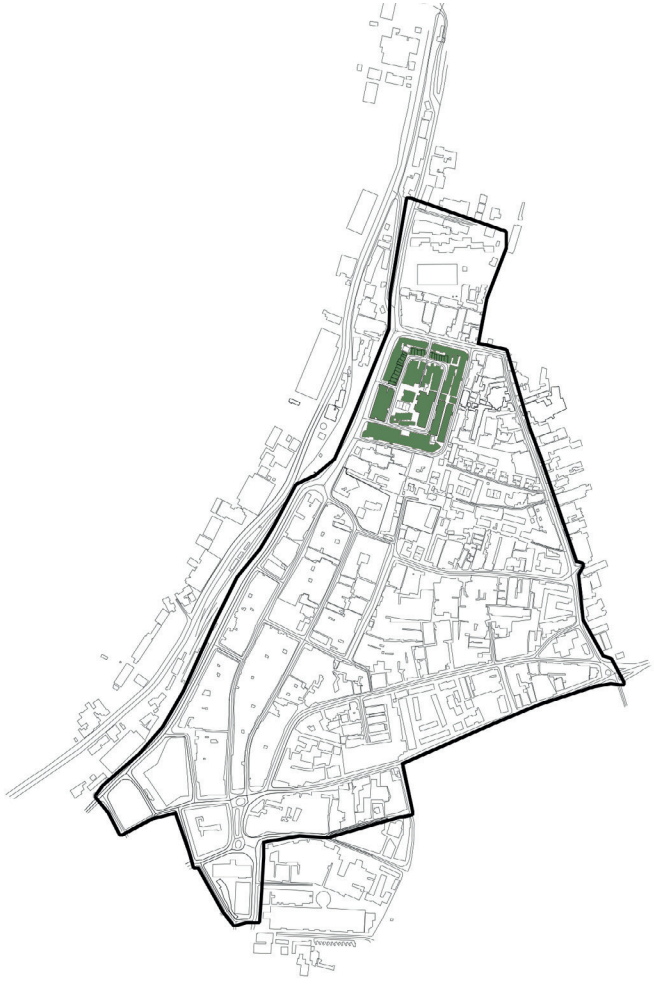
ZONE CHOICE

The researched zone can be indicated in 4 zones all located in the historical district of Colombo

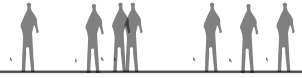
- Newham Square is an enclosed community, with mostly residential areas.
- Wolfendaal Hill is an open residential area with different communities.
- Sea Street Section is a combination of residential and commercial buildings where different communities live.
- Gas Works region is a historic valuable space with a combination of historical, commercial and residential buildings.

For this project Newham Square is the most interesting zone to start with due to the unique communities located here. The zone almost completely exist out of low rise buildings with a non commercial function due to this the need of deification in this area is higher. On top of the previous this zone is the best documented zone, here we spent most of our research time trying to understand how the complex system of pathways works.

By upgrading this low rise building area we will not only affect the life's of the current occupiers but also from the slums in the nearby area.



WHAT NEEDS TO STAY AND WHAT NEEDS TO BE ADJUSTED ?



UNIQUE SOCIAL STRUCTURE

Newham square has an unique social structure, not only is it a mix of different religions living next to each other. There is a strong community feeling where the weaker chains in the cable are protected by the mass.
The social control keeps the crime rate low and allows them to create a safe environment for them-selves.
On top of that all the big decisions are made as a group making it more sustainable for the entire community

ADD-ON CULTURE

After the analyzation of the original buildings, we can state that there is a strong " add-on" culture. This means that the people feel the need to modify the buildings by adding new parts.
Mostly this are just balconies and pathways but over time entire new floors have been grown on the site.

For them these kind of additions count as an investment in their living conditions.

NO PUBLIC AND GREEN SPACES

As shown previously in the analyzation of Colombo, there is lack of public and green spaces. On the site it is 0.8% of the total m^2.

Although the spaces are not there the communities really are looking for places to have social interac-tion. This results in furniture on the streets, plants in front of the houses, roofs that become a bathroom, ...

HERITAGE

The site is built around 1930 when during the British period the harbor of Colombo was expanding. The existing houses were built as houses for the harbor workers.

This architecture became the base for the expansion of Colombo.

Next to the physical heritage do the people on the site also practice a series of traditions typical for this community.

DENSIFICATION

Most of the existing buildings are low rise. About 50% of the buildings are 1 or 2 story building. Making it a very intresting site to add the much needed desification to prevent demolition.

DESIGN

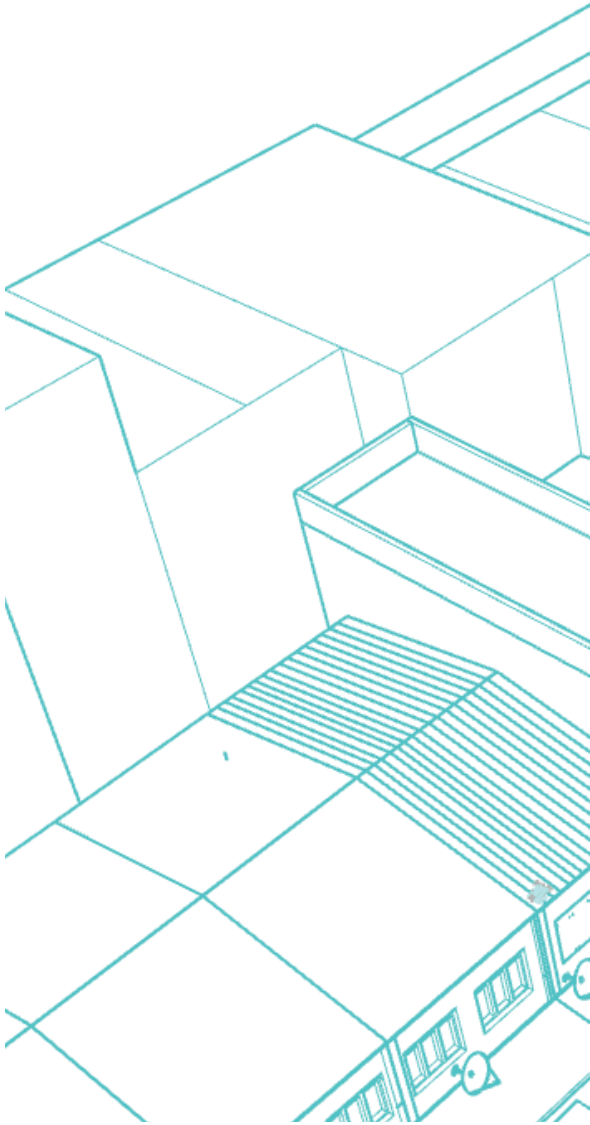
A. DESIGN CONCEPT
B. STEP 1: TOWERS
C. STEP 2: EXTENTIONS
D. STEP 3: DENSIFICATION

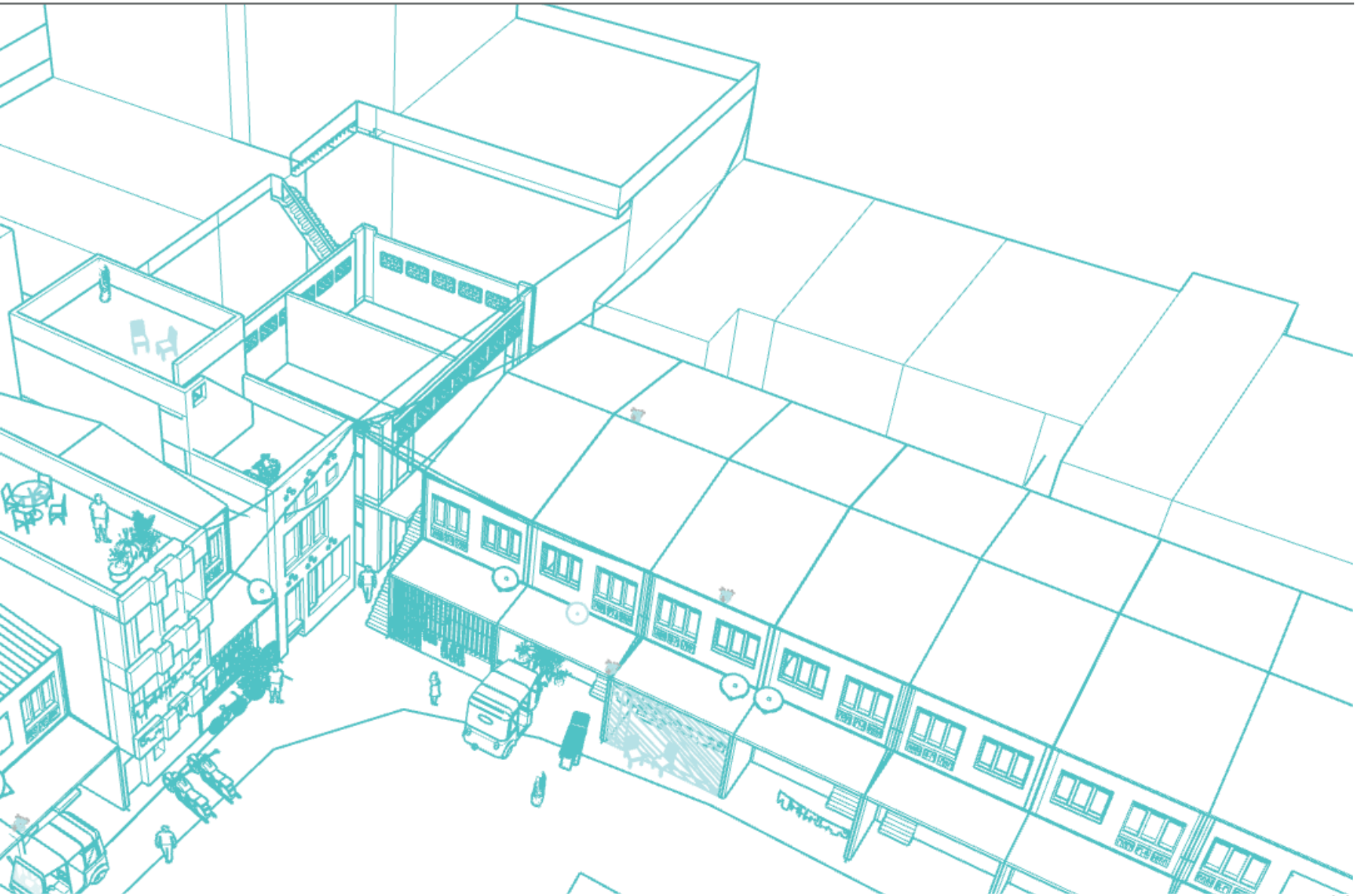
DESIGN CONCEPT

As the study shows Colombo, Sri lanka (Cylon) has to deal with a lot of problems.
Not only does the country have a very high risk at natural hassard about 11 miljon people are to be displaced if the current development plans of the goverment are taking place.

My design concept aims towards a more sustainable way of dealing with the low income housing in colombo starting with the case study of newnham square.
The primary goal is to show the goverment that it is possible to have a low cost project to densify the site with respect for the existing heritage and the social infrastructure.

This buttom up project allows the population to consider their houses as an investment. Giving them the chance to go out of poverty and creating better living conditions.
In this way the people living in these kind of settlements become an asset to the city, providing them with a self sustainble system with a unique social structure.

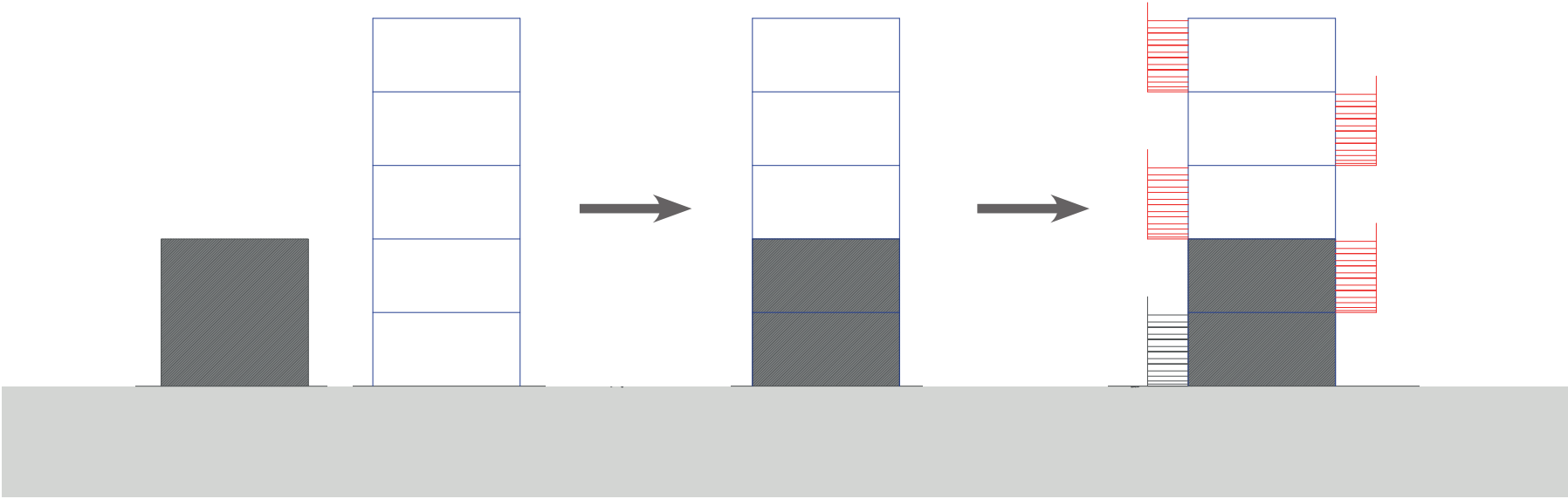




STEP 1: THE “TOWERS”

The first step in the design is creating a social space for the people to interact with, they will form the base for the densification in Newham square.
Togheter with the population of Newnham square “ social-towers” are built up, letting the citisens learn form the trained craftmen. (principle Buthan)
Not only will it give the people who work on the site a sense of dwelling but with the newly learned techniques the inhabitats can create extentions or renovations in their own home later.

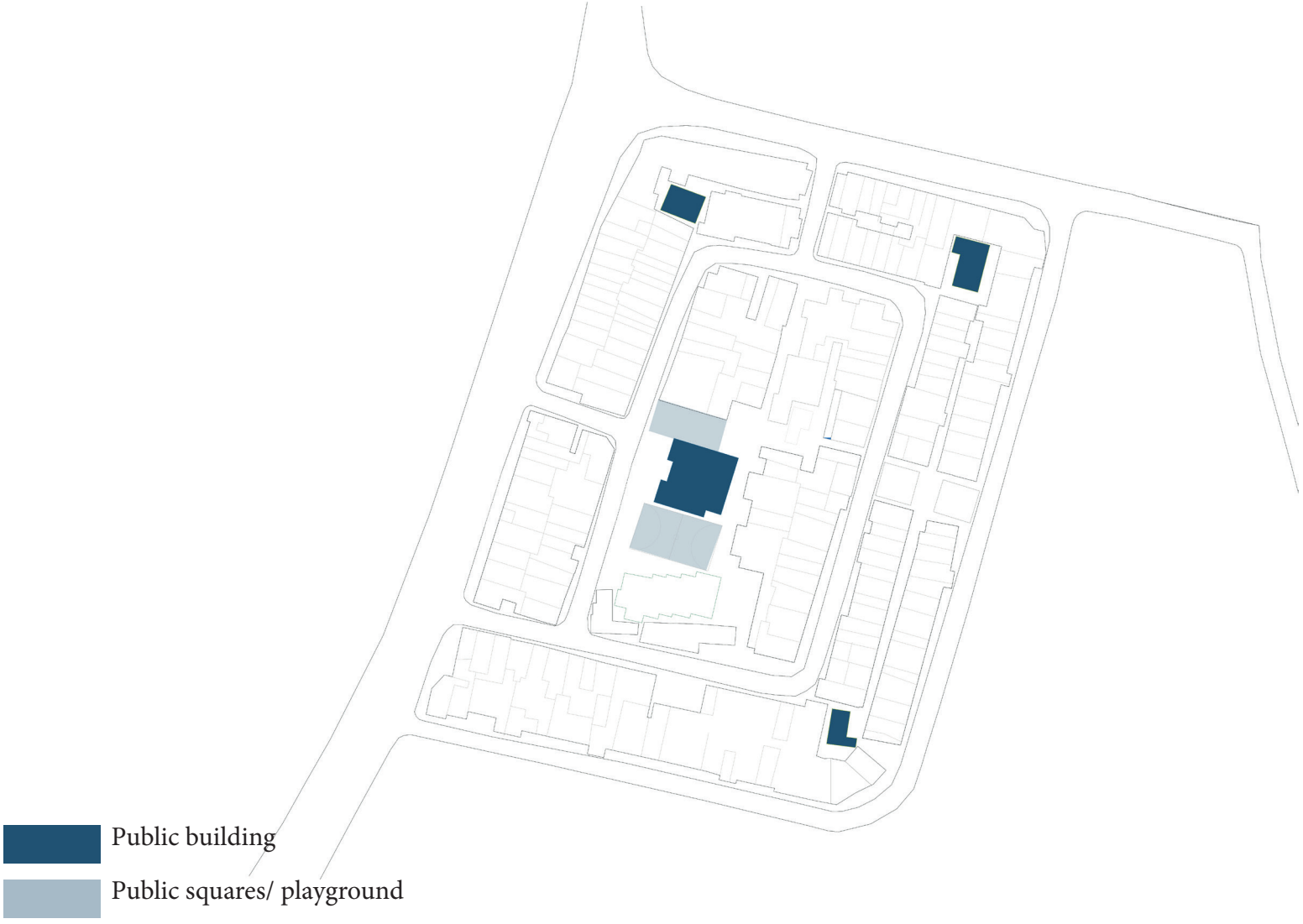
The towers will provide a primar element for the much needed social infrastructure. They are built so they can addapt over time to the social needs of the people, as the social-structure of colombo will change over time due to a lot of immigrants from all over the country.



PLACEMENT OF THE TOWERS

If you look at the analysation of non religious public spaces (see next page) you can see that there are not a lot of locations on the site where these kind buildings/ squares appear.
In every corner of the site there is an old sanitary building ,barly in use, that would be suitable for the start of the tower.
The area is intresting to start the project from because of several reasons:
- The people know the place, it is not a new place and historicly sanitary buildings were important social places .
- There is still a need for sanitary buildings so the function is not completly lost
- Easy acces to the other parts of the plot
- 3 locations are divided over the complete site making the reach of the project bigger

Unused sanitary building


Public building
Public squares/ playground

MATERIALS

A short analysis of traditional building materials in sri lanka

BAMBOO

Bamboo is a genus group of grasses (Poaceae) also called the Bambuseae. The name comes from Malaysian and is pronounced in almost every language as bamboo or "bambu".
This grass plant is characterized by its stem, which consists of dense parallel fiber bundles of about 20 to 40 centimeters long, separated by nodes. High bamboo species can easily grow up to 20 meters long and are hollow inside. In addition, bamboo has a lifespan of seven years and is therefore much faster than most wood species.
In total there are 91 different bamboo families and more than 1500 species, in the Sri Lanka 10 natieve spieces exist and 20 are introduced into the country.

