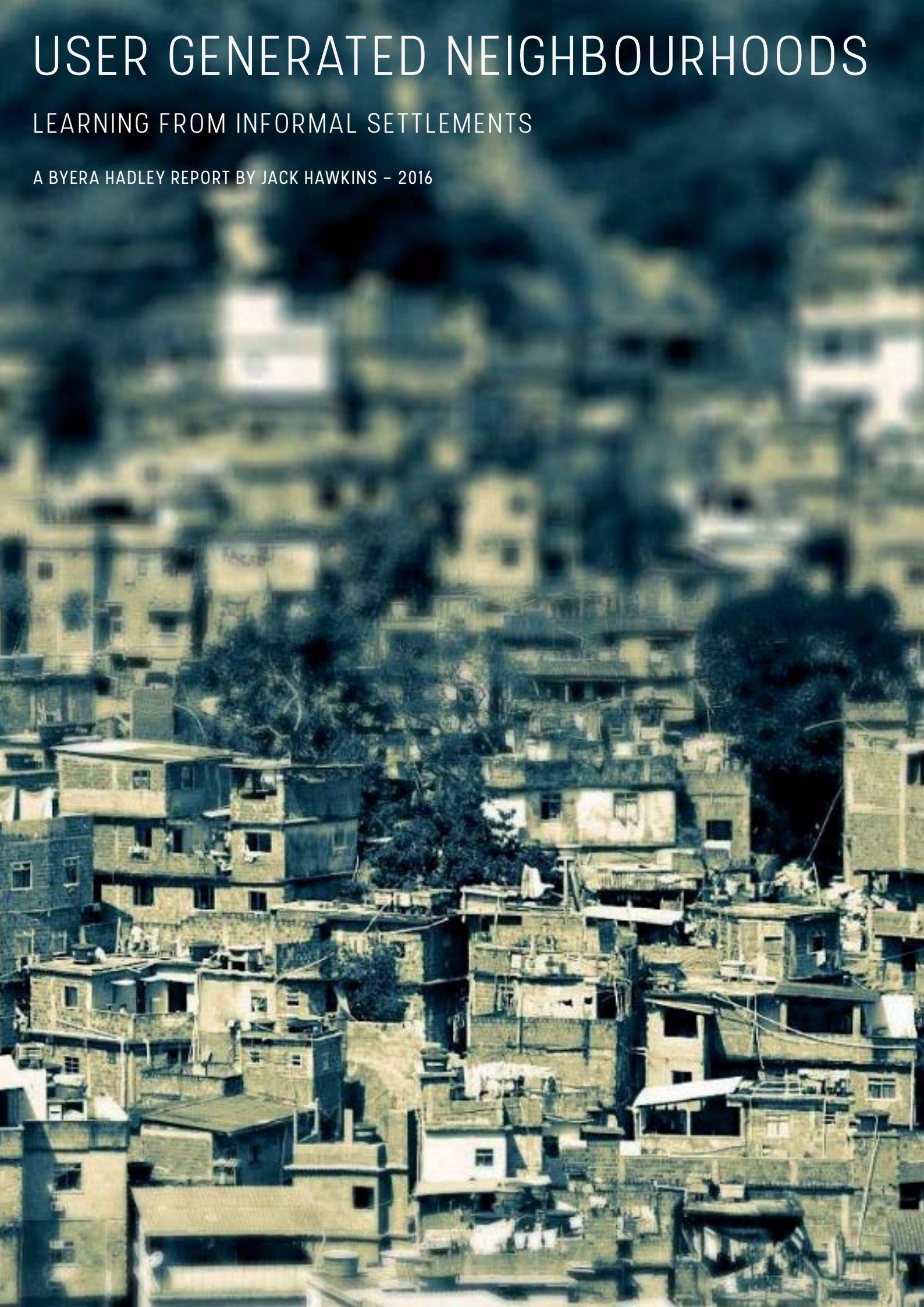
# USER GENERATED NEIGHBOURHOODS

## LEARNING FROM INFORMAL SETTLEMENTS

A BYERA HADLEY REPORT BY JACK HAWKINS – 2016



Byera Hadley.

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Jack Hawkins was awarded the Byera Hadley Travelling Scholarship in 2014

**Cover image**: Miniature Favella - Rocinha, Rio De Janeiro
Photo by Ed Yao

**Inset Image:** Rocinha, Rio De Janeiro
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## Paul Pholeros

### Vale 1953 - 2016

Paul was immediately happy to help when I contacted him about acting as my mentor for this study; characteristic of the man who generously offered his time to teach so many people. When we met before I left for overseas, he stressed the importance of evidence based design and hard data, an enduring strength of his work.

His life-long pursuit was to improve the living conditions and health of the poor, and he got on with the job without the desire for fame or personal accolades. Throughout his inspirational career as an architect, educator and co-founder of Healthabitat he led the way with simple, practical and affordable solutions to Indigenous health issues in Australia and for communities around the world.

He made a real difference, and leaves behind an extraordinary legacy.

*"Poor people need the best design in the world because their needs are the greatest... Good design and architecture has a pivotal role in reducing the effects of poverty."* Paul Pholeros



# Prologue

The Byera Hadley Travelling Scholarship (BHTS) allowed me to travel to Colombia, Brazil, South Africa and India. It was amazing opportunity to refresh my faith in architecture's ability to change people's lives for the better, at a time where I was disillusioned with the direction of the profession. After following the pathway from architectural graduate to project architect through five years of professional practice, I felt increasingly disenfranchised by elements of superficiality and frivolousness within the profession.

The majority of the planet's urban landscape is conceived, designed and built outside the framework of conventional architectural practice. The emergence of the informal city presents an urgent call to action for architects. The intent of this study was to observe and experience different approaches to the upgrading of informal settlements through on-site exploration. During the project I was able to catalyze my thoughts surrounding the responsibility architects have towards society, and in particular people who cannot afford to engage an architect. My experiences overseas led me to question the role of architects in contemporary society, and reimagine architects of the future as designers of social, political and economic change.