NATIVE

Arundinaria densifolia
A. debilis
A. scandens
A. floribunda
A. walkeriyana
Bambusa bambos
Pseudoxytenanthera monadelpha
O Davidsea attenuate
Ochlandra stridula Syn. O. talbot
Dendrocalamus cinctus

INTRODUCED FOR CULTIVATION

Bambusa vulgaris (Green bamboo/Yellow bamboo)
Bambusa multiplex (Chinese bamboo)
Dendrocalamus giganteus (Giant bamboo)
Dendrocalamus membranaceus
Dendrocalamus asper
Dendrocalmus strictus (Male bamboo)
Thyrsostachys siamensis Syn. T. regia (Siam bamboo)

ARUNDINARIA DENSIFOLIA (DWARF BAMBOO)

NATIVE

USE

This bamboo is used for :Storage boxes; winnowing fans; food covers; milk strainers; flutes; blinds; tea plucker's baskets, interior walls, decoration, ...

LOCATION

BAMBUSA BAMBOS

NATIVE

USE

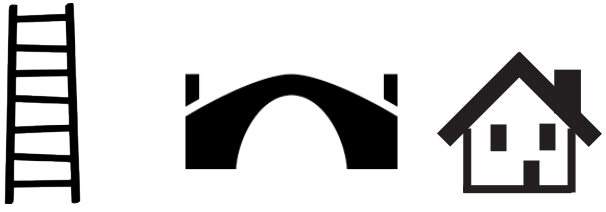
Bridges; ladders; leaves for thatching, roof cladding

LOCATION

BAMBUSA VULGARIS (COMMON BAMBOO)

INTRODUCED FOR CULTIVATION

USE



This bamboo is used for House frames; walls; bridges; scaffolding; floor coverings; fences; ladders

LOCATION

D. GIGANTEUS (GIANT BAMBOO)

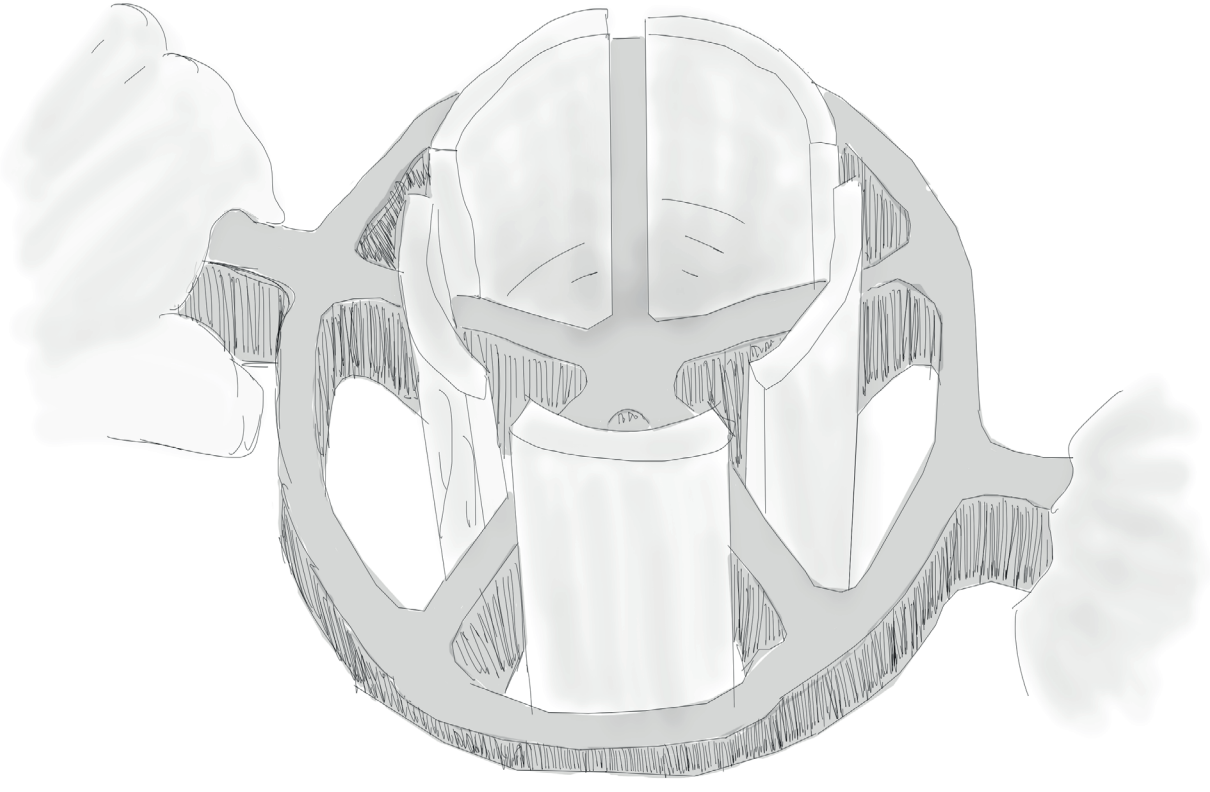
INTRODUCED FOR CULTIVATION

USE

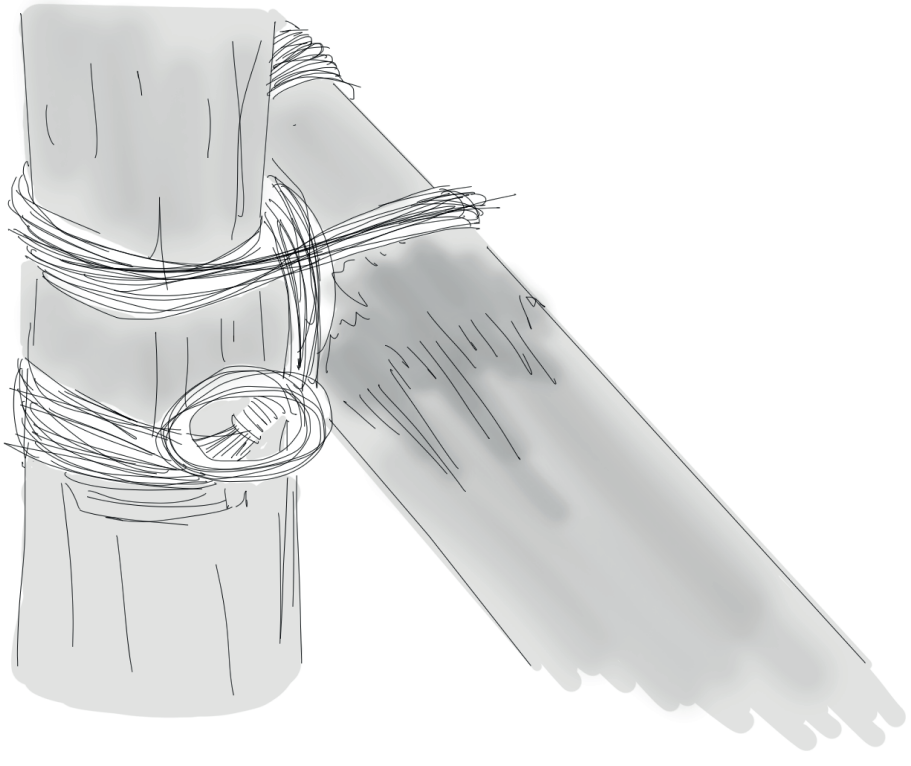
This bamboo can be eaten in a very young form. Other use is bridges; house frames; walls; ladders; floor covering; scaffolding; lamp stands; vessels.

LOCATION

BUILDING WITH BAMBOO



If bamboo is to be used for construction works, the bamboo wall is strong and close enough after 4 to 5 years. The age of bamboo can only be determined in two ways. The first method is by correctly documenting the planting. The second method is through hearing. Bamboo sounds more hollow when it is ready for harvest.
In addition to age, the right kind of bamboo is also important. (see earlier) The bamboo must be cut between the 2nd and 3rd knot above the ground to prevent the bamboo stem from dying. After cutting, the bamboo is immersed in water for two weeks to remove all parasites. Then it is cleaned. The side shoots are removed and the nodes flattened.
Afterwards the bamboo is split and / or shortened if desired. Splitting can be done in different ways. The first method is to make a slot at the end of the bamboo and then break it open further. This method is very labor-intensive and dangerous for the hands. The other method is therefore preferred. Here 4 slots are made in the bamboo, so that a metal ring on the bamboo with 2 diagonals can be fixed. The metal ring is then secured between 2 trees or a wall. Then the bamboo is pushed through the metal ring, which automatically splits it into four parts. These bamboo spoons are then stripped of all sharp edges and remaining protrusions to facilitate later use. Usually the beams are also painted with a product against the insects so that they can not crawl into the wood. The truncated leaves can also be used for the interlining or for roof construction. The most beautiful leaves are picked and later laid in the sun to dry. Once the leaves are dry, they are cut so that they can easily be used for braiding or are tied together in small bundles and then strung together so that they form “roof tiles”.

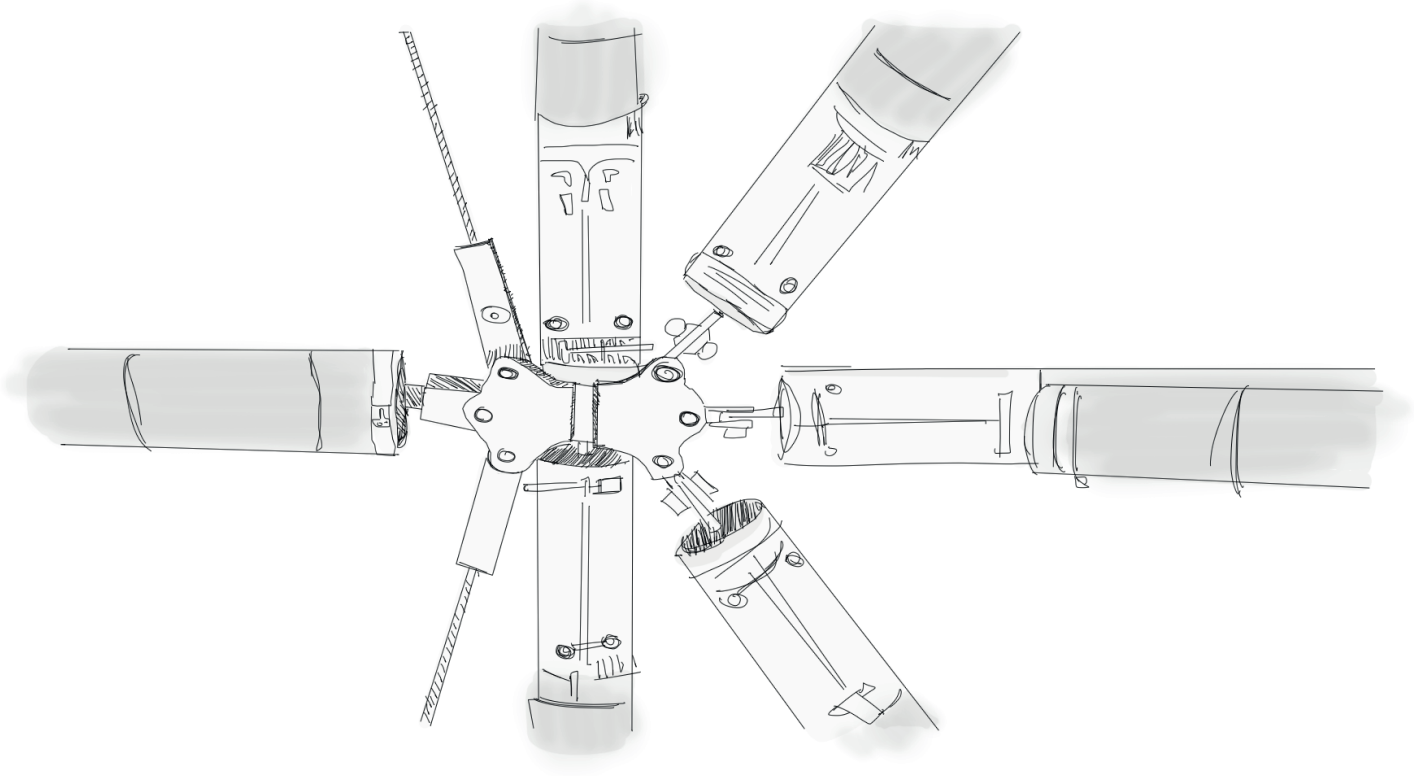


The connection of bamboo can be done on different methods. The first method we used during my a development cooperation program is through the use of nylon thread or bamboo rope. They use those ropes to lash the bamboo sticks together. This binding is not ecological but has a shelf life of 15 to 20 years before the binding is released.

The second method is through the use of bamboo nails. These nails are made by sawing off bamboo at the right length and then tapping a mold with the desired diameter. Then they are finished with a machete. The larger nails are made entirely by hand by cutting the bamboo with the machete.

The third and final method is to use fresh bamboo strips. They are rotated around the bamboo. Then they dry, harden and shrink the strips and ensure a firm connection. When using the bamboo strips, one has a strong transience. The connection does not last more than five years.
Finally, a combination of different methods is regularly used to ensure that the connection does not end

OTHER CONNECTIONS



More options are possible but are more difficult for the common people to do this themselves without the proper training and equipment.
This connecction contains steel for the main connection.
For this connection the strengts of the bamboo and the strengt of the steel are put togeter to make up the nods.

FUNDATIONS

Bamboo is very good at picking up tensile forces, just like steel. Because of this, when designing the foundations correctly, you can easily use bamboo as reinforcement instead of steel.
The bamboo is cut into the right sizes with the help of a machete. Then she is braided with the help of iron wire in the right form. To protect the whole afterwards from moisture, cracks and parasites, it is painted with black coal tar. That will slow down the decay process together with the concrete.

The concrete used is, just like bamboo, made as much as possible with local materials so that the “embodied energy” remains as low as possible. In this way the gravel, sand and water from the environment are mined and a binder is made from a mixture of ash and water.
On this bamboo foundation, reinforcing hooks are connected which are collapsed so that later on can be built.

FIRE PROTECTION ?

EASELY → *BAMBOO IS HOLLOW*

PROTECTION BY CHEMICAL LAYER:

Can be sprayed on during construction or added to the impragnation phase
(drying + protection against animals)

The simplest form of the use of rocks for habita-tion had begun with the occupation of the natu-rally occurring caves around which walls and roofs in mud, brick, and timber were constructed trans-forming them to habitable places. As a principle, when natural rock caves, rocks, or boulders were transformed as habitations, minimal changes were made to the rock itself but other constructions com-pleted the enclosure or the enclosing pos-sibility that existed. Moreover, the landscapes were developed using the same attitudes to rocks and boulders or stone that were organized and orchestrated to cre-ate the splendor of the natural landscape. Obviously, it was the availability of such opportunities in the geographical terrains that have been exploited, while retaining the ecology of the places to enhance their 24 Journal of Green Buildinghabitability. The practice has become so popular that often many temples have emerged in difficult terrain, in close proximity to rocks and boulders also exploiting the inherent characteristics of such lands to define spirituality, reverence, and seclusion.Indeed, Sri Lanka's constructed rock architecture is historically unparalleled, except perhaps by those of Cambodia's

Angkor (Higham 2001). Rock build-ers of Sri Lanka have mastered the art of stone build-ing with specific knowledge of the types of rocks, their materialistic compositions, processing involv-ing retrieval from the earth, and cutting and shap-ing them to assemble into structurally stable forms. The achievement of this technology is in evidence in a seven storey building known as the Lowamahapayaof which unfortunately only the ruins now exist. Sri Lankan in-digenous builders developed a tra-dition of conscious integration of rocks into land-scape that still continues. Boul-ders dominate mon-asteries (Ritigala, Wessagiriya), and add spiritual and serene quality to places. Often, large boul-ders were cut into in order to create caves or natural boulders were used to define places (Seneviratne et al. 1992). Further, retaining walls have been built across the boulders, creating new terraces. In fact, in all ancient landscape works, retaining walls have played a central role in creating magnificent architectural landscapes. (1)

EARTH

Traditional earth technologies of Sri Lanka have ranged form the use of raw-earth: soil, to processed earth brick as well as those hardened earth materials such as kabook (clay ironstone) quarried from where it was available. Although many of the aristocratic houses and buildings built of such materials have stood the test of time and have provided suitable shelter, there also exist many cottages of the poor whose earth constructions have been structurally weak, environmentally unsound, and did not pro-vide stable shelter.Most of these employed wattle-and-daub as the earth technology; a technique in which a hol-low timber frame is made first and then filled with adobe balls to create a wall. Often bamboo sticks were used for the verticals (which gives thickness and reinforcements) on the sides of which the splits of the areca nut trees are knotted horizontally to cre-ate the frame. Once the wall dries up, a thick mud plaster (meti) and a cow-dung mixed mud plaster (goma meti) was applied by hand to smooth the sur-face. Often, instead of cow dung, a lime sand plaster applied with a leveler would finish the wall provid-ing a strong and neat wall.

The technology had been employed in constructing even the granary storage houses in the front of the dwellings. The materials having been obtained from the surroundings, and the labour having been provided from the village itself,

this was indeed an extremely sustainable prac-tice that consumed little energy and did not produce any toxic waste. Once plastered and well-sheltered with overhang-ing roofs, however, the raw earth buildings were structurally sta-ble, environmentally sound, and Volume5,Number427and some artisans trained. The material is moving slowly in to the community that replaces the burnt brick with the stabilized earth blocks. In particu-lar, no design interventions or changes can be seen that could absorb all the benefits of earth building. Nevertheless, urban earth buildings are becoming a common where shops and particularly eating houses are being constructed in earth.The Second Context: The Formal Architectural PracticeThe first reinvention of traditional technologies within formal architectural practi-ces emerged in the early 1970s when Sri Lanka was subject to a restricted economy and a program was launched for self-sufficiency through local production. The 1970s was a politically critical period of time in Sri Lanka also lasted generations provided that the day-to-day maintenance was attended to. The Sri Lankan social and cultural practices had built-in ceremonies and events that ensured their renewal and maintenance thus guaranteeing the continuity of those sustain-able building practices. (1)

(1) VREINVENTING TRADITIONAL TECHNOLOGIES FOR SUSTAINABILITY: Contemporary Earth Architecture of Sri Lanka, Ranjith Dayaratne

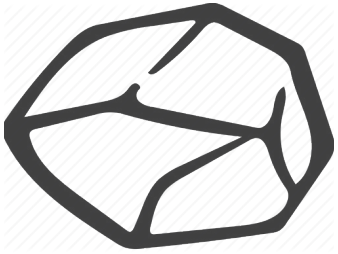
PRO/ CONTRA

PRO

- Light
-Cheap
- Easy to adjust
-Can make large spans
- Local (close to the city)

CONTRA

- Fire safety
- Bugs
- Maintenance

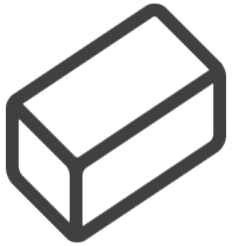


PRO

- Strong
- Waterproof
- Low maintenance
- Art work in the facade possible

CONTRA

- Difficult transport
- Not so cheap
- Heavy
- No large spans
- Difficult to shape



PRO

- Strong
- Waterproof
- Low maintenance
- Cheap
- Possible to make on site
- Indoor climate

CONTRA

- Heavy
- No large spans

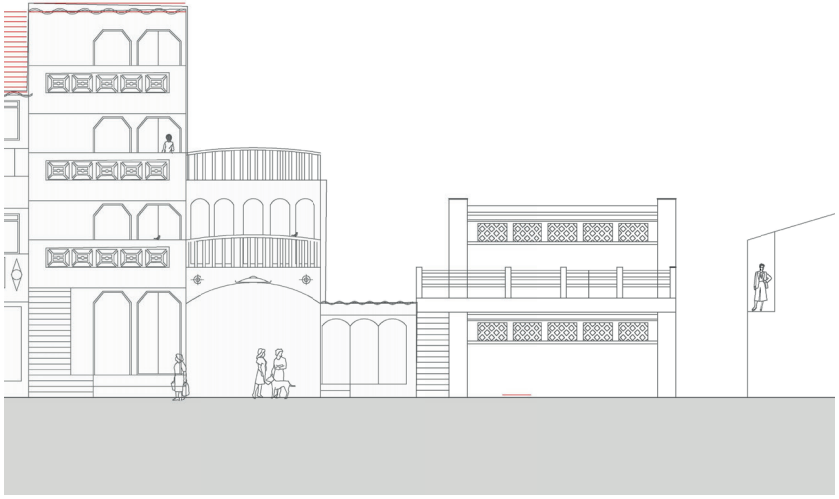
CONCLUSTION

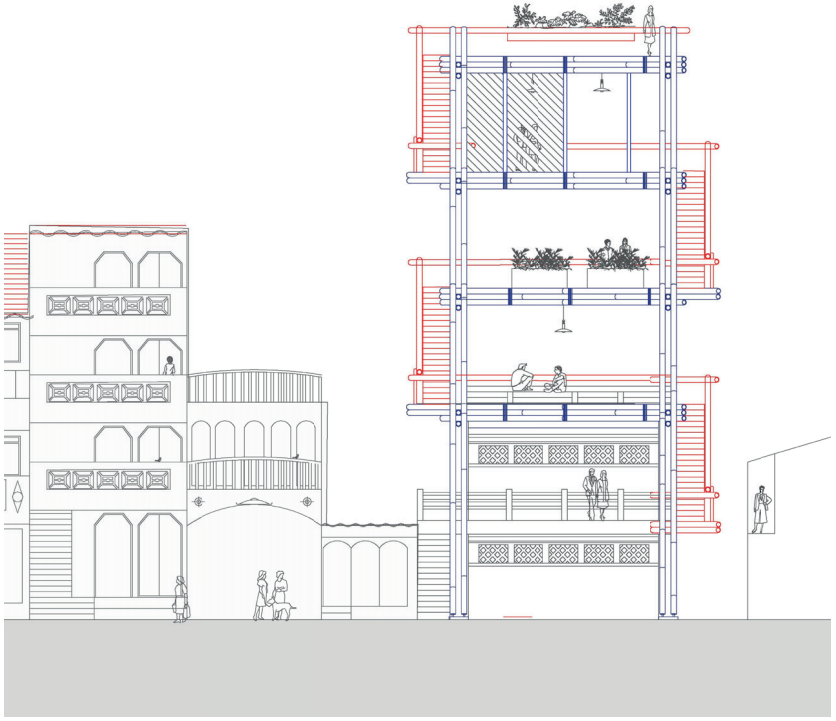
The choice for the basic structure is bamboo.
The reason for this that bamboo is cheap an can handle the needed spans to go over the existing buildings as going trough the buildings is not considered to be a save solution.

The people can transform the bamboo on site and with the correct maintenance the building can stand there for years.
Building a project out of bamboo will also learn the current occupants a new way of constructing what will benifit them over time.

CONSTRUCTION

How will it be placed over the existing block ?





BUILDING A DWELLING

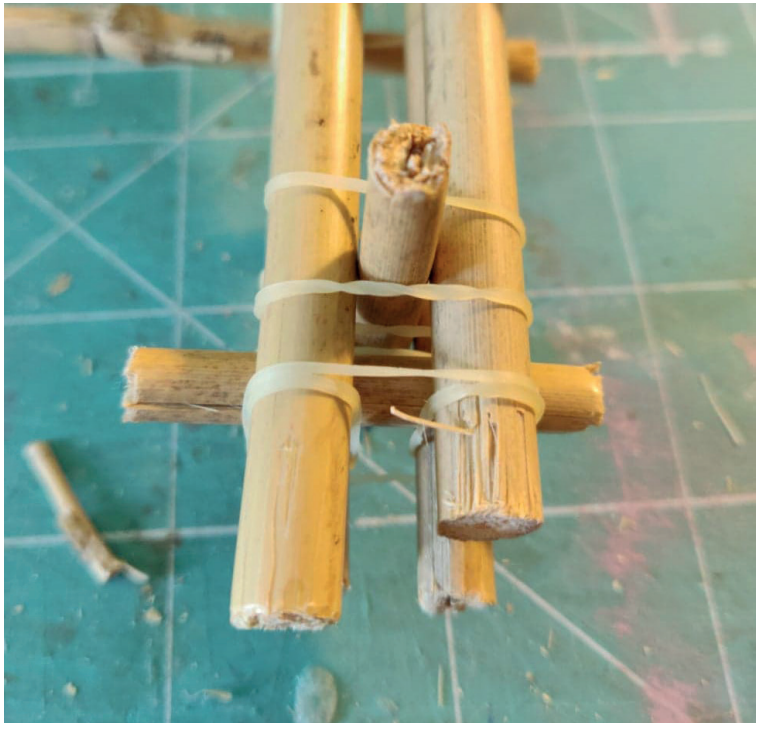
The place needs to become a dwelling for the population, To be able to plan this, the individual has to be taken into extreme account . A one-fits-all solution seems almost impossible. However, the text “make shift modernity”, about the reconstruction of Russia after the second world war, has shown that people do not necessarily have to be owners of their homes to view it as a “home”. The most important element is that people build a bond with the space that creates a homely feeling.
Because each individual has to be considered as different, it is impossible to build up a “dwelling” through a planned interior. But from the situation in Russia we can say that when people are involved in the construction of their house, it automatically becomes a “dwelling”. As a result, memories and dreams are linked to the place.
Following that chain of thought, it is therefore possible to plan a “domesticity / dwelling” provided there is a certain involvement of the residents from start to finish, so that the house has automatically adapted to the standards, values and needs of the users
So that means that the local population needs to participate in the building process of the towers to make a sec-ondary connection to the spot.

This has benefits on more than one level. Next to having a sense of dwelling the locals will also learn the needed techniques to adjust their own housing.

SO HOW IS IT POSSIBLE ?

If we look to other Asian countries like Buthan, we can see that they don’t ask taxes from the population with the lowest incomes but ask them to participate together with craftsmen to (re) built monuments in the city. In this way the city doesn’t have to pay for workman and do the local people learn about construction techniques.
If we would ask the same from the people in Newham square it will provide them with new techniques, better living conditions and the government only has to pay for the materials. This is benefited for them because most of the population in the slums don’t have an income and no not pay taxes.

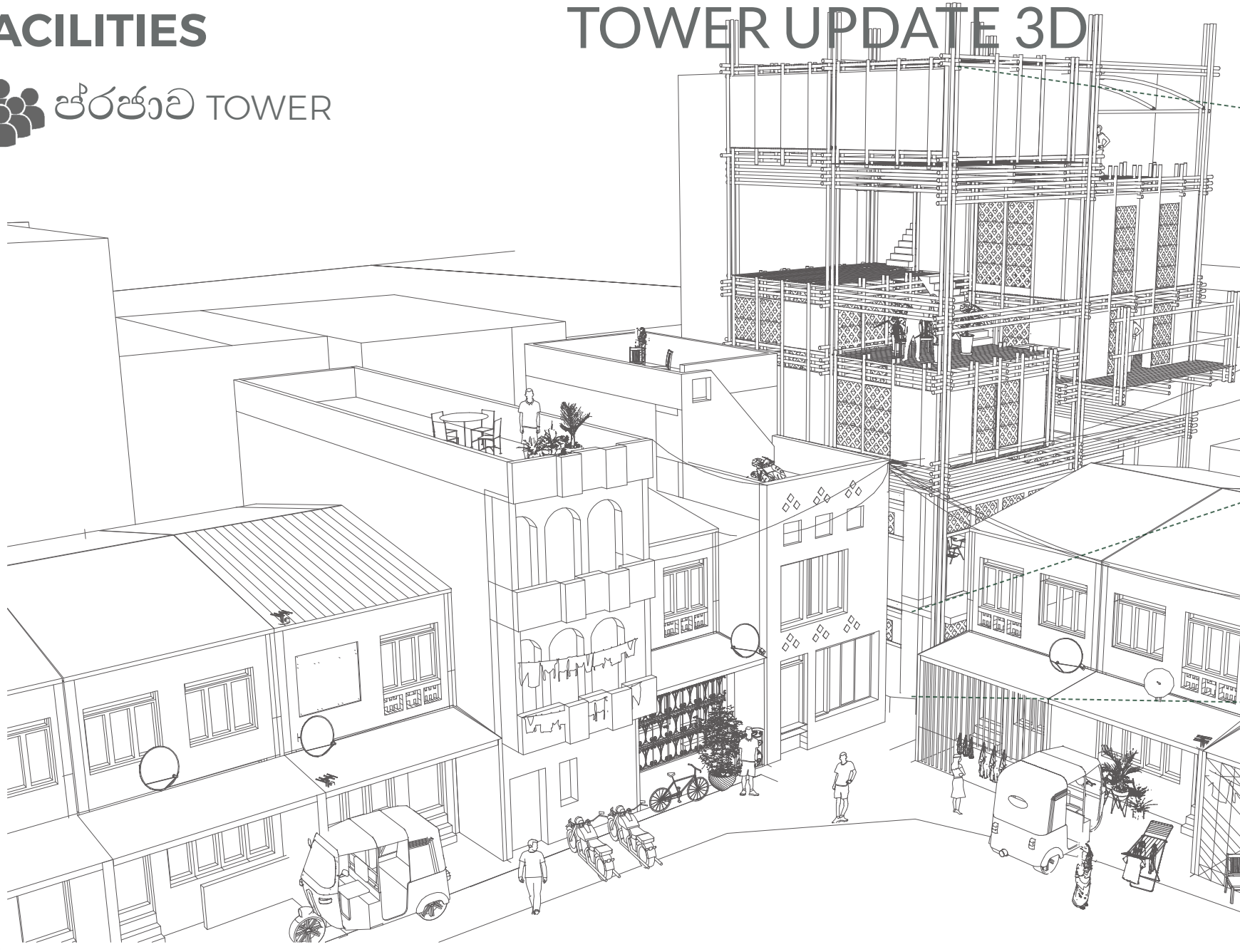
BAMBOO NODES

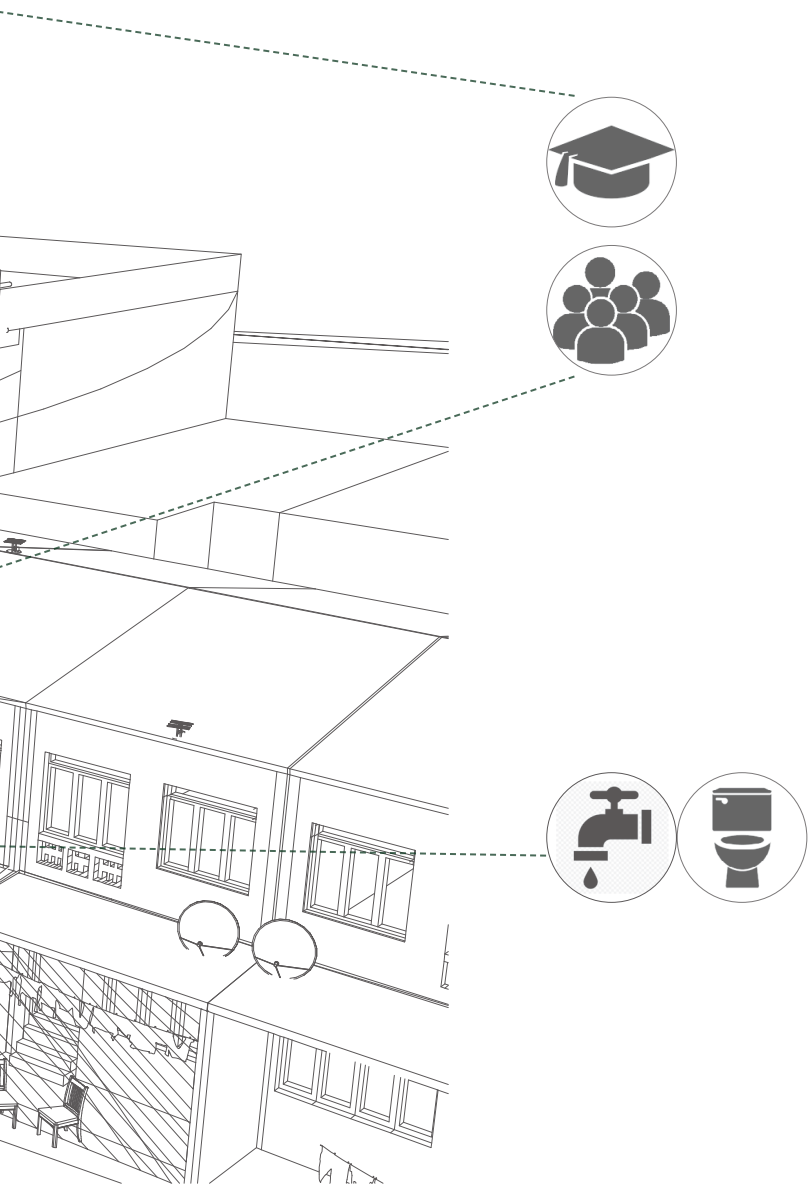


FACILITIES

ප්‍රජාව TOWER

TOWER UPDATE 3D





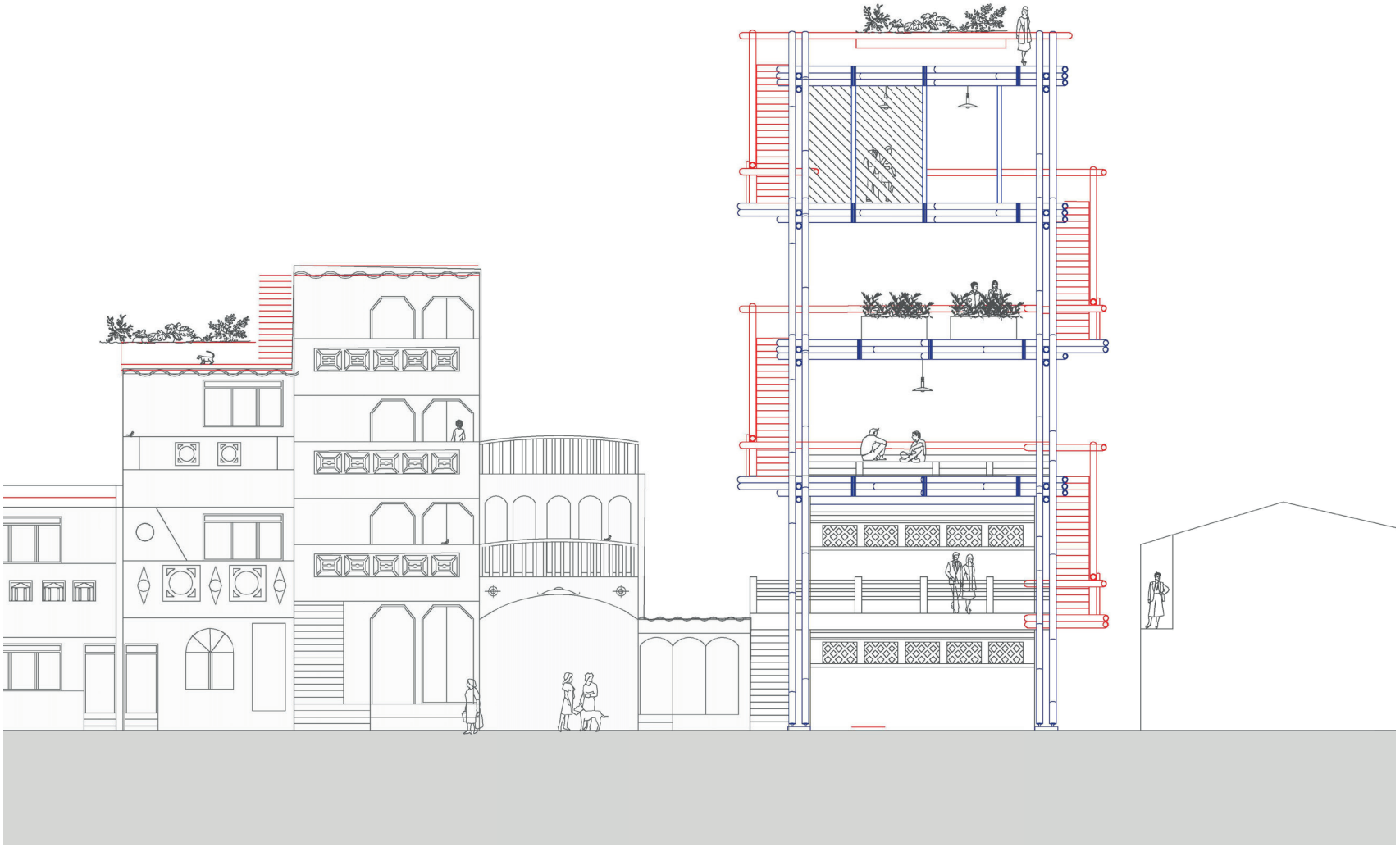
In the first stage of the tower (building) the tower will be used as a school for the popula-tion to learn how to use the materials, next to that it will become a social place where peo-ple come to-gether to build up their community.
Original sanitary functions will be restored to help the community.

After that the building will work to-gether with the NGO Sevanatha. This NGO is a bottom up organization that guides community projects all over sri lanka. Their program is very brought variating from teaching arts to under privileged kids , community empower-ment to installing a new sewage sys-tem.

Sevanatha has been able to do a lot for different communities but they rarely have a place to organize their activities limiting them to the streets and un-pleasant collective rooms.