My original proposal (upon which I was awarded the BHTS in November 2014) set out to identify, through mapping and fieldwork, the social and spatial values of housing typologies that connect the public and private domain to create 'living neighbourhoods'. I planned to analyse selected neighbourhoods in slums, favelas and townships in terms of building shape, building volumes, neighbourhood density (macro + micro), building cluster density (or second order density), building positions, frontages & facades, minor and major communal centers. It was hypothesized that successful elements of these typologies might have applications to increase densities, and provide a framework to reduce social isolation in future cities. During my travels it became obvious very quickly that I did not have the local contacts, time or resources to properly conduct these mapping exercises. I realized that to successfully carry out the research I originally proposed would require well established relationships with local residents, community leaders, architects and social workers, something I did not have the time or language skills to develop. In addition, a meaningful study would require serious anthropological analysis, detailed building surveys and social mapping, which was beyond my skill-set and the resources provided for this study.

In light of these challenges I realigned the objectives of my study to reflect the information I was capable of gathering and the places I had access to. Rather than be constrained by a linear investigation, I allowed my interests in informal urban environments to drive the investigation. By reaching out to various organizations, NGO's, architects and local residents, I found myself exposed to conditions which constantly challenged my preconceived ideas of informality. There were substantial challenges involved in conducting fieldwork in the favelas, slums and townships I visited, and on a few occasions situations were confronting. But what became evident early in my travels was the sheer time and resources required to properly understand the complexities of these self-built environments. Having a relatively short period of time in selected neighbourhoods, I was able to achieve only a limited understanding of the relevant quality of life and hardships faced by the residents.

The applied outcome of this study is not as clear as I had hoped or anticipated, however the extent of my learning far exceeded my expectations. During the study I was able to develop my writing and analytical skills, which had declined over the last five years of predominantly CAD design and documentation. The BHTS was an incredible opportunity to explore ideas, free from the everyday constraints and pressures of professional practice and contribute in a small way to the knowledge base of the architectural profession. I am very grateful to have begun an investigation which I intend to continue in the next chapter of my career.

I would like to thank the NSW Board of Architects and the Byera Hadley Trust for this generous opportunity. My parents for their constant enthusiasm and support. I would also like to thank all the people I met during my travels, who very generously offered their time, hospitality and friendship. Without their help this study would not have been possible.

# Itinerary

During my time aboard from June 2015 to February 2016, I visited many different neighbourhoods within each of the cities listed below;

### Medellin, Antioquia, Colombia

Barrios de invasion: Batallon Girardot (UVA de los sueños), El Pomar (UVA La Alegría), San Antonio & La Libertad (UVA Sol de Oriente), Santo Domingo (Parque Biblioteca España), La Independencia (Escalators), Juan XXIII (Comuna 13), various other barrios both formal and informal throughout the city. I also met with the Department of Sustainable Urban Interventions (DIUS) at the Public Enterprises of Medellin (EPM), and Medellin architect Camilo Restrepo, principal and founder of AGENdA Agencia de Arquitectura.

### Rio de Janeiro, Rio de Janeiro, Brazil

Favelas: Rochina (largest in Brazil), Santa Marta, Vidigal & Complexo do Alemão.

### Cape Town, Western Cape, South Africa

Townships: Khayelitsha (largest in South Africa), Philippi, Nyanga, Guguletu & Langa (oldest in Cape Town). Various meetings with Urban Think Tank and NGO Ikhayalami.

### Mumbai, Maharashtra, India

Slum: Dharavi (largest in India), Dhobi Ghat (open air laundromat), various other slums throughout the city. Meeting with Studio X Mumbai.

### Ahmedabad, Gujarat, India

Meeting with Vastu Shilpa Consultants (at 'Sangath' offices of architect B.V. Doshi).

### Indore, Madhya Pradesh, India

Site and Services Project: Aranya Community Housing (Scheme 78).



# Executive Summary

### Report Description

'Living neighbourhoods' is a report which provides an analysis and evaluation of current and prospective strategies for upgrading informal settlements (slums, townships, favelas, and barrios de invasió). These are initiatives instigated by architects, politicians, urbanists and most importantly communities themselves. The study examines social, political, economic and spatial characteristics of self-built neighbourhoods in disadvantaged communities which need urgent improvement, and identifies qualities which might be retained as development occurs. The role and responsibility of architects in this process is also discussed.

Informal settlements are highly complex self-organized communities and solutions to the challenges they present cannot be generic. Current thinking is that in-situ upgrading and integrating existing communities into the broader urban context is an advantageous approach, because informal economies and social networks remain intact as infrastructure is improved.

### Methodology

I visited selected locations and key stakeholders in South America, Africa and India in order to gain an understanding of the history, culture and development of informal settlements. I aligned the objectives of my study to reflect the information I was capable of gathering and the places I had access to. Rather than be constrained by a linear investigation, I allowed my interests in informal urban environments to drive the investigation. By reaching out to various organizations, NGO's, architects and local residents, I found myself exposed to conditions which constantly challenged my preconceived ideas about the issues and potential solutions to the global housing crisis. Through on-site observations, interviews, discussions and casual conversation with local residents, architects, social workers and urban planners I developed an understanding of the relevant quality of life and hardships faced by the residents.

### Key Findings

Each location I visited had very different findings. A selection of the key issues explored in the report are; social infrastructure, property rights, decentralised models for intervention, political capital, re-blocking, vertical expansion, micro-financing, adaptive spaces, mutigenerational housing, the informal economy, community cohesion and transitional spaces from public to private.

### Conclusion and Speculative Applications

Valuable qualities of informal settlements have the potential to be retained and strengthened during In-situ upgrading, these included high-density low-rise, walkable streets, multi-generational demographics, informal economies, proximity to the formal city and well established social networks. These qualities all contribute to local cultural identity and street life, by encouraging casual and unplanned social interactions which are critical for our wellbeing.

This study was an opportunity to reflect upon the architectural profession's responsibility in society, and in particular it's lack of involvement in serious issues such as the global housing crisis. My experiences overseas led me to question the current role of the profession, and reimagine architects of the future as designers of social, political and economic change.

# Introduction

## Informal Settlements

The term "Informal Settlement" is often perceived as an academic euphemism for more colloquial names such as slums, shanty towns, squatter areas, townships, favelas, gecekondus or barrios de invasió. An Informal Settlement is an unplanned community with informal or insecure property tenure, inadequate or non-participation by government resulting in lack of basic services, registration and infrastructure. Their formation is the result of a complex mix of local, regional and global factors which include income inequality, conflict, natural disasters, rural poverty, corporate land acquisition, rapid urbaninsation and climate change.

## The Global Housing Crisis

In 2012 there were 863 million people (or one third of the world's urban population) living in slums [1]. By 2050, the number of slum dwellers is estimated to reach as many as **2 Billion people**.

One in every three people in the world will live in slums within 30 years, unless concerted action is taken on a global scale. There are few challenges (excluding climate change) as urgent or important to the future wellbeing of our planet than the expansion of informal settlements.

*"The Scale, Speed & Scarcity of means, with which we will have to respond to this phenomenon has no precedent in history.... Given the magnitude of the housing shortage, we won't solve this problem unless we add people's own resources and building capacity to that of governments and market."*
*Alexandro Aravena, Elemental*

Rapid urbanisation is a key factor driving the growth of informal settlements. In 2014, 54% of the global population (3.9 Billion) lived in urban areas, and this trend is expected to continue. By 2050, 66% of the world's population (5.1 Billion people) will live in cities. This is roughly the reverse of the global rural-urban population distribution of the 1950's. Most new urbanisation will occur in Africa and Asia, with India, China, and Nigeria alone accounting for 37% of all projected urban population growth [2]. As urban dwellers grow in enormous numbers, existing infrastructure and services are simply not sufficient, and the delivery of new housing cannot match the demand. The inherent organization of cities presents an opportunity to address these issues. Cities optimize resources and provide a platform for efficient and balanced response to crisis. Cities also provide an opportunity to more easily garner the support of local stake holders and make collective decisions. The problem is not growth, but unplanned growth. [1]

*"The contemporary cities we know are more often the embodiment of unexpected outcomes and unintended consequences rather than visionary planning"*
*Now Urbanism: The Future City is Here [3]*

Discussions around the upgrade of informal settlements invariably focus on what people lack, and rightly so. Access to sanitation, clean water, education, employment, security, social services, public space and quality housing stock are the key areas for improvement. However, what is often overlooked are the qualities of these places which might be retained and strengthened, such as high-density low-rise, walkable streets, multi-generational demographics, informal economies, flexible property rights, proximity to the formal city and well established social networks. Informal settlements

are highly complex self-organized communities and solutions to the challenges they present cannot be generic. Current thinking is that in-situe upgrading and integrating existing communities into the broader urban context is an advantageous approach, because informal economies and social networks remain intact as infrastructure is improved [4]. Informal settlements are not a temporary problem. They are a functioning part of the urban ecosystem, that currently fulfil the housing demand, not something that should be destroyed and replaced but instead improved upon. Informal settlements are not the problem, but part of the solution.

*"Social organization is the first step in constructing the city…what is amazing is the willingness of people to build their own environments and the creativity they employ. We need to ask how we can enable that capacity, and how can we allow the community to share in the profits that result."*
*Teddy Cruz, Architect and Urbanist [5]*

# The Architect's Role

Architects design public buildings which are often accessible to variety of socio-economic groups. However this is not the case when it comes to housing. It is of course true that architects are involved in innovative housing solutions, however this effort is primarily directed at crafting beautiful objects for an elite and privileged minority. It is estimated that about 10% of housing in Australia has an architect involved, this is thought to be to be even lower for new builds. In Australia, the public sector funds less than 1.5% of housing, leaving the market to provide the remaining 98.5% [6]. Their clients are generally the wealthiest 10% of Australian society.

*"Most established architects consider designing houses for the poor in the same vain that a five-star restaurant chef would consider operating a street-side falafel stand. There simply is too little money and too little professional recognition in such endeavors."*
*[7] Mohammad al-Asad, CSBE*

Aside from a lack of financial incentives and accolades to draw talented designers into the sphere of public housing, most architects don't have the skills required to deliver affordable low-income housing. A lack of experience managing budgets, working with community groups, and detailing durable and simple construction have made architects redundant in this area. Currently, the architectural profession exists detached from real world problems, instead it is focused mainly on more trivial matters. Architects continue to speak predominantly to each other. Alfredo Brillembourg co-founder of Urban Think describes this phenomenon as 'the autonomy of the architect'.

Given the projected proliferation of informal settlements as global urbanisation accelerates, there is a consensus in current thinking that a balance needs to be struck between improving standards of living and preserving the benefits of informal settlements (including; high-density low-rise, walkable streets, social networks and informal economic opportunities). Architects working in this area face the challenge of developing a new set of skills, focused around developing meaningful collaborative relationships with communities and engaging with the informal resourcefulness and resilience.

As societies grow more unequal every day, it is pertinent that architects reflect on their role more seriously. We need to consider new models for designing and building our future cities, which better reflect the world in front of us. More Architects should be more involved in affordable housing initiatives so creative solutions can be explored.