NEW SITUATION RENDER

ආර්ථිකය TOWER



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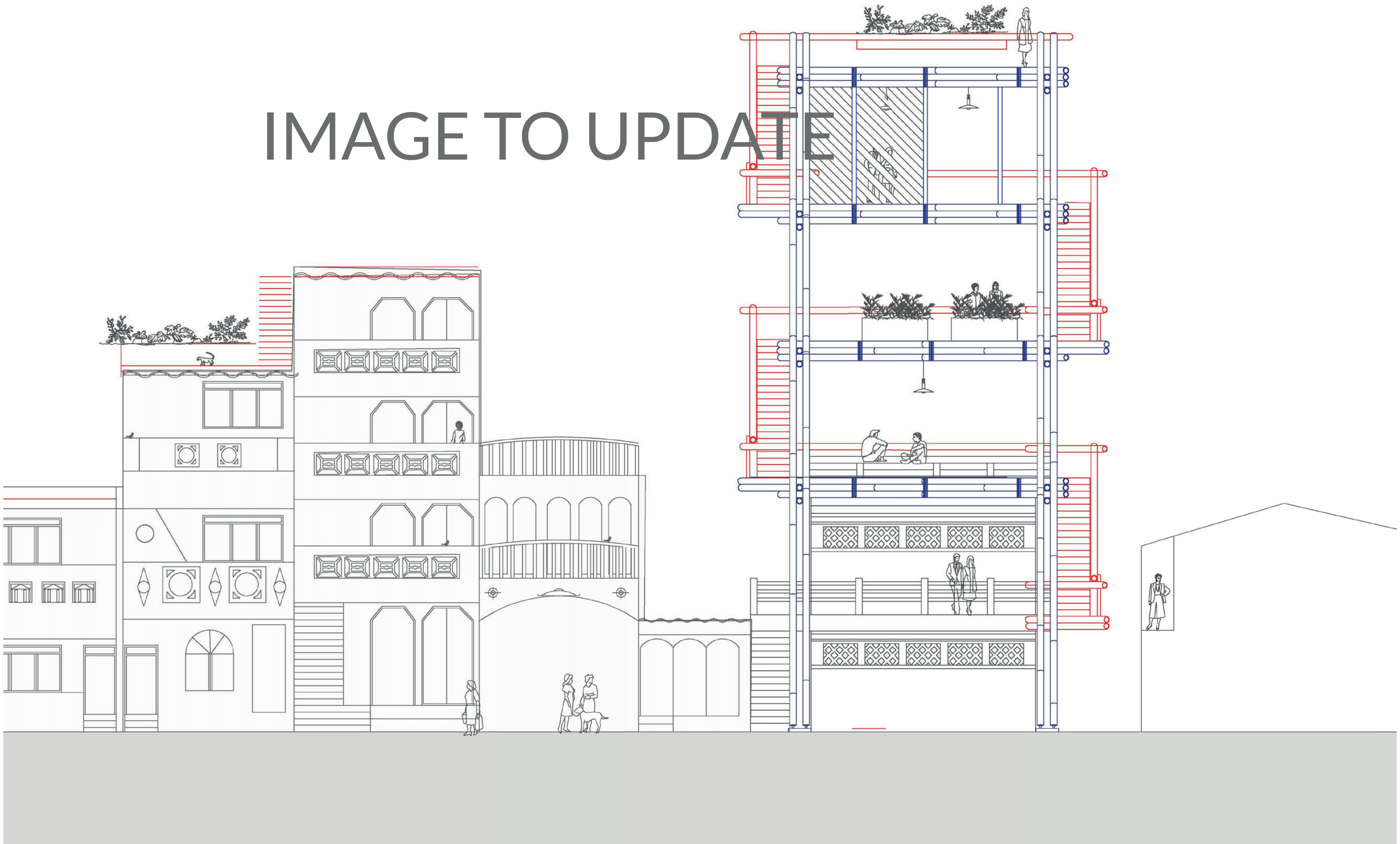
සෞඛ්‍යය TOWER +

IMAGE TO UPDATE



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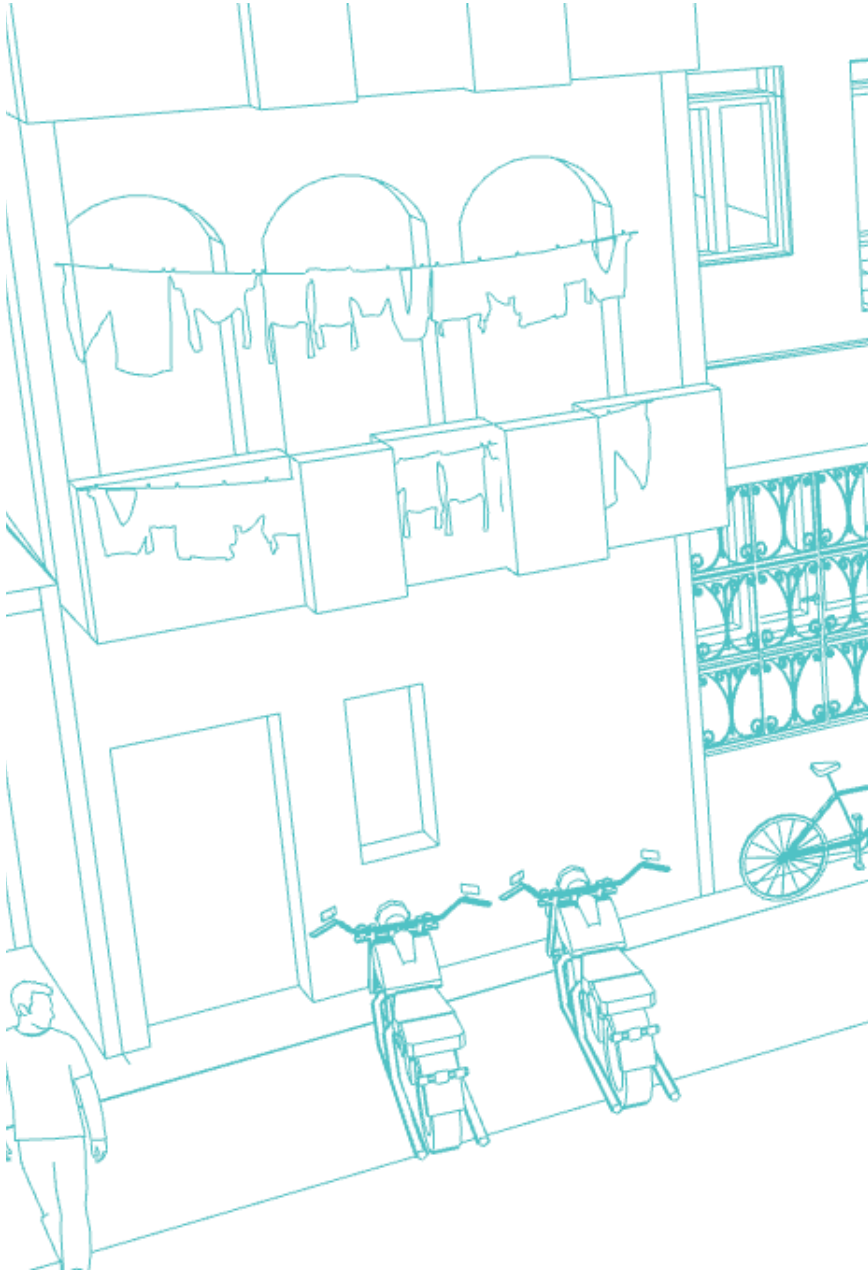
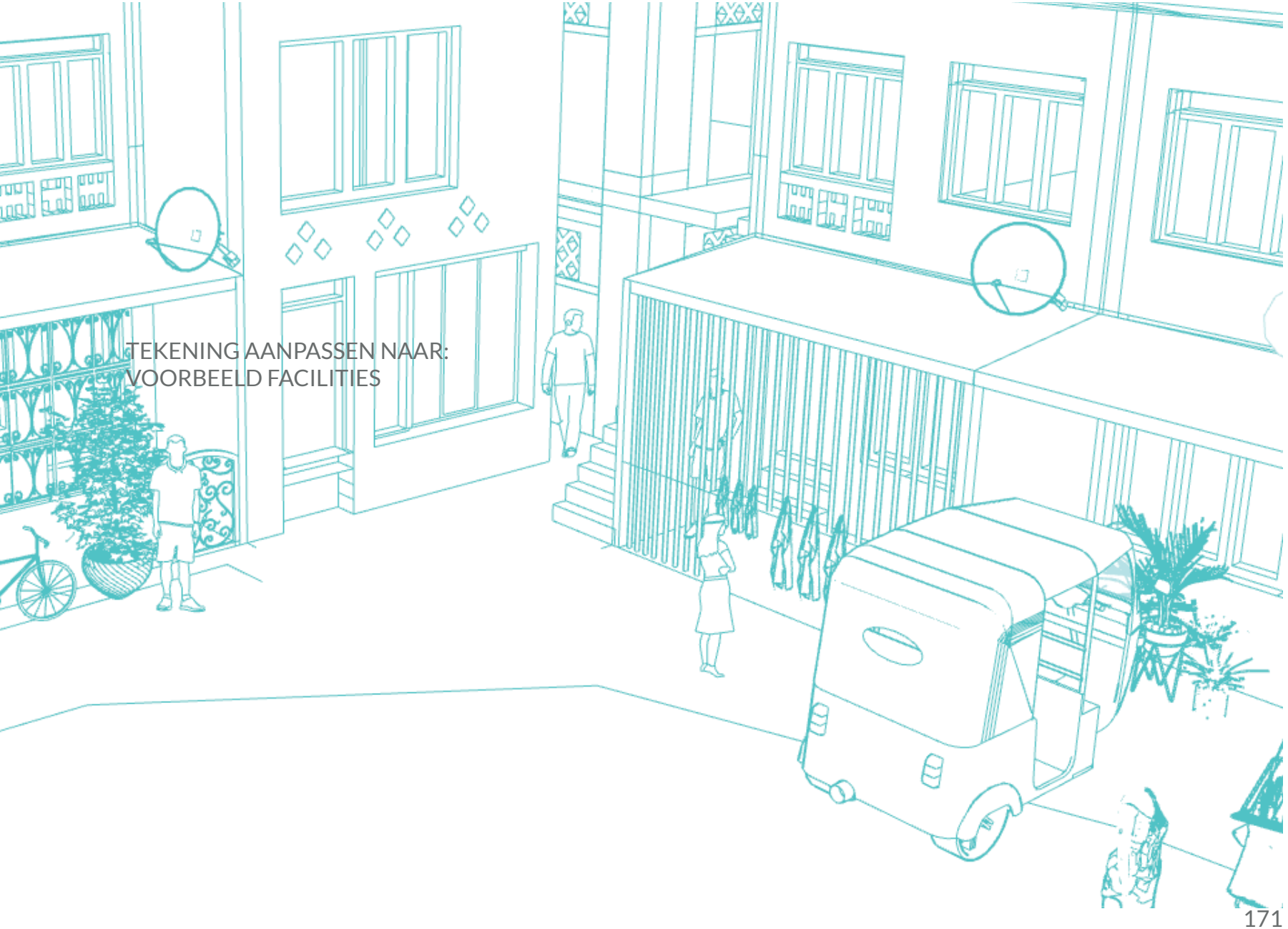
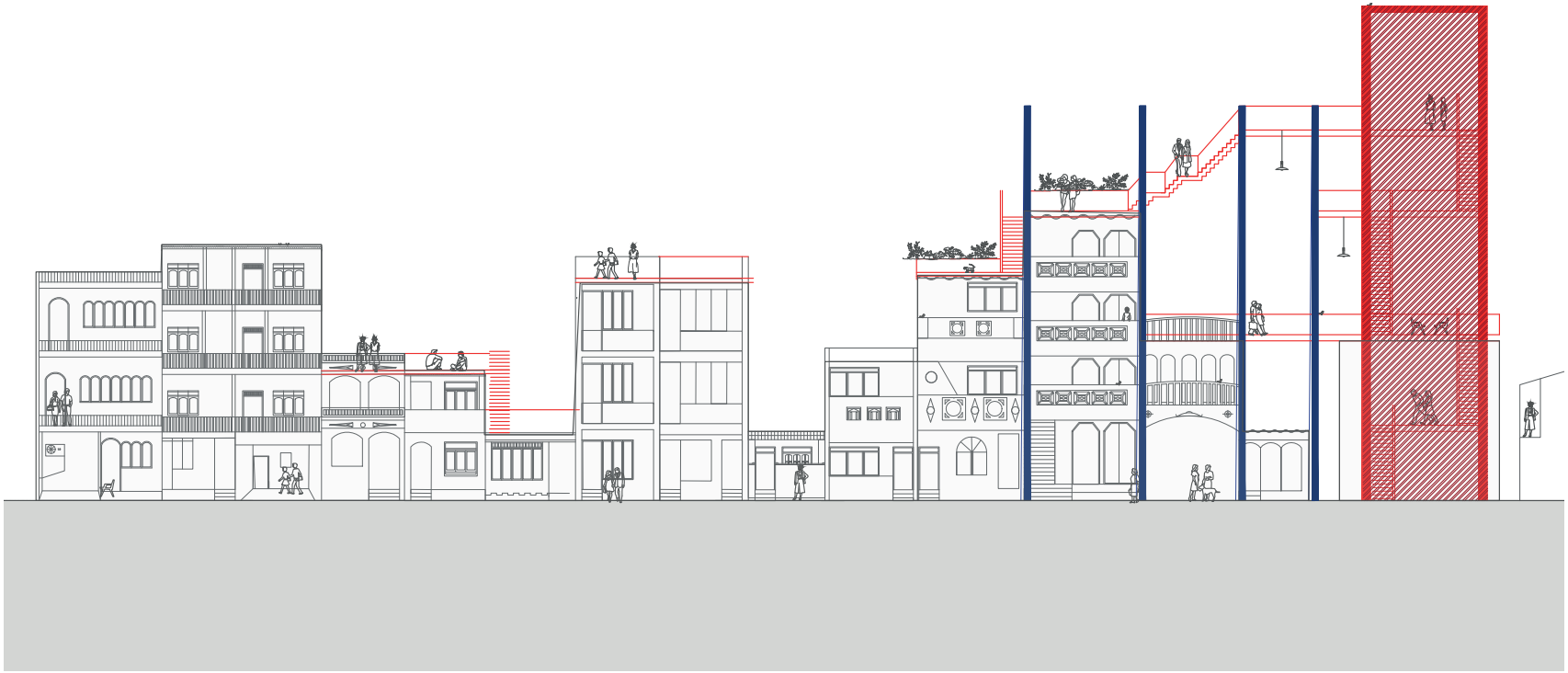


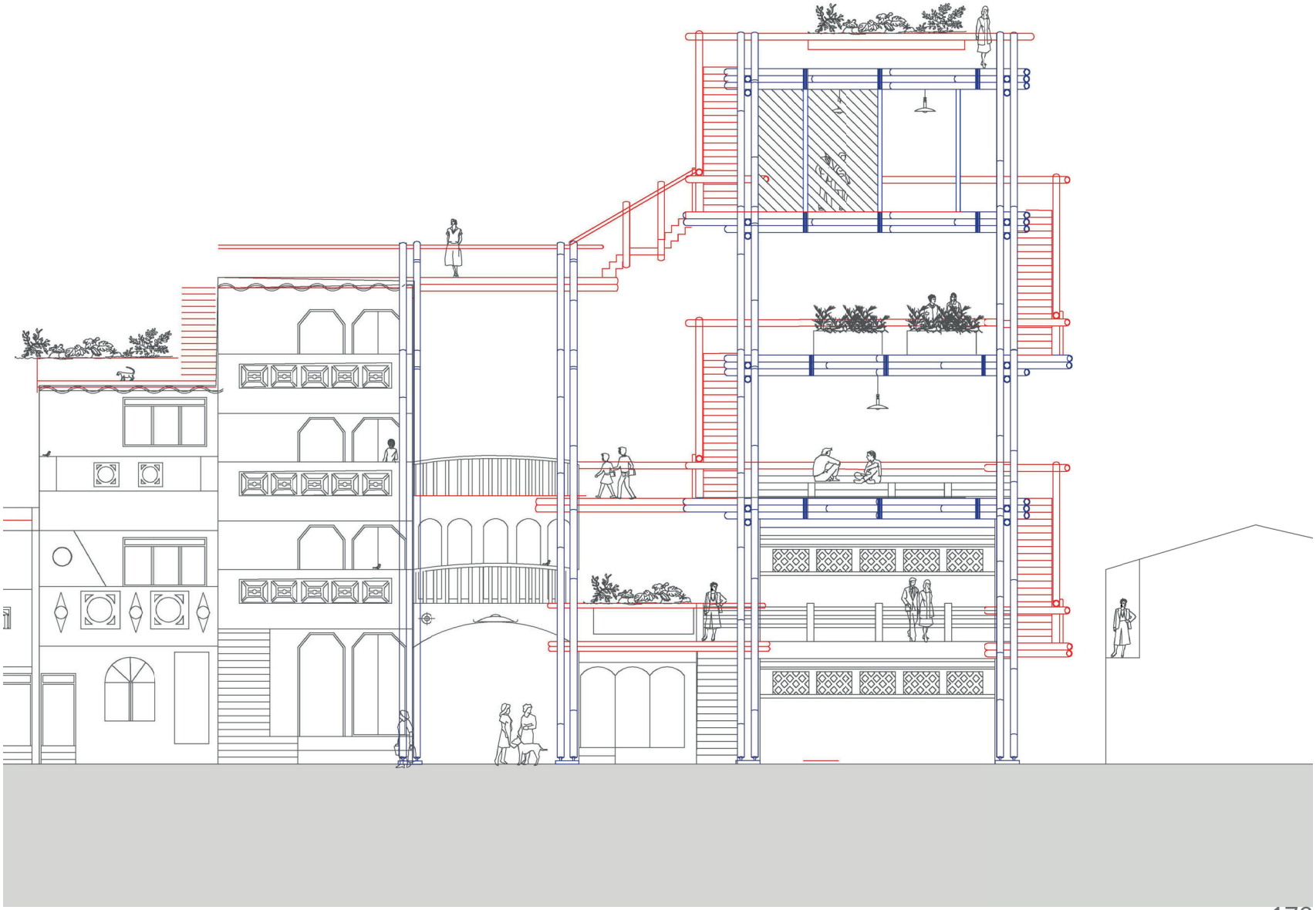

TEKENING AANPASSEN NAAR:
VOORBEELD FACILITIES

STEP 2: HORIZONTAL EXTENTION

To be able to let the people extend their houses in a more responsible and structural way, a structure is placed over the original buildings that will allow the owners to safely extend within the framework.

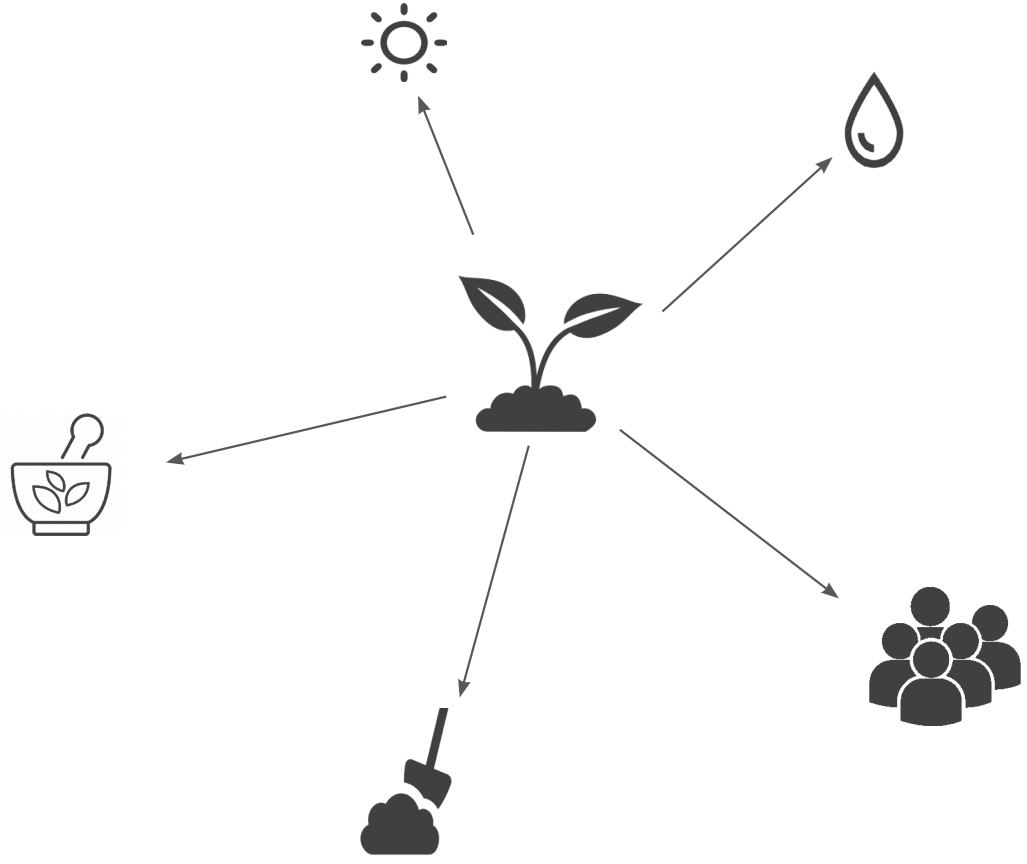
To guaranty the quality of living the in-between space will be designed. The accessibility is im-portant here but it also light and air are important factors. By designing them the otherwise lost spaces become a meeting point in extension of the towers.