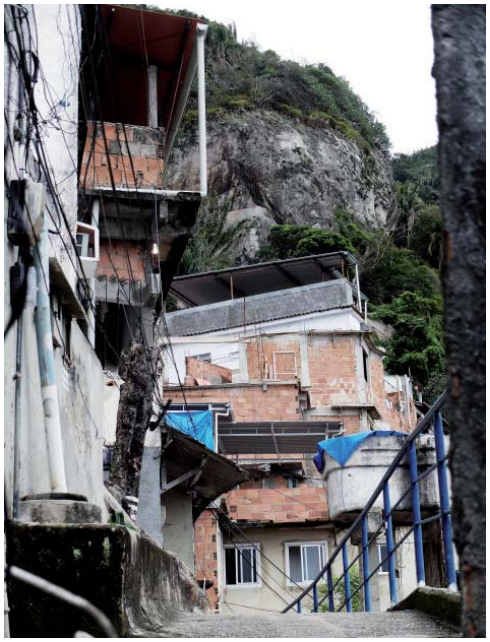


**Photo:** *Pazamonas Foundation - Medellin*

# Informal Settlements: Ethical Tourism and Research

Before embarking on this study tour, I was compelled to think seriously about the ethics and power dynamics at play when visiting economically disadvantaged communities. I am a 29 year old architect from a very wealthy country by global standards; and Expats, tourists and backpackers (like myself) are an increasing presence in informal settlements the world over.

Whilst not at all a new phenomenon, there is a growing controversy surrounding the increasing number of tourists seeking out urban poverty in hope of an 'authentic experience'. Given the enormous rise of urban poverty and informal settlements, and the growth of the global tourism industry, it is not surprising that there are more people visiting these areas. Recently this practice has been dubbed 'slum tourism', 'poorism' and 'poverty porn'. It has been criticised as patronising, degrading, insensitive and voyeuristic. Many residents feel a loss of dignity due to the influx of 'gawking tourists', and the profits of slum tourism often do not filter back into the community. These are serious issues that anyone visiting informal settlements should reflect upon.

Just as with any form of tourism, slum tourism brings both positive and negative impacts, which are complex in their cause and effect. Proponents point out that tourists form a more balanced perspective of a city by visiting slums, as the experience challenges their preconceptions and debunks stereotypes. They also argue that by increasing the visibility of marginalised communities, it shines a light on the neglect and discrimination. Slum tourism is also not always exploitative. In South Africa, research has found township tours have developed as an entrepreneurial practice adopted by the communities themselves where profits are used for the upgrading of their neighbourhoods [8]. Some residents in Colombia and Rio's favelas have reported feeling an increased sense of pride in their neighbourhoods, which have become desirable destinations for international tourists [9]. I met some residents who held these views on my travels. Furthermore, as most residents don't have the opportunity to travel, there is also an opportunity for cross-cultural exchange with people of diverse nationalities if the process is managed sensitively.

What is apparent is that 'slum tourism' is not going away, in fact it will only increase as the population of slum dwellers and tourists increase. Proper regulation is required to ensure the interests of the residents are protected.

A transparent, responsible and ethical framework for managing this new form of tourism is critical for ensuring that the financial benefits are fairly distributed to the local communities.

In the global community there is still a very limited conception of the variation and complexity within informal settlements. In order to provide a better understanding, academics, journalists, urban theorists, architects and planners have made informal settlements the subject of thousands of research studies. These studies risk failing to reach a target audience who will act and effect change on the ground. Research which is produced from a position of privilege also risks glorifying or rationalizing poverty by identifying positive aspects which are in reality the result of deprivation, suppression and exclusion.

Conventional academic and theoretical approaches can also lack a grass-roots perspective, which has the undesired effect of widening the gap between theory and practice.

The most meaningful interactions and opportunities for learning I had on my study tour, came about through local contacts who introduced me to the community. This allowed me to have casual conversations with residents and spend time walking the streets in order to understand some of the local customs and ways of life. Experiencing a locality in a small group or by myself hopefully minimized any disruption I might have caused.

*"When does the study of slum dwelling become aestheticisation? Where do you draw the line between rigorous research into informal settlements and cosmetic fascination with extreme urban poverty? How can Western architects legitimately alleviate the deprivation caused by their own way of life?"*

*[10] Charlotte Catling, The Architectural Review*

**Photo:** *Pierre Omidyar, Dharavi Street*

# Face to Face Social Networks

As cities grow larger and more modern they become more heterogeneous, meaning there is a greater diversity of people. These large modern cities provide greater personal freedoms, autonomy and stimuli for creative thinking, with an emphasis on the needs of the individual. However, the trade-off for these personal freedoms is weaker social bonds and a weaker sense of community, when compared to smaller traditional cities. Larger cities also experience a loss of collective identity and traditions, which can erode a sense of community. Given recent rates of globalization, urbanisation and technological advancements, the effects of modernization have been greatly accelerated. The question for architects and urban planners is; how can we retain the benefits of smaller, traditional, more socially connected cities whilst embracing the greater personal freedoms and innovation of larger cities?

The modern city dweller continues to share more of their lives online, and less in their immediate physical environment. In the cities of today, there is an increasingly altered perception of connectedness and community, in conjunction with the erosion of 'face to face' social networks.

Relationships that occur primarily online can often be artefact, superficial and benign, providing little support during personal crisis [11]. In the virtual space many of the physical interactions and emotional cues that restrain behavior and provide accountability vanish. Current psychological research shows we are in the middle of a narcissism epidemic [12]. Increased media consumption, longer working hours and commuting have amplified the pace of modern life and gradually weakened community and family ties. The result has been an increase in the reported cases of depression and loneliness in modern societies [13]. As societies grow larger, there is a tendency for people to retreat into more isolated living arrangements. Consequently, the population, area and density of communities requires sensitive planning, to ensure natural social groups can emerge at a variety of scales, from personal friendships to larger community organizations.