LIGHT: URBAN FARMING AS A SOLUTION

SMALL SCALE INTERVENTIONS



PALLET HERBAL GARDEN

SUPPLIES

- reclaimed wood pallet in good condition
- small roll of landscape fabric
- hammer
-nails
-staple gun
-staples
-sandpaper
- 2 large bags of potting soil
-herb plants or seeds

HOW TO CONSTRUCT

1. Sand the pallet and pull any loose nails. Wash with soapy water and let dry

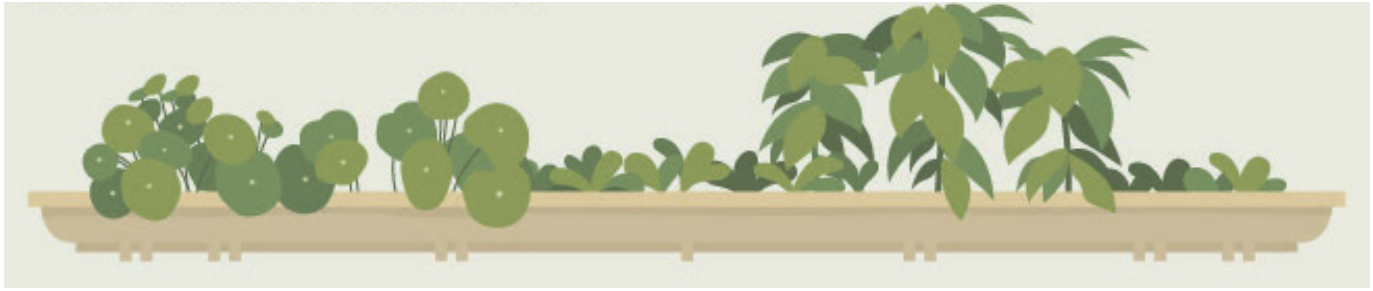
2. Lay the pallet face down and cover the back and bottom with 2 layers of landscape fabric. Pull the fabric taut and secure with a staple every 2 inches on the wooden surface

3. Turn the pallet over and fill with potting soil

4. Plant herbs

source : https://greencitygrowers.com/blog/urban-farming-options/

RAIN GUTTER GARDEN



SUPPLIES

-Metal or bamboo gutters
- Gutter caps
-Gutter hangers
- Metal cutters
-Drill
- Potting soil
-Starts or seeds

HOW TO CONSTRUCT

1. Wash gutters with soapy water
2. Arrange the gutters over the wall
3. Drill drainage holes every 3 inches on the bottom of the gutters
4. Fill gutters with potting soil
5. plant seeds or starts.

source : https://greencitygrowers.com/blog/urban-farming-options/

SHOE RACK GARDEN

SUPPLIES

- Canvas or fabric shoe rack
-Hangers
-Screws
-Screwdriver
-Potting soil
-Seeds or starts

HOW TO CONSTRUCT

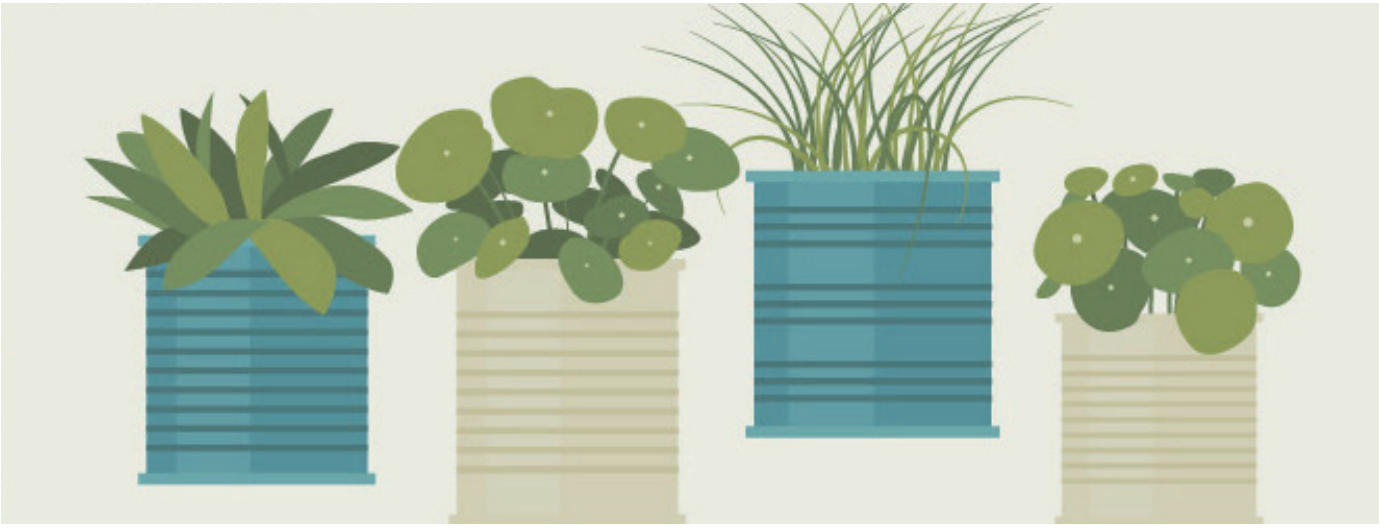
1. hang the fabric shoe rack

2. pack potting soil

3. plant herbs, strawberries , greens or ornamentals

source : https://greencitygrowers.com/blog/urban-farming-options/

TIN CAN GARDEN



SUPPLIES

-10 to 12 recycled tin cans
- Marker
-Tape measure
-Screws
-Electric screwdriver
-Potting soil
-Seeds or starts

HOW TO CONSTRUCT

1. Wash the cans and remobe any labels

2. Punch 3 drainage holes in the bottom of each can with a nail and hammer

3. Hang the cans

4.Add potting soil and plant seeds or starts (herbs or flowers are good options)

NOTE: cans will need replacement every year

source : https://greencitygrowers.com/blog/urban-farming-options/

LIVING WALL GARDEN

SUPPLIES

- Vertical garden panels
-Seeds or starts
-Potting soil
-Tools for installation

HOW TO CONSTRUCT

1. Arange the vertical garden panels

2. Plant starts in each slot and pack plotting tightly around them. All plants with small roots such as greens, lettuce will do.

3. Lay the panels flat for several weeks

4. hang the panels on the wall make sure the planter is mounted on brackets to sit away from the wall to protect the wall from moisture.

5. Water daily

source : https://greencitygrowers.com/blog/urban-farming-options/

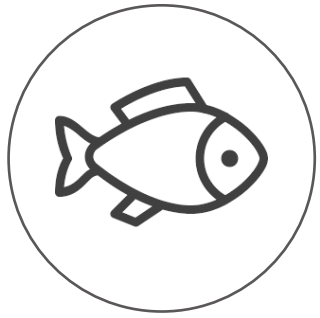
WHAT TO GROW ?

EXPORT PRODUCTS

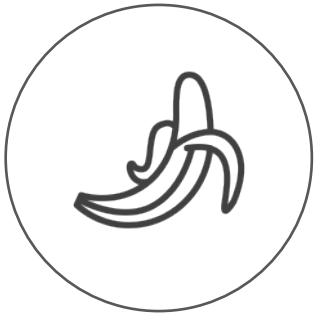

rice

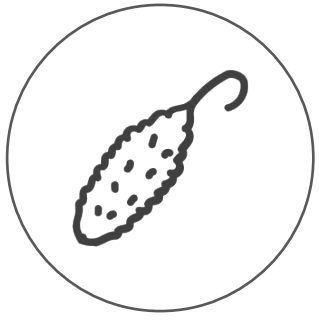

tea


cocos

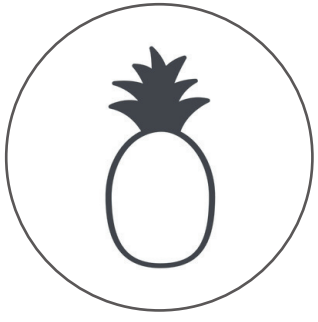

fish


chili

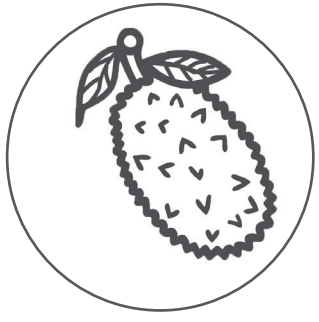

banana

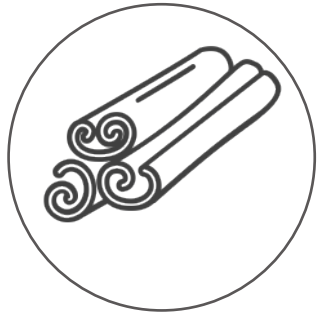

gourd


seads

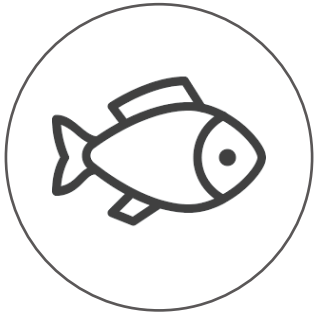

pineapple


advocado


Jackfruit

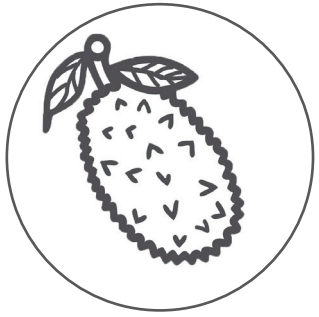

cinnamon/
herbs

TRADITIONAL DISHES

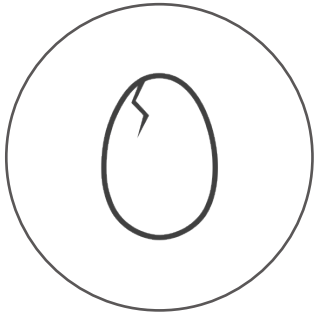


Fish ambul thiyal
(sour fish curry)

Kukul mas curry
(chicken curry)



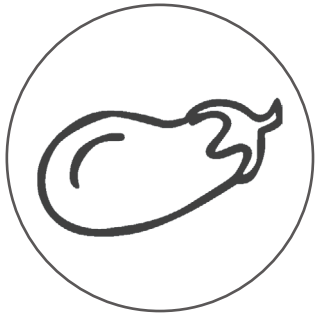
Polos
(green jackfruit curry)



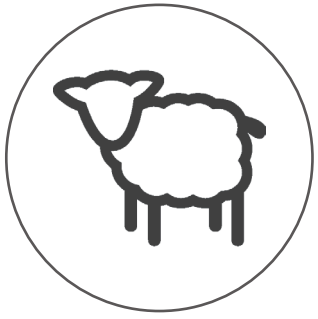
(string) hoppers
(indi appa or idiyappam)

Kottu (also, kottu roti)

Parippu (dhal curry)



Wambatu moju
(eggplant/brinjals
pickle)

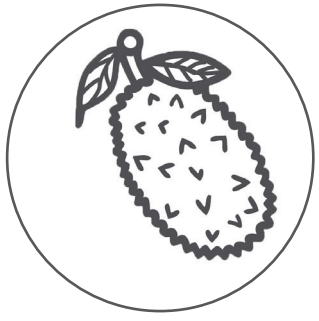


Lamprais
(3meat curry)