*"Even a less-than optimal daily dose of social contact can have a deleterious effect on our wellbeing, our mental acuity and our outlook on life: nothing keeps us on our toes like random, unplanned conversations. Reduced social interaction carries a hefty penalty, and online contact doesn't quite measure up as a substitute"*

*[11] Hugh McKay, The Art of Belonging*

Materialism has become the prevalent trend in today's cities, with damaging effect on the social fabric of neighbourhoods. Psychological studies have shown that after increasing people's exposure to the stimulants of consumerism, most obviously advertising, they are more prone to solitary pursuits, depression, anxiety, and less interested in social activities [14]. As people become more materialistic, their wellbeing diminishes, as they become less materialistic, their wellbeing rises [15]. These effects are most pronounced in newly emergent middle classes around the world. India, China and Brazil report the highest tendency to equate material goods with overall success and happiness [16]. Armed with this knowledge architects have an opportunity to design living spaces which are both a sanctuary from the stimulants of consumerism, and environments which counter the effects of consumerism. This can be achieved through more public, semi-public and semi-private spaces which support social cohesion and collective living patterns, with degrees of publicness tailored to communities and individuals.
There is a need for architects to design more imaginative living spaces with an increasing emphasis on public rather than private space. As cities grow, people are increasingly concerned with individual security and privacy, which has led to an architecture of social isolation. The accumulative effect of personal privacy and security measures, is the fragmentation and ultimate disintegration of the community in which it is located. The overlap of public and private spaces for socialisation has a huge potential to change the urban and social landscape. For example, as I discovered in the informal settlements, by utilizing a street as a public room it promotes casual surveillance, can help reduce street crime and improve neighbourhood security. This alleviates the need for physical security barriers allowing more regular informal face to face encounters to occur, thus strengthening the social bonds within the community.

**Photo:** *Akshay Mahajan, Dharavi*

# References


**1.** United Nations, World Urbanisation Prospects. 2014, United Nations (Department of Economic & Social Affairs): New York.

**2.** United Nations Habitat, State of the World's Cities; Prosperity of Cities. 2012 /2013, United Nations Human Settlements Programme: Kenya.

**3.** Hou, J., Now urbanism : the future city is here. 2015, London ; New York: Routledge. xiv, 313 pages.

**4.** Werthmann, C. and J. Beardsley, Improving Informal Settlements: Ideas from Latin America, in Harvard Design Magazine. 2008, President and Fellows of Harvard College: Cambridge.

**5.** TED Global, Teddy Cruz: How Architectural Innovations Migrate Across Borders, in TED Global Talks. 2013.

**6.** Murray, S., Housing, in Architecture Australia. 2007. p. How can the profession become more involved in the provision of general housing? Shane Murray outlines the context and the issues, suggesting that the housing industry, architecture and government all need to rethink their roles and procedures if we are to move forward.

**7.** al-Asad, M. Architecture for the Rich; Mere Shelter for the Poor. Urban Crossroads #77 2008; Available from: http://www.csbe.org/publications-and-resources/urban-crossroads/architecture-for-the-rich-mere-shelter-for-the-poor/.

**8.** Frenzel, F., Slum Tourism and Urban Regeneration: Touring Inner Johannesburg. Urban Forum, 2014. 25(4): p. 431-447.

**9.** Nuwer, R. Who Does Slum Tourism Benefit? 2015; Available from: http://www.pbs.org/wgbh/nova/next/earth/slum-tourism/.

**10.** Catling, C., Damned if You Do, Damned if You Don't: What is the Moral Duty of the Architect?, in The Architectural Review. 2014.

**11.** Mackay, H., The Art of Belonging. 2014. 296 pages.

**12.** Davidow, B., The Internet 'Narcissism Epidemic', in The Atlantic. 2013.

**13.** David Baker, A.M.G.P., The Price of Modern Life is Depression and Lonliness (Panel Discussion), in Festival of Dangerous Ideas 2014, A. Mossop, Editor. 2014.

**14.** Bodenhausen, G., Consumerism and its antisocial effects can be turned on or off. Association fro Phychological Science, 2012.

**15.** Kasser, T., K. Rosenblum, and A. Sameroff, Changes in materialism, changes in psychological well-being: Evidence from three longitudinal studies and an intervention experiment. Springer Science & Business Media, 2013. Motiv Emot (2014) 38:1–22.

**16.** Clark, J. and B. Duffy, Global Attitudes on Materialism, Finances and Family. 2013, IPSOS.


**Photo:** *(Opposite) - Ilia Kotchenkov, Rio de Janeiro Favela*

# Medellin, Colombia

## Colombia: Historical and Political Context

Colombia is known as 'the gateway to South America', bordering five countries (Ecuador, Brazil, Peru, Venezuela & Panama), the Pacific Ocean and the Caribbean Sea. Three extensive mountain ranges and large swathes of isolated and inaccessible territories have long made it a popular stronghold for contraband and illegal activities, and an extremely difficult landscape for a government to provide security and properly unify. [1]

La Violencia (The Violence) was a dark period of civil war from 1948 -1958 between the two prominent right wing parties, the Colombian Conservative Party and the Colombian Liberal Party. Bloody battles were fought between supporters, mostly in poor rural areas. The conflict was resolved with a political pact called the Frente Nacional, which allowed the two parties to share power regardless of the result of regular elections. This allowed the Colombian democratic system to be upheld during the 1970s and 1980s, a period of political and financial instability in Latin America, which saw many of Colombia's neighbours succumb to dictatorships. However, this also prevented leftist competition from entering the fray, heavily slanting the political landscape towards the right [2]. During the 1960's the government introduced a policy called 'Accelerated Economic Development' (AED), which promoted large scale industrialised farming techniques to increase harvests for export. The result was the mass dispossession of land of small scale farmers by way of dubious legal loopholes, causing the displacement of hundreds of thousands of farmers and their families.