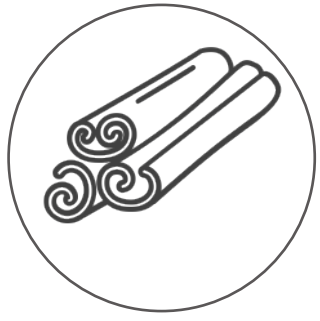
TRADITIONAL HERBAL MEDICATION

medicinal oil

herb/tea infusion



fruits/ vegetables



medicinal herbs

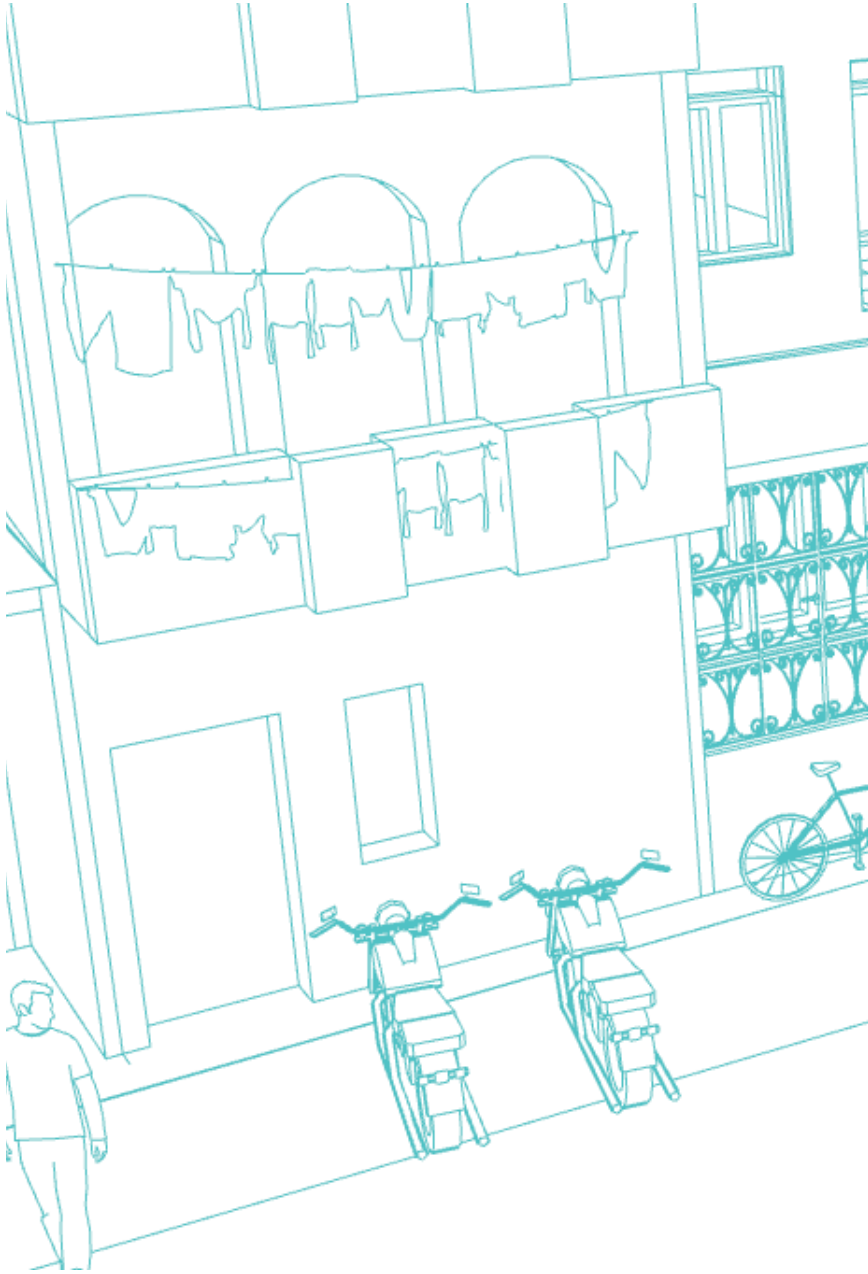
CONCLUSION

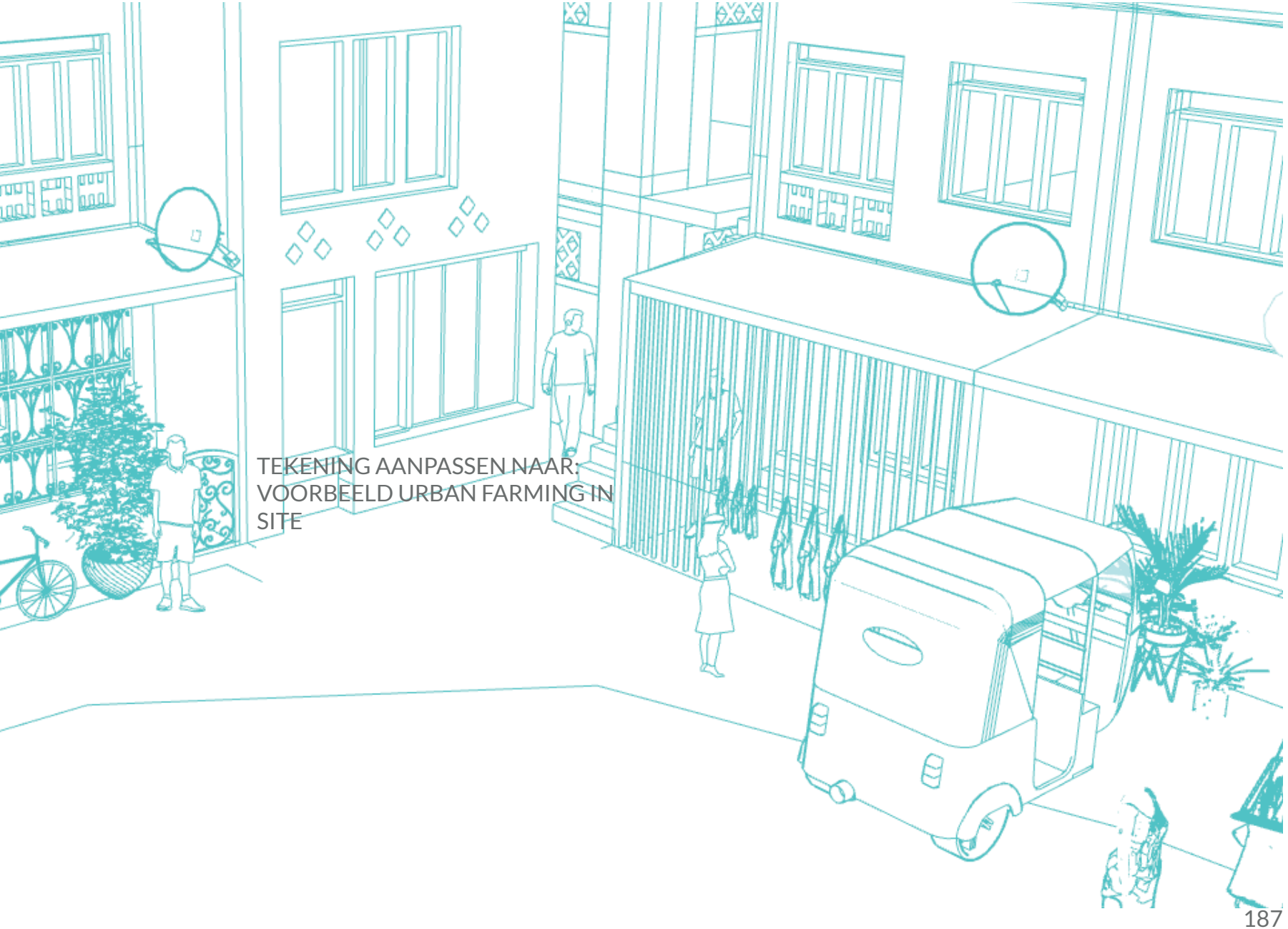
THECHNIQUE

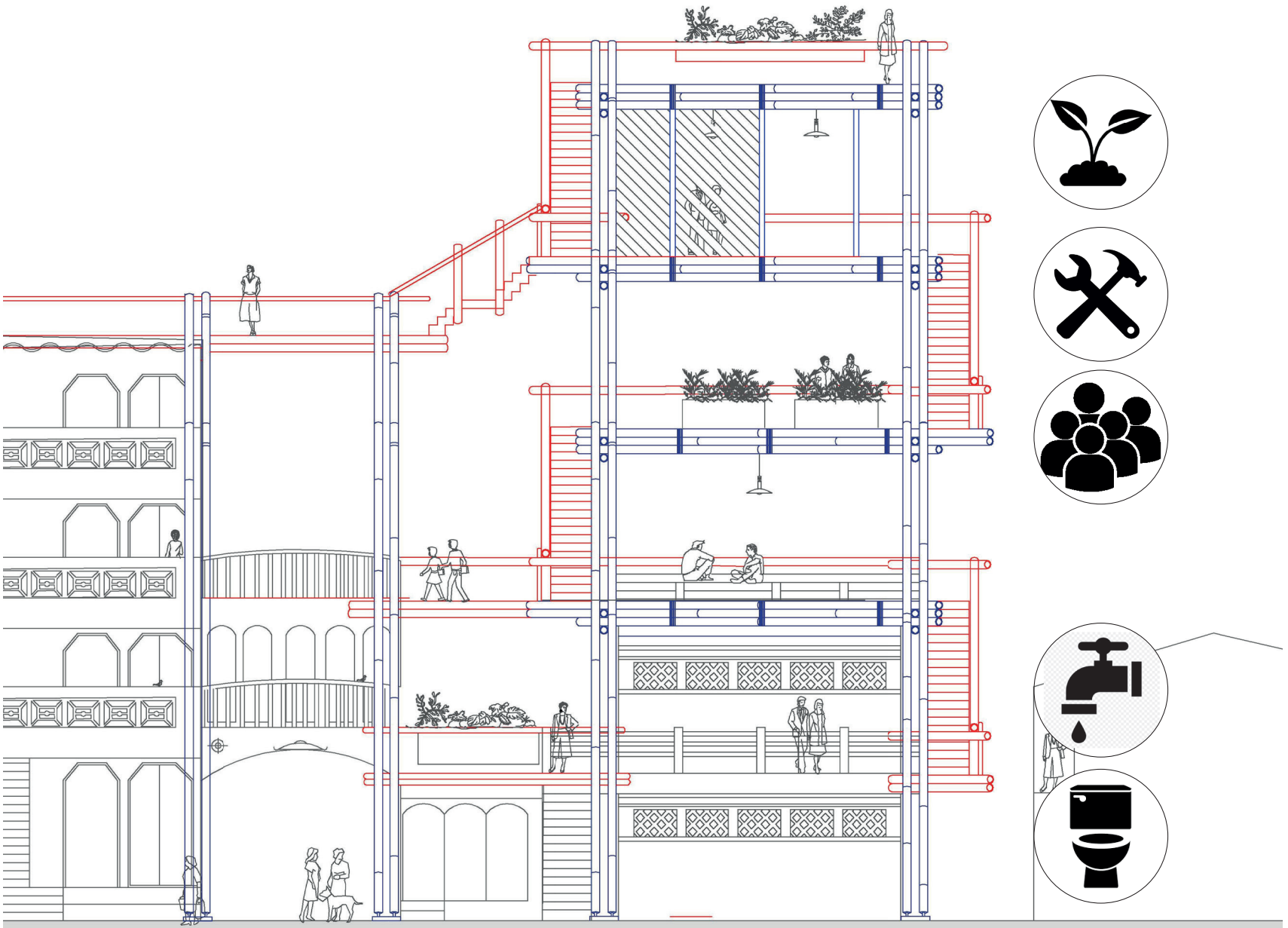
Plants need light, soil, water and air to be able to grow. There are a lot of different facilities we can use to grow them in small scales variating from adjusting bamboo to a plantpot to hangin structures.
The variation of different systems can be added to the pathway and the constructions and will give a new sense of idendity.

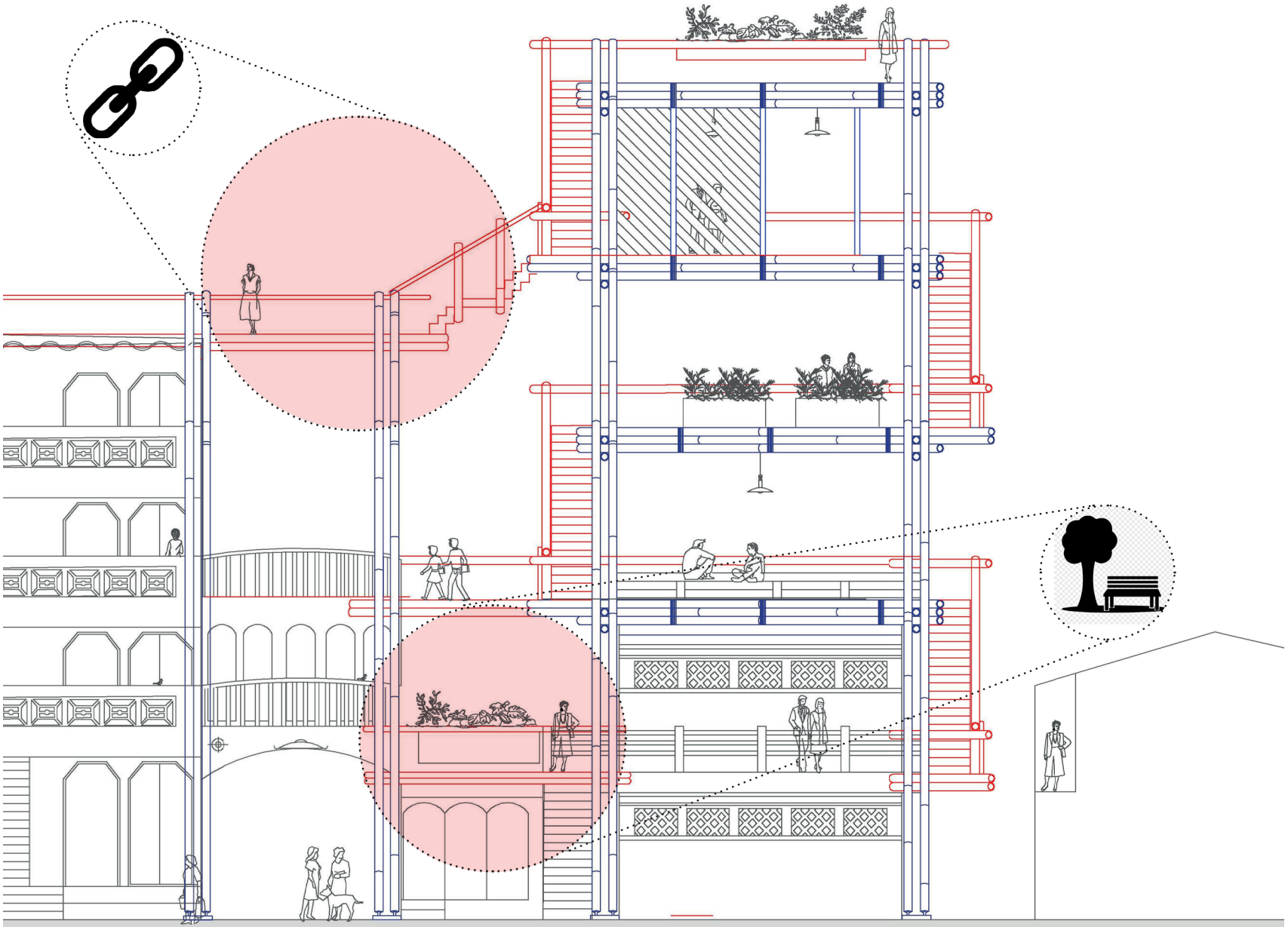
WHAT TO PLANT ?

The ananlysation shows that people will need large variation of things to make their traditional dishes. As it is almost impossible to cultivate rise on this little amount of space vegetables and small fruits are a good choice. On top of that medicinal herbs will allow the people to provide themself with basic medicinal needs.