*According to figures provided by the UNHCR, more than 5.7 million Colombian people have been internally displaced from their homes, second only to Syria on a global scale. [3]*

In direct response to these right wing polices, left wing guerrilla groups formed, most notably the FARC (Revolutionary Armed Forces of Colombia—People's Army) was established in 1964. As FARC gained power, right-wing paramilitary groups acting in 'self-defence' were organised by the Colombian military (on recommendations from the US Intelligence agencies), elite land owners, drug traffickers, politicians and multinational corporations.

In the 1960's and 1970's there was an explosion of worldwide demand for psychoactive drugs, which resulted in the rise of narcotics trafficking in Medellin. Of particular significance was the emerging cocaine market in the United States during the 1970's. The Medellin Cartel led by Pablo Escobar, was perhaps the largest drug supply and trafficking organisation in history, flying in coca base from Peru and Boliva for processing in the Colombian jungles and export to the U.S. mainland. Both the FARC guerrillas and the right-wing paramilitaries were used as 'guns for hire' by the drug cartels, culminating in a chaotic and prolonged conflict with the U.S. backed Colombian government, leaving many innocent Colombians caught in the cross-fire.

Nowadays Mexican syndicates control the global cocaine industry. In Medellin two major gangs share control of the narco-trafficking from the jungle in the south, north through the city toward the Caribbean coast and the Mexico connection. They generally maintain a lower profile and are less violent than the Pablo Escobar era (for as long as their truces are upheld). Smaller gangs work for these larger organisations.

Standing atop the barrio Jaun XIII, Comuna 13 a local resident tells me about the 'invisible walls' which still exist between different 'combos' (small gangs). They manage these smaller territories for low-level drug trade and extortion from local businesses.

The conflict and violence in rural areas controlled by FARC has forced a mass migration from the countryside to the cities, and the rapid growth of informal settlements. The signing this month (June 2016) of a peace treaty with FARC rebels, will hopefully end the 52 years of fighting which has resulted in an estimated 220,000 deaths. Colombia has never had a left-wing president, however the 2018 presidential elections hold some promise of a more balanced political system which could bring more stability to the region.

# Medellin: Historical and Political Context

*We are in a dance of life and death. Like tribal peoples, we continue to offer the gods human sacrifices. Unlike them, we expect no reward. The contract killers are our society writ large: 'we'll do anything to get our hands on money'. They are simply the open sore, the external symptoms of an illness which afflicts the whole body of society. Their actions pose essential questions about the coherence of the ethical and social basis of our society."* [4]

An excerpt from Alonso Salazar's book Born to Die in Medellin, describes a paralysed society in 1990. A time when Medellin was Colombia's drug capital, and the world's most dangerous city with the highest homicide rate on the planet. Salazar's interviews with teenage contract killers, families, priests and self-defence paramilitary groups who inhabited the hillside informal settlements, highlight just how remarkable Medellin's transformation has been. Salazar went on to become the Mayor of Medellin from 2008-2011. The storey of Salazar's and his predecessor, Sergio Fajardo's, rise to power is of particular interest to architects and urban planners the world over, as it is a story of repairing 'a torn patchwork of village cultures'.

In downtown suburb of La Alpujarra, the historic Medellin station is an emblem of the industrial revolution which transformed the city at the beginning of the 20th Century. The Antioquia Railway system took 55 years to build. When it was completed in 1929, it connected many of the central Colombian regions with freight and passenger trains. An explosion in the coffee industry in the following years would establish Colombia on the world economic stage. Coffee barons reinvested their profits into the textile industry which led to a prosperous the backbone of the economy which remains today. The paisas (people of Antioquia), are known for their business nous and tough negotiating prowess. There is a long running joke in Antioquia: ' Son make money honestly, but if you can't, make it anyway'. Today textiles, apparel, tobacco, flowers, agricultural machinery, steel, food products, chemical and cement all contribute substantially to the paisa economy. Medellin is also the most efficient power generator in Colombia, mainly through Hydroelectricity plants.



# An Independant Civic Movement

The success story of Medellin over the last 15 years is one of political change, supported in part by architectural intervention. In the late 1990's, after gaining political visibility with popular opinion pieces, Sergio Fajardo created the Groupo Compromiso Ciudadano (Citizens Commitment Movement), which sought to transform the city and create greater opportunities for its citizens. The movement included influential artists, thinkers, and businessmen including the journalist and writer Alonso Salazar.

In 2000 they caused a national stir when the party finished third in the election for Mayor. Instilled with confidence from this result, they expanded their contacts and began strategizing for the next election. In 2003, Fajardo, representing the ASI (Indigenous Social Alliance) won the election for mayor in a landslide victory, with an unprecedented 20 percentage point victory over the established political parties. This overwhelming public support was generated by grass-roots campaigning, in which Fajardo and his team literally walked the streets and listened to the most marginalised communities, operating on the slogan 'The way you campaign determines the way you govern'. Clientelistic networks had established breeding grounds for corrupt activities within Medellin's political elite, and in response Fajardo took a zero tolerance approach towards political patronage requests. This allowed him to avoid accumulating 'political debt' to special interest groups and big business [5].

Fajardo drew on his background as a professor of mathematics to methodically; recognise, define, and understand the problems he saw in his city before beginning to plan possible solutions.

He also understood the value of good design, which he inherited from his father who was a prominent architect, and head of the city's planning department. Whilst in office Fajardo managed to transform the city of Medellin, through record levels of social investments, a pronounced decrease in violence and crime, and social inclusion policies [6].

Fajardo finished his term in December 2007 with a 90 per cent approval rating and went on to become Governor of Antioquia in 2011. Medellin received national and international recognition for innovation. Fajardo is an excellent communicator and team builder, who has been widely credited for his leadership, however the transformation of Medellin was clearly not an individual effort. It was a convergence of a complex set of local political, social and economic conditions involving important contributions from many individuals. More broadly the transformation of Medellin is connected to regional economic change, decentralisation, the international crackdown on narco-trafficking and the resilience of the paisa people [7].

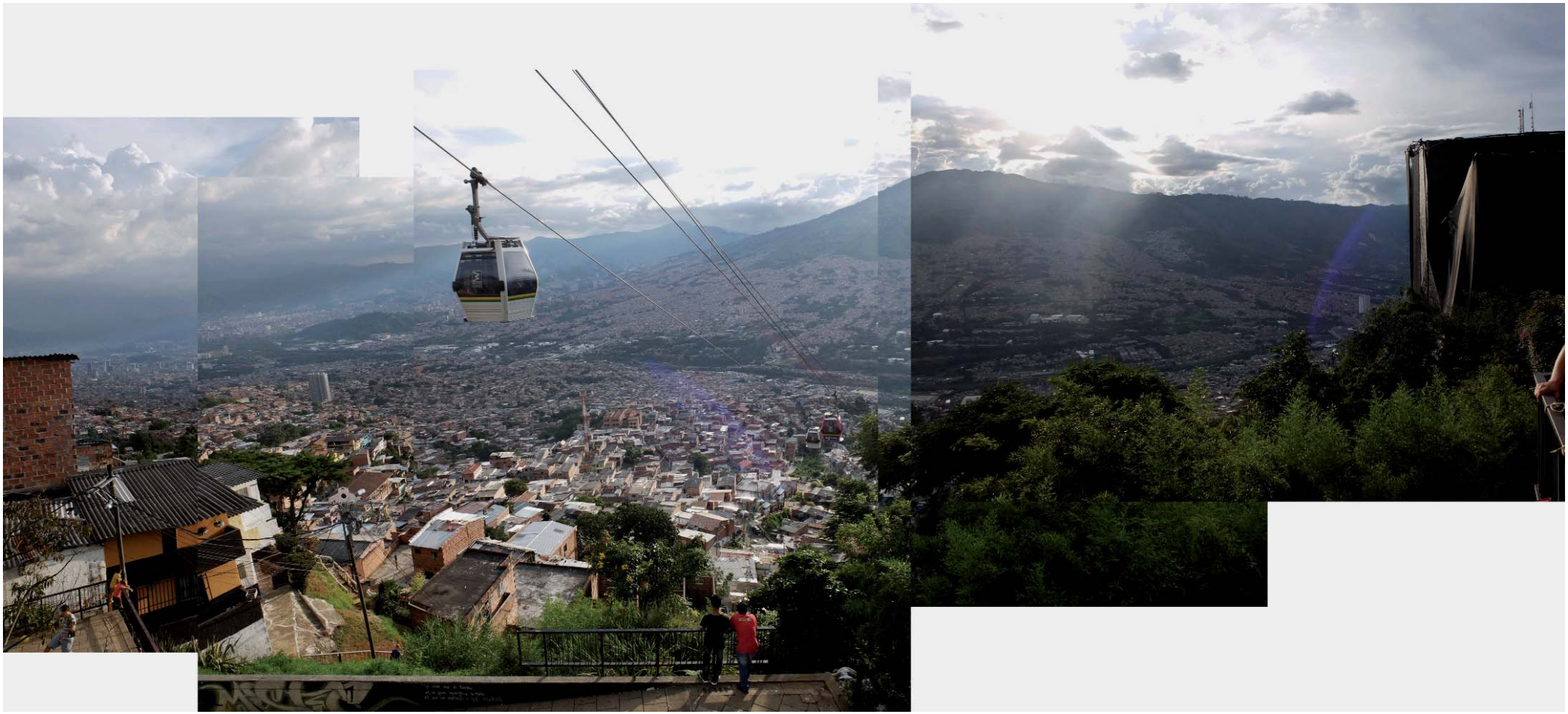
There is much for other cities to learn from Medellin's approach. Four overarching elements underpinning the city's success stand out to me. This are listed below:

**1. A serious political commitment to the urban poor and disadvantaged citizens.** This begun with the Citizens Commitment Movement and culminated in the city administration spending the largest portion of its budget on infrastructure and services for the poorest parts of the city [8]. 82 percent of the entire city budget goes to social projects, and in 2012 this amounted to more than US 1.24 billion dollars. The city council spends 400 million dollars on education; no other city in the Americas spends such a high percentage of its budget on education [9].

**2. Defining and communicating the central objectives.** Fajardo worked on the principle; "How you frame the problem, will determine how you work to solve it". In Medellin this mission statement was expressed succinctly as 'reducing inequality, violence and corruption'.

**3. Innovative methodologies (or tools) used to solve the cities problems.** The most effective and innovative were the Integral Urban Projects (Proyecto Urbano Integral, or PUI), which were physical, social and institutional interventions in areas characterised by a high degree of marginalisation, poverty and violence. The diagnostic and community involvement phases of these projects were essential to their successful implementation [10]. The details of which I will discuss further.

**4. Effective and transparent administration.** Prior to Fajardo, Medellin was, according to independent polls, the least transparent city regarding the public procurement process in Colombia. Fajardo often stressed that "transparency is the equivalent of trust, and that is the best political capital you can have." His administration was focused on building public trust, maintaining public support, and providing transparency around government decisions. High profile communication was used to create a new political dialogue with citizens, and made it very difficult for anyone to plan or effect dishonest practices. Every Thursday night Fajardo appeared on television on his show 'With the Mayor', during which citizens were invited to call and ask him questions. Of particular merit, was the commitment of the mayor's office to publishing all information related to the city's contracting processes online and issuing a formal report on all projects under contract at least once a year. Additionally, a 'Transparency in Contracting Fair' was held each year, during which the content, funding and tender process of each available contract for the upcoming financial year was discussed publically and in detail.