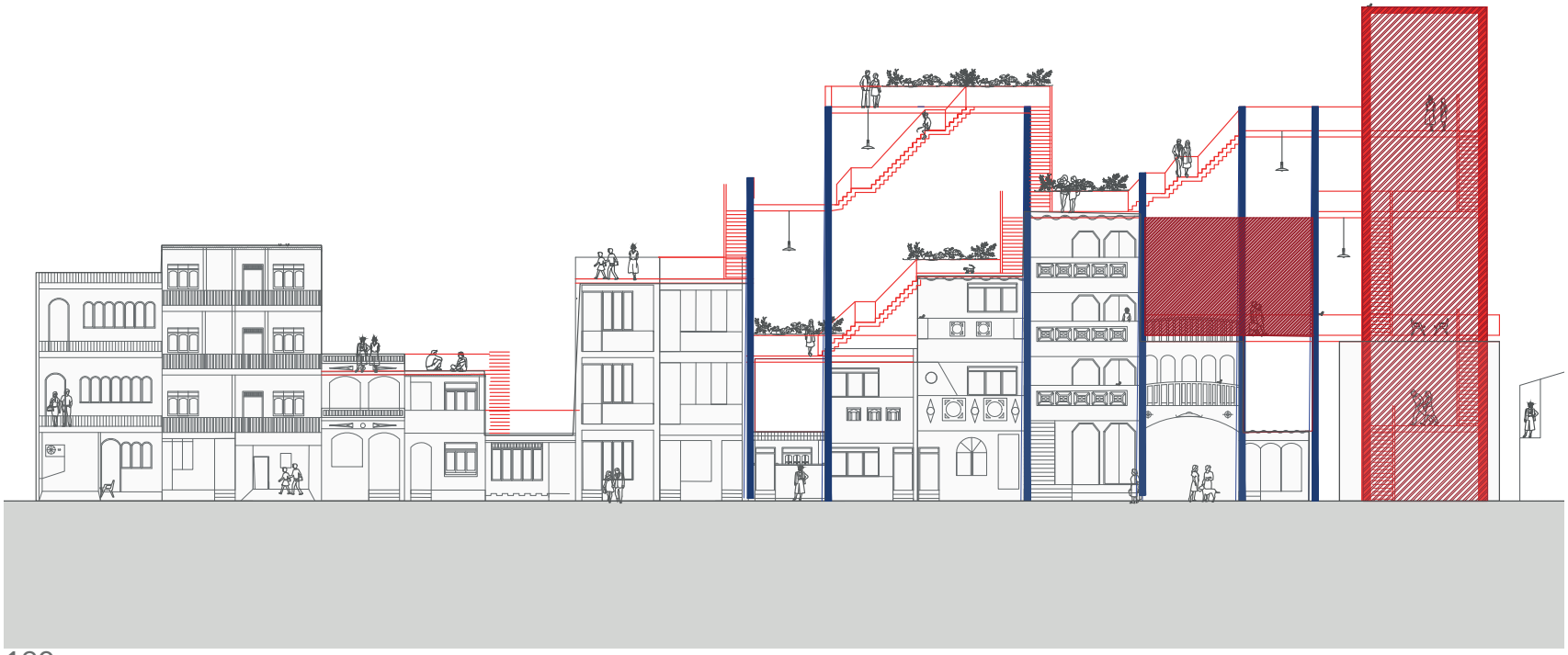


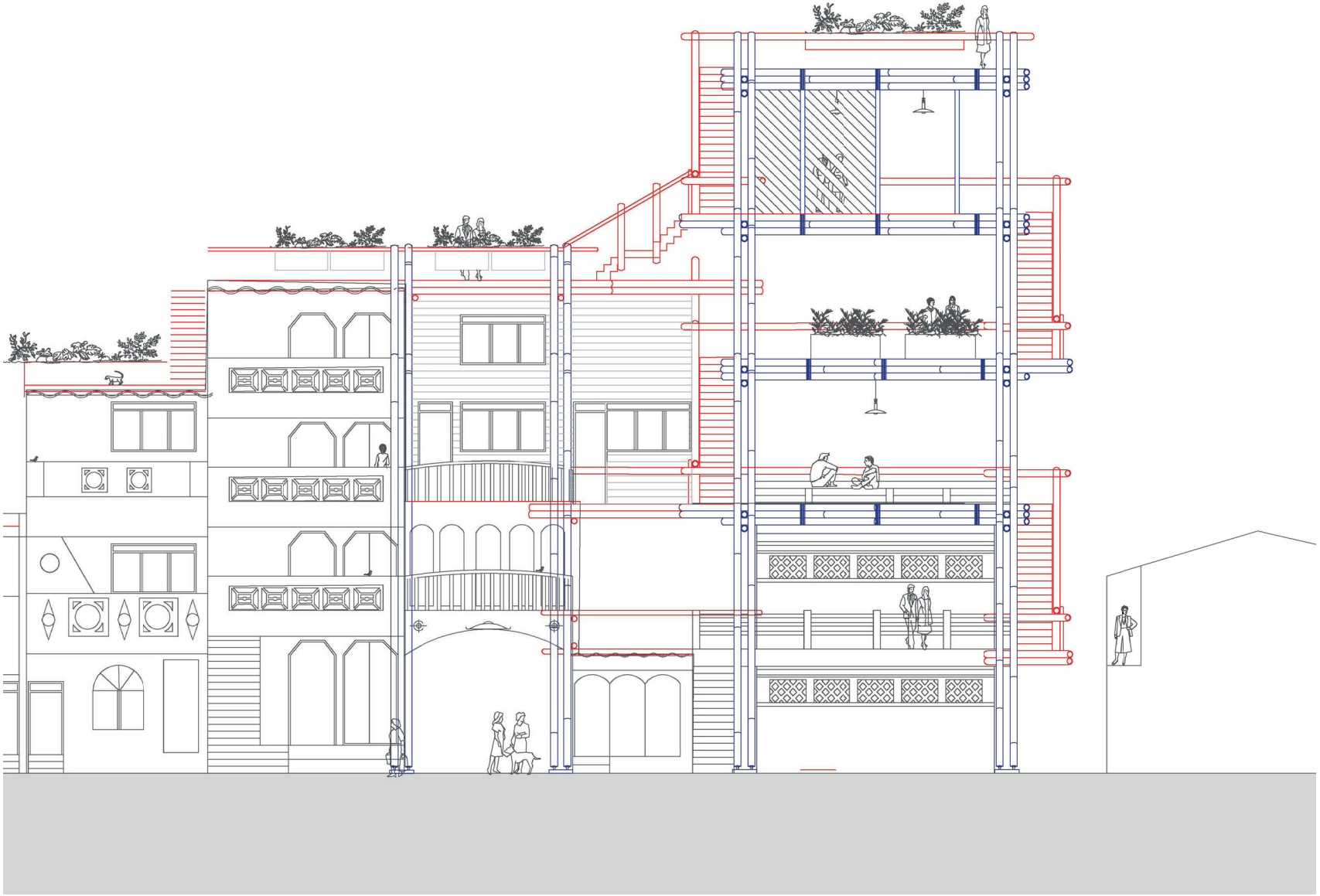

TEKENING AANPASSEN NAAR:
VOORBEELD URBAN FARMING IN
SITE

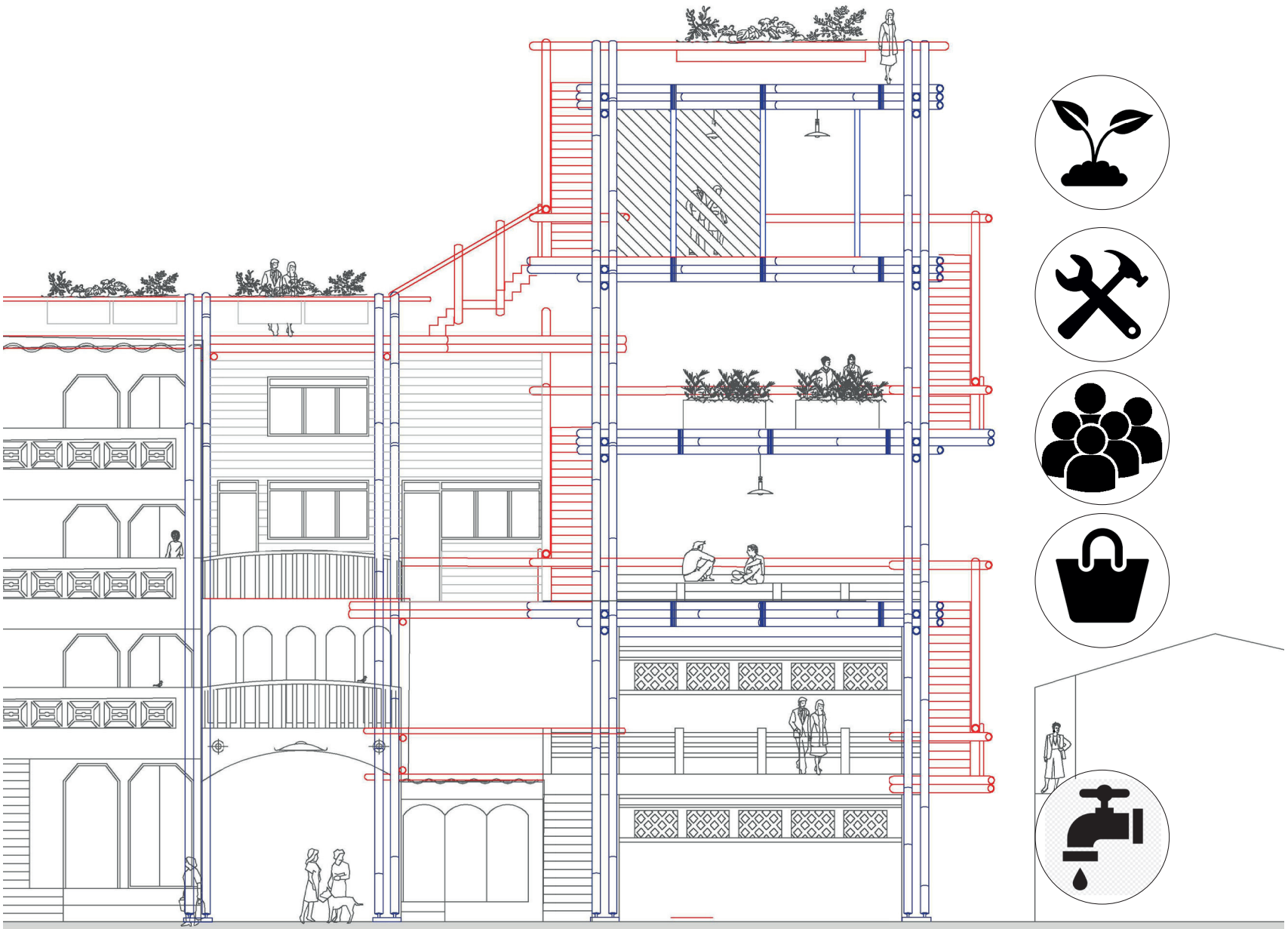


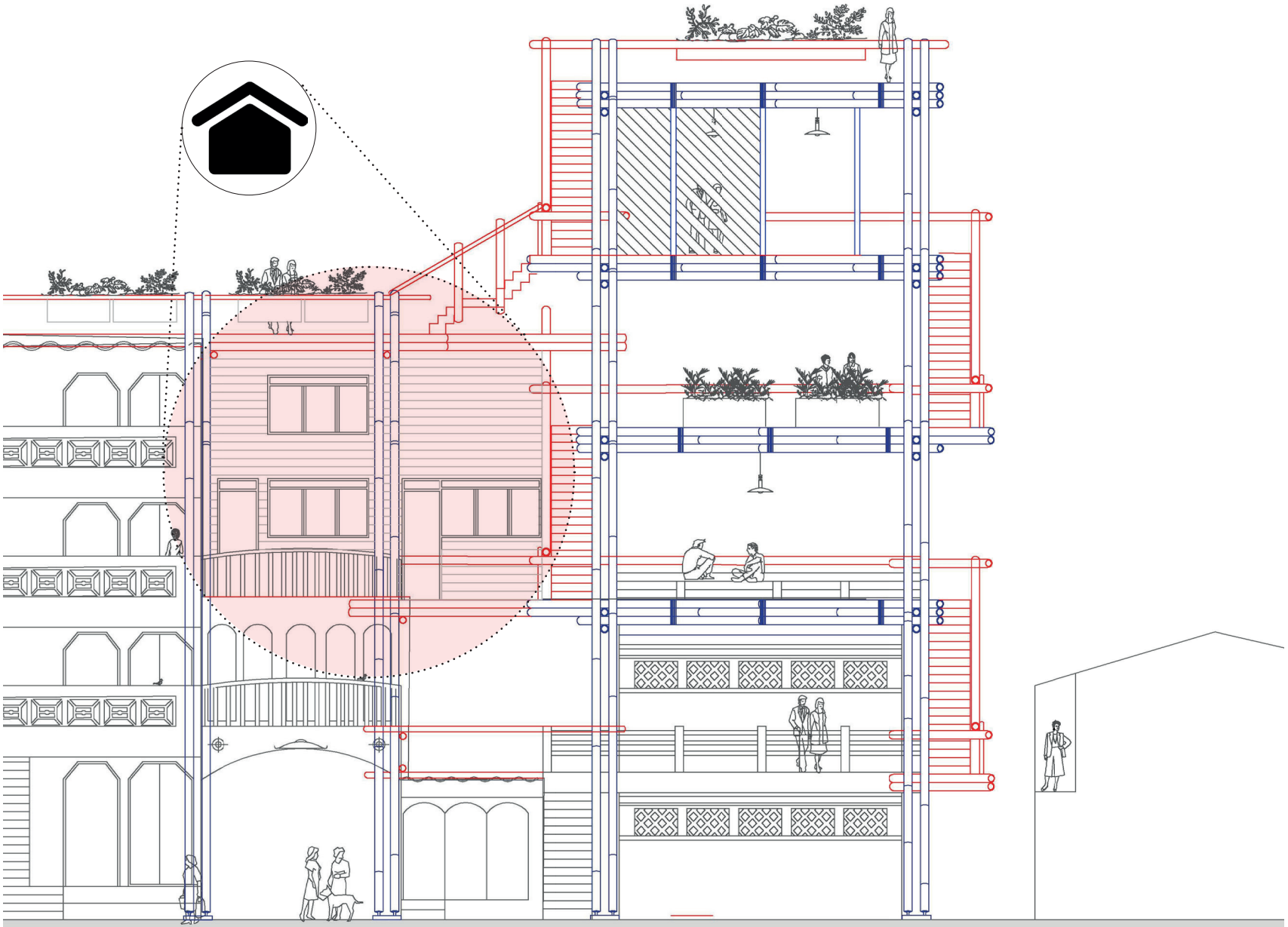


STEP 3: DENSIFICATION









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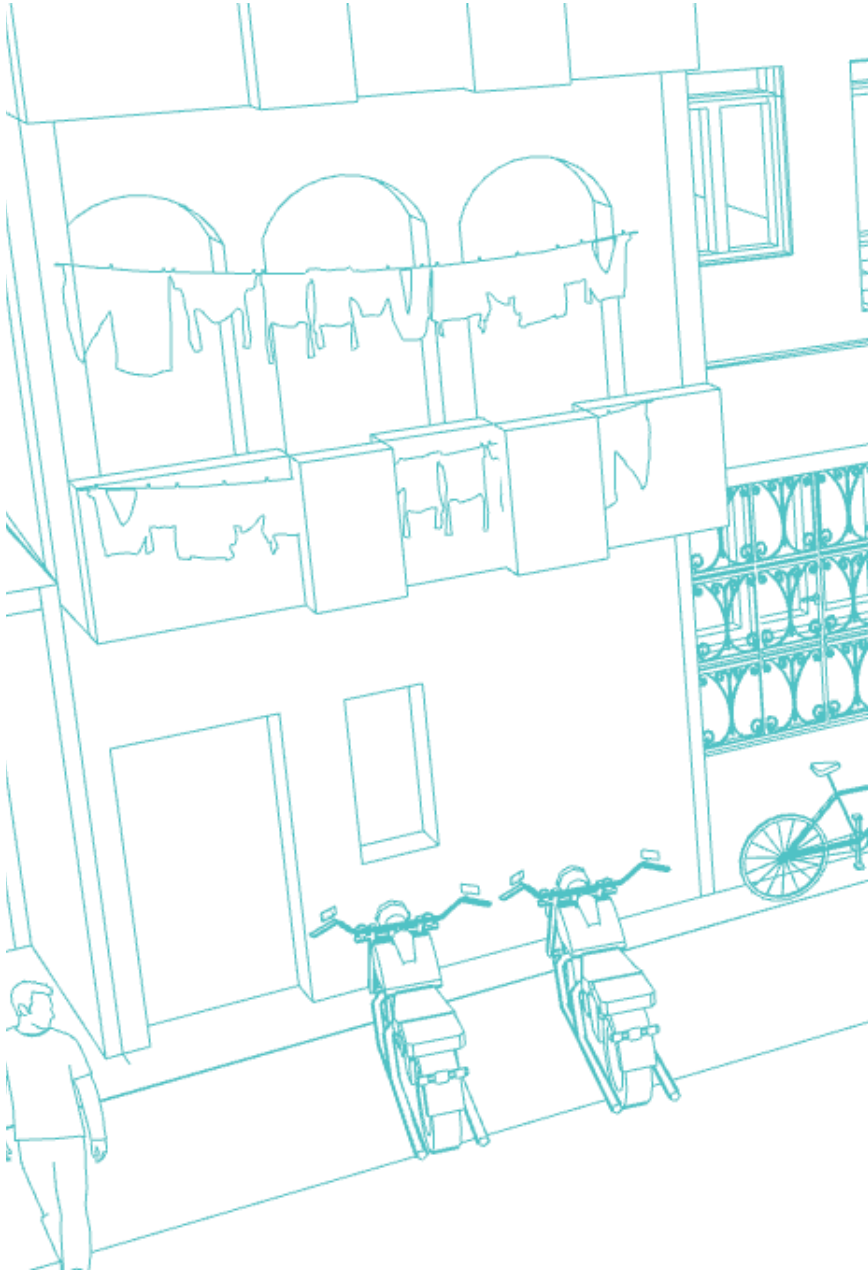

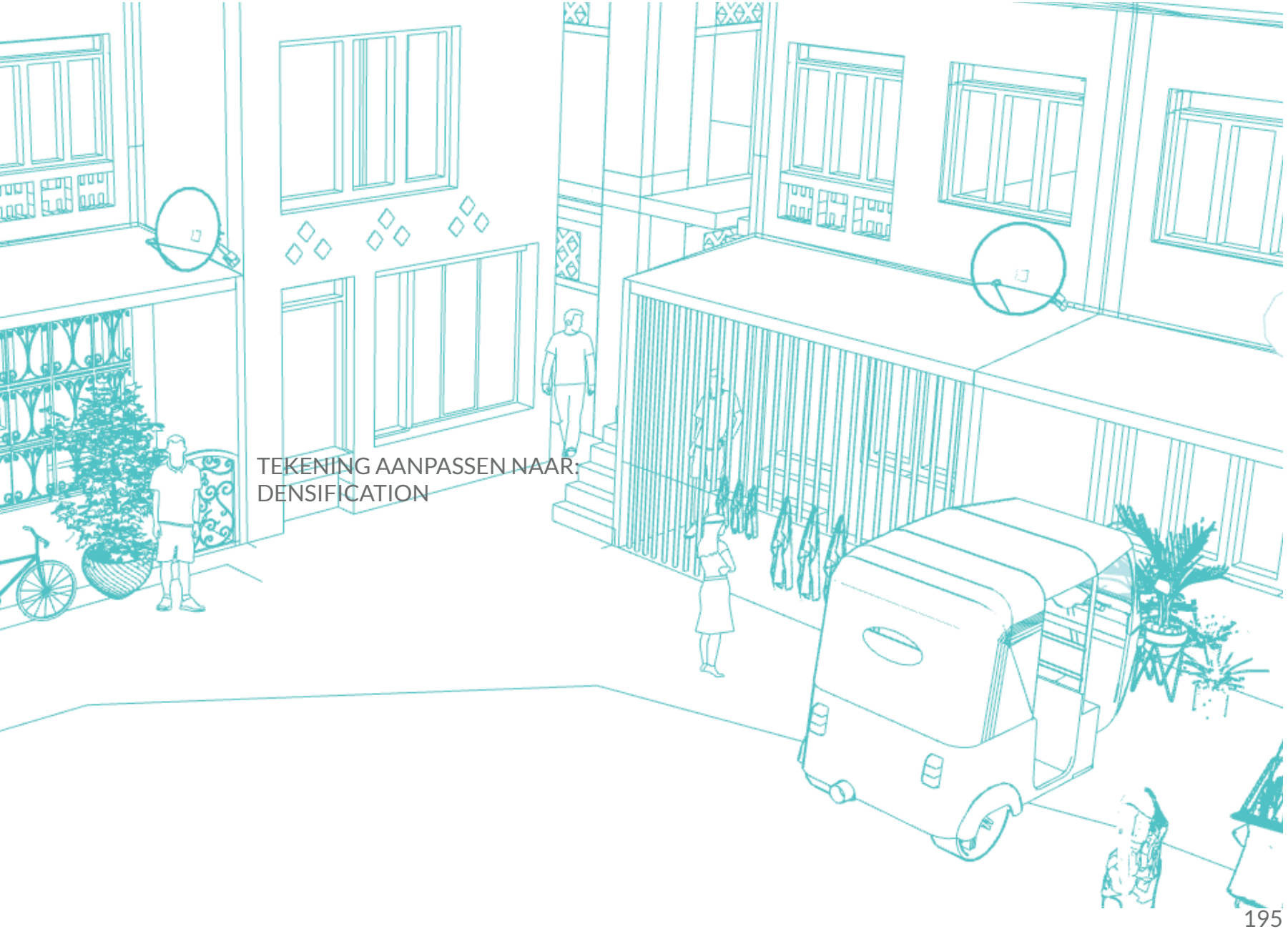
TEKENING AANPASSEN NAAR:
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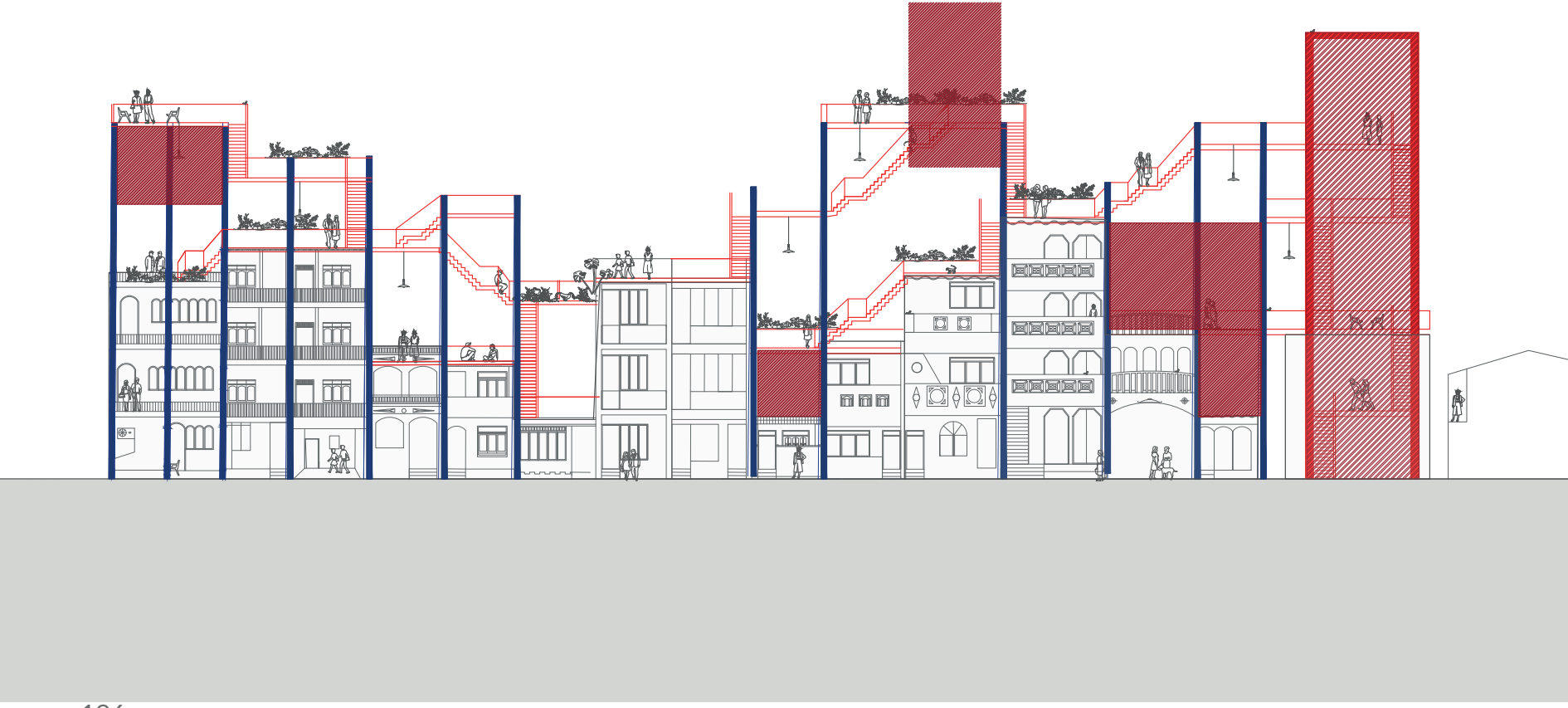

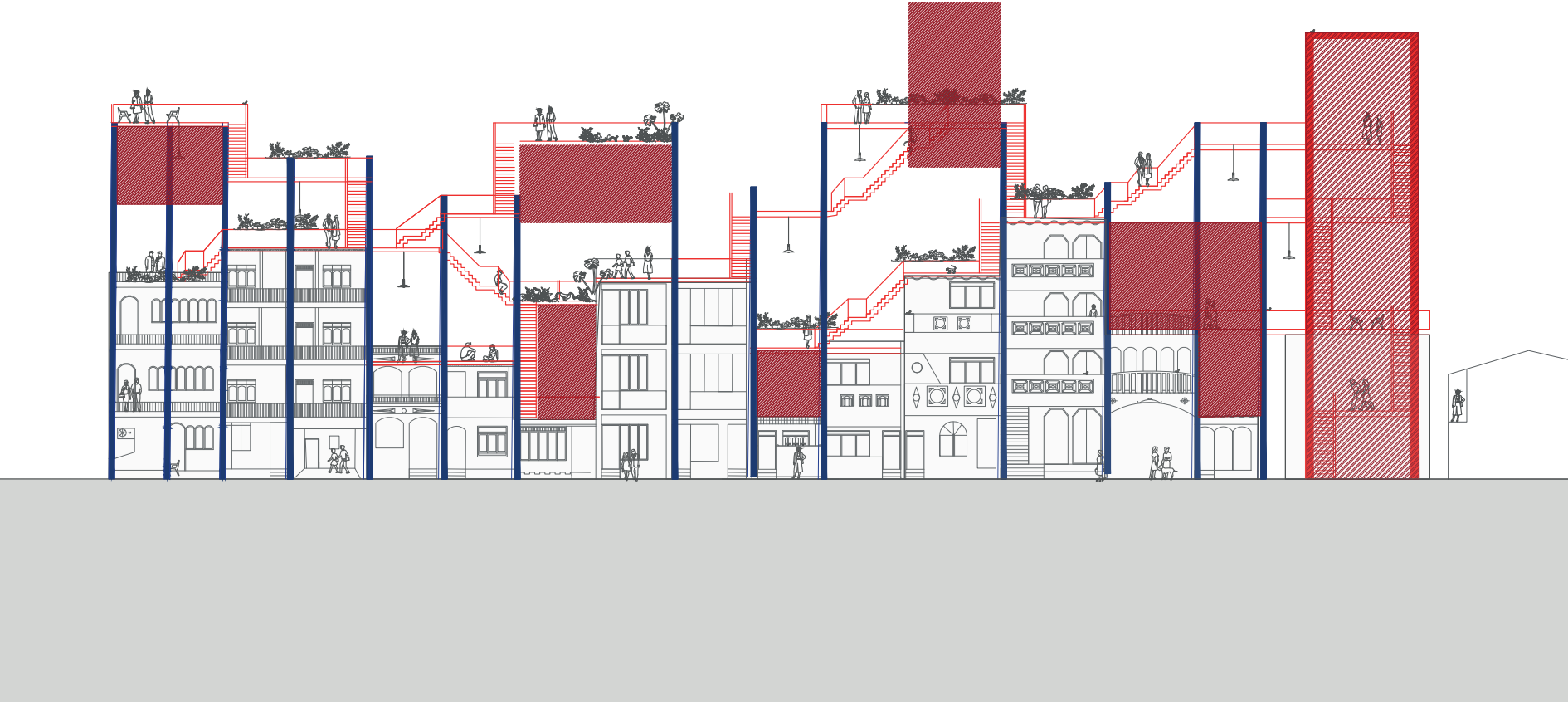

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ELEMENTAL, CHILI - QUINTA MONROY

n Chile, a middle-class family may inhabit a house of around 80 square meters, whereas a low-income family might be lucky enough to inhabit 40 square meters. They can't afford a large "good" house, and are henceforth often left with smaller homes or building blocks; but why not give them half a "good" house, instead of a finished small house? In the 1970s a professor by the name John F.C. Turner, teaching at a new masters program at MIT called "Urban Settlement Design In Developing Countries", developed an idea surrounding the concept that people can build for themselves. 99% Invisible has covered a story, produced by Sam Greenspan, on how this idea has evolved, and what it has turned into: Half A House.

n Constitución, the plans for Villa Verde, an entire area populated by two-storey half houses, the visual design of the buildings are different, but the concept is the same; half of the houses are identical and the other halves are completely unique. The first floor of the finished half is made up of unfinished concrete floors, and the second is covered in unfinished plywood. There is only one sink in the kitchen, with no other appliances, but the house is cheap, practical and well insulated. Everything that families wouldn't have an easy time building alone, such as concrete foundations, plumbing, and electricity, has been finished for them. The Chilean government pays for roads, drainage, sewage, garbage collection, busses and any other necessary infrastructure, to focus on building a good community. Residents just have to provide their time, labor and any extra materials.

Residents can take part in building workshops facilitated by Elemental, and every house comes with a manual covering possible ways to expand using standard building materials, avoiding the need for anyone to buy expensive custom resources. The vision is that residents end up with a much more pleasant house than what they could have built completely on their own or received from ordinary state funding. Juan Ignacio Cerda, one of Elemental's principal architects, said that even if money were not an issue, the firm would build the same homes. Any extra funding would go into improving the surrounding space and uplifting the neighborhood, embodying the firm's social approach.

-archidaily

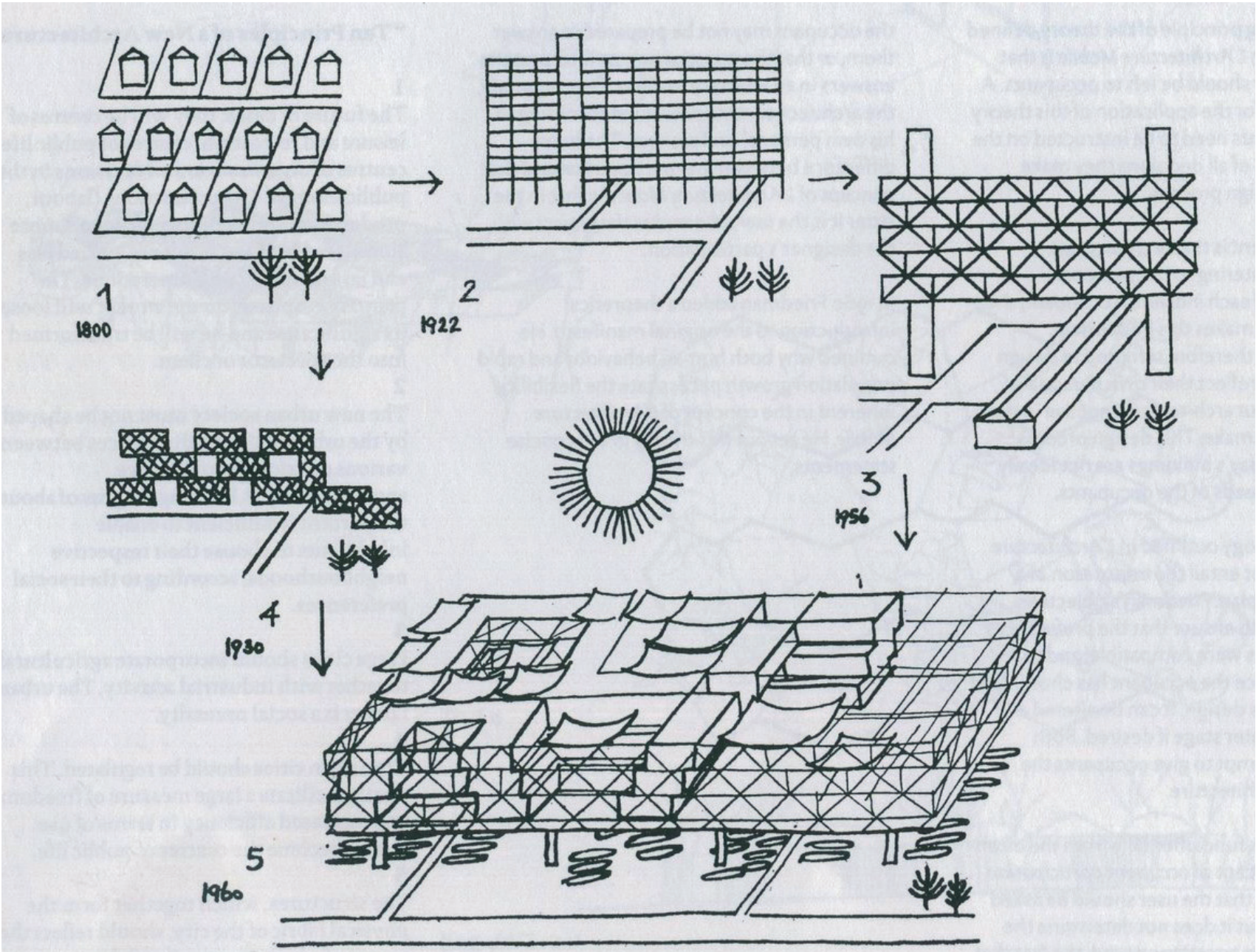
ELEMENTAL, CHILI - QUINTA MONROY

SPATIAL CITY- FRIEDMAN YONA

The Spatial City is a multilayered structural skeleton (grid) on stilts that can be flexibly adjusted when desired. The structure is supported by columns (stilts) that are situated at an interval of 40-60 meters and which houses the accesses and facility networks. The base of the grid is 6×6 meter module that can accommodate all kinds of functions. In the skeleton all sorts of units for housing and work can be fitted in. In between there is free space, arranged so, that natural light can reach the ground underneath.

Inhabitants will be free to decide how their dwelling should look. To get to a balanced combination that would serve to avoid conflicts he invented a model for communication. He designed a program of methods of choice for future inhabitants to enable them to create and position the living space they wanted, a so called Flatwriter. This program should enable the inhabitant to succeed in self-planning and make it possible for constructors to directly realize the dwellings without the use of an architect. A model of Spatial City can be fitted over less used areas in a city, for instance railroad complexes. The goal is to be able to expand the city within its boundaries and without demolishing the existing buildings.

-http://architectuul.com/architecture/spatial-city



SPATIAL CITY- FRIEDMAN YONA

TRADITIONAL USE- CONSTRUCTION SITE CHINA

During the last century, the modern and industrial approach to architecture put bamboo more and more out of the spotlight. Its use was downgraded to bamboo flooring or scaffolding on construction sites. Today it is still in use for scaffolding in the construction of up to six stories buildings and even for skyscrapers in Hong Kong. Anyway, although its price has started to rise, in most East and Southeast Asia regions one bamboo stalk costs roughly just 1USD. The strength and hardness of bamboo makes it a great material of modular structural systems, while keeping a natural appearance. It is also a very fast-growing natural resource and it can be harvested without harming the plant, making it a very eco-friendly construction material. For these reasons, international architecture offices like Kengo Kuma, Shigeru Ban or Vo Trong Nghia has started turning the public focus back on bamboo.

http://designhotpot.com/chinese-architects-rediscovering-the-tradition-of-bamboo/

CONSTRUCTION SITE CHINA

KYOTO FUSHIMI INARI SHRINE

Fushimi Inari Taisha is the head shrine of the god Inari, located in Fushimi Ward in Kyoto, Japan. The shrine sits at the base of a mountain also named Inari which is 233 metres (764 ft) above sea level, and includes trails up the mountain to many smaller shrines which span 4 kilometres (2.5 mi) and take approximately 2 hours to walk up.[1]

First and foremost, Inari is the god of rice, but merchants and manufacturers have traditionally worshiped Inari as the patron of business. Each of the torii at Fushimi Inari Taisha has been donated by a Japanese business.

The earliest structures were built in 711 on the Inariyama hill in southwestern Kyoto, but the shrine was re-located in 816 on the request of the monk Kakai. The main shrine structure was built in 1499.[6] At the bottom of the hill are the main gate (, ramon, “tower gate”) and the main shrine (go-honden). Behind them, in the middle of the mountain, the inner shrine (oku-miya) is reachable by a path lined with thousands of torii. To the top of the mountain are tens of thousands of mounds (tsuka) for private worship.

KYOTO FUSHIMI INARI SHRINE

CENTRE POMPIDOU, - RENZO PIANO

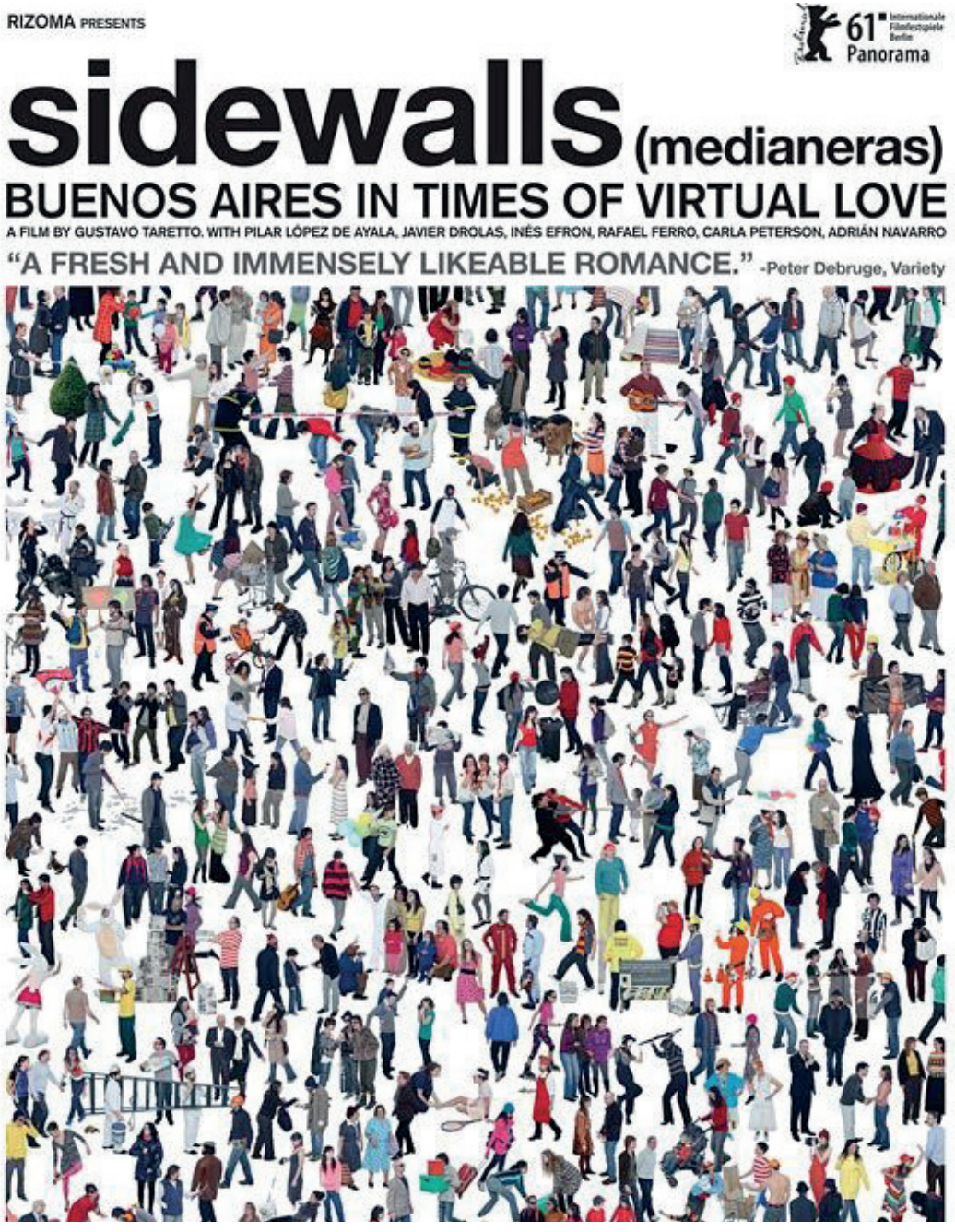
“On the Piazza side, and outside the usable volume, all public movement facilities have been centrifuged. On the opposite side, all the technical equipment and pipelines have been centrifuged. Each floor is thus completely free and it can be used for all forms of cultural activities- both known and yet to be discovered.”

Renzo Piano.

CENTRE POMPIDOU, - RENZO PIANO

MOVIE: MERIANERAS

Buenos Aires is growing uncontrollably and imperfectly.
An overpopulated city in a deserted country.
A city in which thousands of buildings rise into the sky.
Arbitrarily.
Next to a tall one, a small one.
Next to a rational one, an irrational one.
Next to a French one, one with no style at all.
These irregularities probably reflect us perfectly.
Aesthetic and ethical, irregularities.
These buildings, which adhere to no logic, represent bad planning.
Just like our lives: We have no idea how we want them to be.
We live as if Buenos Aires were a stopover.
We've created a "culture of tenants".
The buildings are becoming smaller to make space for even smaller ones.
Apartments are measured by their number of rooms
and range from five rooms with balconies, playrooms, servants' quarters and storerooms to one-room apartments
also known as "shoeboxes".
Just like almost all man-made objects, buildings are made to differentiate between us.
There's a front and a back side.
High and low apartments.
Privileged people have the letter A or sometimes B.
The farther back in the alphabet, the worse the apartment.
The promised view and brightness rarely coincide with reality.
What can be expected of a city that turns its back on its river?
I'm convinced that separations, divorces, domestic violence, the excess of cable TV stations, the lack of communication, listlessness, apathy, depression, suicide, neuroses, panic attacks, obesity, tenseness, insecurity, hypochondria, stress and a sedentary lifestyle are attributable to architects and builders.
I suffer from all of these illnesses except suicide.



The roofs of people have never been as close to each other as they are today. And never again the hearts of people were not as far apart as they are today, "

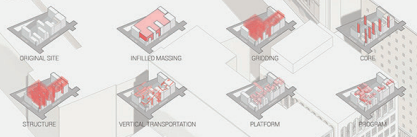
STUDENT WORK (AUTOR UNKNOWN)

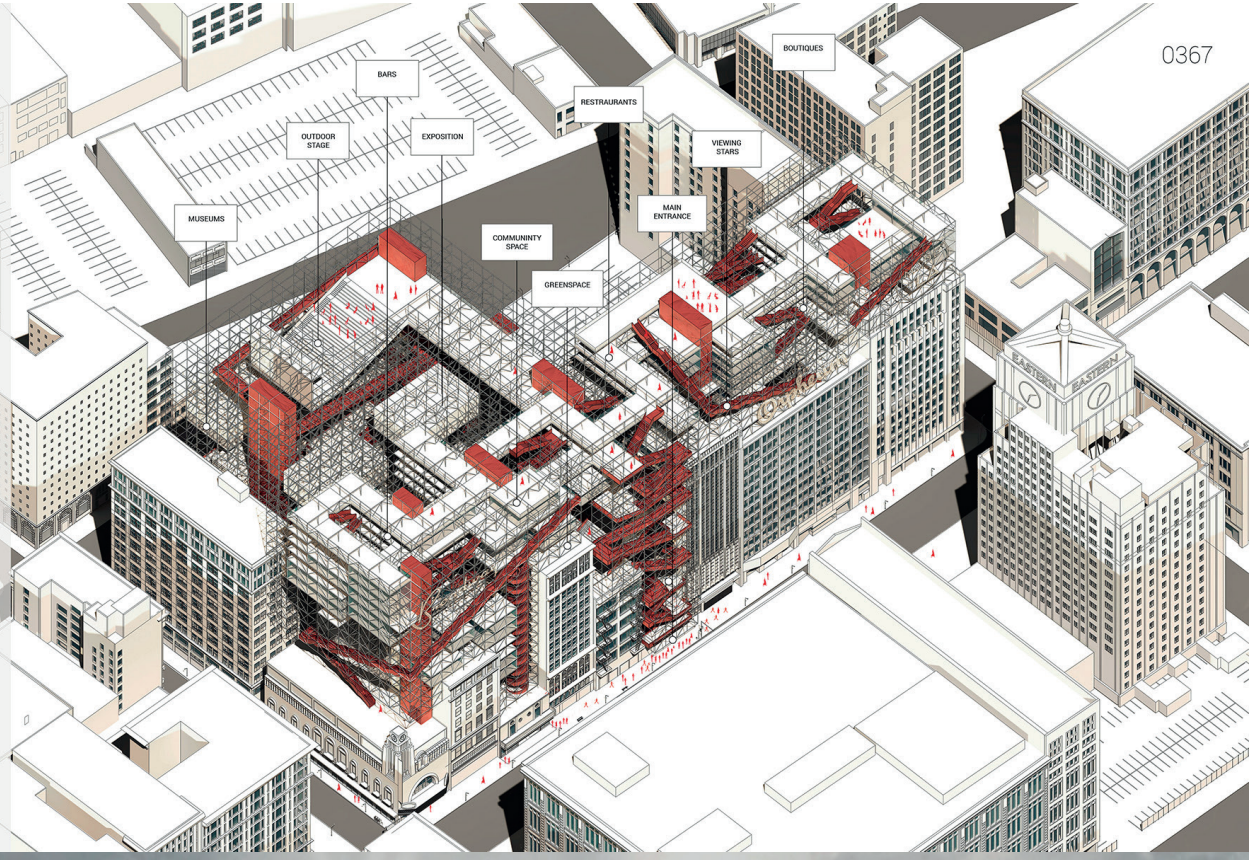
Process of revitalizing historic urban areas involves the integration of historic legacy, inheritance and sense of place with the demands of contemporary economic, political and social situations." (Doratli, 2000)
DoratliN. (2009). Revitalizing historic urban quarters: A model for determining the most relevant. European planning Studies, 749.

SITE

CONCEPT

PROCESS

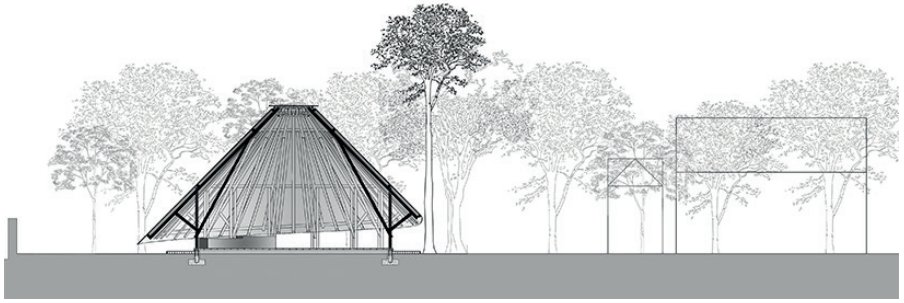


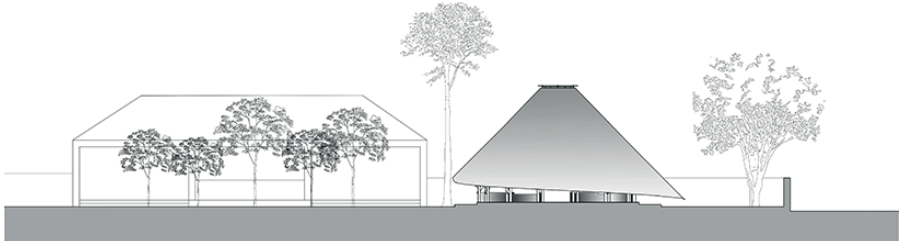


BUILDING TRUST INTERNATIONAL HOLDS EDUCATIONAL DESIGN + BUILD WORKSHOP IN CAMBODIA

fter successfully constructing green and sustainable projects in south east asia, building trust international have organized a design + build workshop on the outskirts of phnom penh, in collaboration with local charity group aide et action cambodia. through the workshop, the firm is able to create a school classroom and a library constructed with locally sourced bamboo, where the school community can use the space to conduct recreational activities.

the aim of building trust international's workshop is to educate the community on how bamboo can be used as a structural element. the classroom columns are made of thick chinese bamboo and the roofing structure is a result of weaving rice straws into tiles, which are then individually attached to the main bamboo structure. seeing as the tiles are sourced locally, the community can harvest the bamboo and carry out repairs themselves.





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BUILDING TRUST & TERRAEPAGLIA HOST SUSTAINABLE ARCH. WORKSHOP IN UMBRIA

the ‘design + build workshop’, hosted by building trust international and artisan collective terraepaglia, brought participants together for a 12 day investigation into creating sustainable spaces through natural materials and methods. participants worked closely with BTI and terraepaglia in the collective’s native city of umbria, italy to learn such things as: adobe brick making, straw bale and rammed earth construction, natural plastering, and wood flooring. various forms were designed and built throughout the week, and the hosts hope that such an event is able to communicate the importance of sustainable architecture and locally-sourced materials.

https://www.designboom.com/architecture/building-trust-international-terraepaglia-design-build-workshop-umbria-03-09-2016/