# The Integral Urban Projects (PUIs)

*'Changing the skin of the city to make the politics visible'*
*Chief Architect Alejandro Echeverri discussing PUIs [11]*

To understand the Integral Urban Projects (PUIs), you must first understand the history of Medellin's Metro (urban train) and the latter Metro-Cable (a gondola lift system). Since 1995, Medellin has enjoyed the only Metro (urban train) system in Colombia, and one of only 19 in Latin America. It provided a much needed structural transport axis along the Medellin River, and new urban development of public spaces around the stations. However, due to the steep topography, the Metro could not connect the poorest hillside barrios with the rest of the city. There were also allegations of corruption during construction and major cost overruns which ruined the city's finances. During my visit, I noticed that there was no graffiti on any of the Metro carriages, which was due to the high level of public pride in the system.

The first Metro-Cable, Line K to Santo Domingo, was built by Luis Perez (mayor from 2001 to 2003) as he wanted to build a symbolic project which would help rebrand the city. Though their capacity is limited compared to other transport modes, aerial cable-car systems are relatively cheap and quick to construct. Line K cost US$26 million, carries 30,000 people daily and is integrated into Medellin's other mass transit systems. Before the Metro-Cable was built, the only options for residents to descend from the hilly informal settlements were infrequent, unreliable buses or journeying on foot, which could take multiple hours. It cut a typical journey from Santo Domingo to downtown from 2.5 Hours to 45 minutes [12].

During the Metro-Cable planning phase, local Architect Alejandro Echeverri voiced his concern about the effectiveness of the project in a series of critical articles. His view was that without an integrated ground-level development which connected all the fragmented neighbourhoods, the aerial cable car would have limited impact. This caught Fajardo's attention, and he brought Echeverri on board as a key advisor and designer. Fajardo was similarly critical of the original metro-cable proposal, citing the real problem as poverty, violence and a lack of opportunity; not mobility through transport. Together they came up with the holistic approach of the PUIs and discussed ideas of 'urban acupuncture' [13]. Often well-intentioned social projects risk being diluted by the severe social problems, but by bringing together

different elements of development (education, health, transportation, infrastructure, security, housing and public space), and implementing them simultaneously the Fajardo administration was able to diversify this risk.

*"One of the great problems of public administration is how to execute good ideas, and in any administration there are great ideas. The issue is always how to execute them"*

*Alejandro Echeverri [11]*

## North Eastern Urban Integration Project

The North Eastern Urban Integration Project was the first PUI. The project covered an area approximately 130 hectares, within which 200,000 residents lived [10]. The site was selected to be reinforced by the new K Line Metro-Cable, and is located in two of the poorest comunas (districts). These Comunas had an unemployment rate of 60% in 2005, remarkably higher than Medellin's unemployment rate of 13% [14]. Public spaces, housing, roads and pedestrian infrastructure were of poor condition or non-existent in these hillside informal settlements. At the centre of the PUIs was the improvement of public spaces and access, fuelled by participatory processes and complemented by social programs. The many different 'integral' projects consist of many different scales, including stairs, paths, bridges, sporting fields, libraries, parks, plazas, creek and environmental restorations. The total public investment for the project during the period 2004 – 2007, was over 600,000 million Colombian pesos ($320 million US dollars). The PUIs are a decentralized model of intervention, in other words the Fajardo administration transferred some of the responsibility for planning, financing and managing of the projects to communities and the private sector [10].

During the first year in office the diagnostic phase was very important, with Fajardo stressing the principle that they were 'planning in order not to improvise". Mapping and analysis of existing roads, available land, public space, sidewalks, topography, land-use patterns, landmarks, density and building heights allowed the team to greater understand the physical conditions. In parallel, social workers were the 'face of the project', opening a dialogue with the residents, identifying and analysing existing community organisations and representatives. They brought on board 110 community organisations (these going from youth groups to environmental ones) and 245 community leaders [10]. Peace agreements were struck with local gangs, which included assigning demolition contracts of houses to gang members and making them part of the social programs.

Participatory planning was used to transfer partial authorship of the designs to the community, which ensured they were invested in the outcome. Workshops where held where the whole community was invited to propose ideas. Participatory budgeting was another innovative approach, allowing local communities to collectively determine how to use 5% (US $16 million) of the municipal budget designated for investment in these areas. The community's active participation created buy-in and consensus. There was a concerted effort to set realistic targets and deliver on promises in order to garner community support.

*Alejandro Echeverri, describes this process; 'to come to work in these neighbourhoods where there was great scepticism was very hard at first. But we created a space by making small commitments and meeting them.' The collective outcome of these processes were known as 'civic pacts'*

*between the city administration and the local neighbourhoods or communities who were most effected by the proposed project.*

Fajardo mobilized many sectors of society around the emerging consensus that social integration was essential to lasting peace and sustainable progress in Medellin [15]. One of the key tools for transformation was education, and the private sector had an important role to play.

*"We mobilized everyone—business leaders, universities, private schools—to start working in the public education system. We increased spending on education to 40 percent of the municipal budget. We also built a lot of new schools and five 'library parks' in the poorest neighbourhoods in the city. These are not just libraries; they are community centres, the new axis of the neighbourhood. And we made sure that they were beautiful, with spectacular architecture"*

*Sergio Fajardo*

Under Fajardo's leadership, university students assisted with urban renew projects, private engineering firms provided services free of charge, and private schools worked to administer public schools in disadvantaged neighbourhoods. After the success of the original five Library Parks that were built by 2008, five more were built by 2011, benefiting around 784,000 people from all corners of the city. Whilst these improvements to Medellin's education system were a welcomed success, there is still a long way to go. 80% of the cities students go to public schools, which operate under the doble jornada (double school day). Schools cannot cater for the number of students, so the day is divided into two sessions for two groups (6am until 12:30pm and 12:30pm until 6pm). The result is school children hanging around on the streets in the mornings and afternoons waiting for class, which has a detrimental effect on attendance, quality of education and security [13].

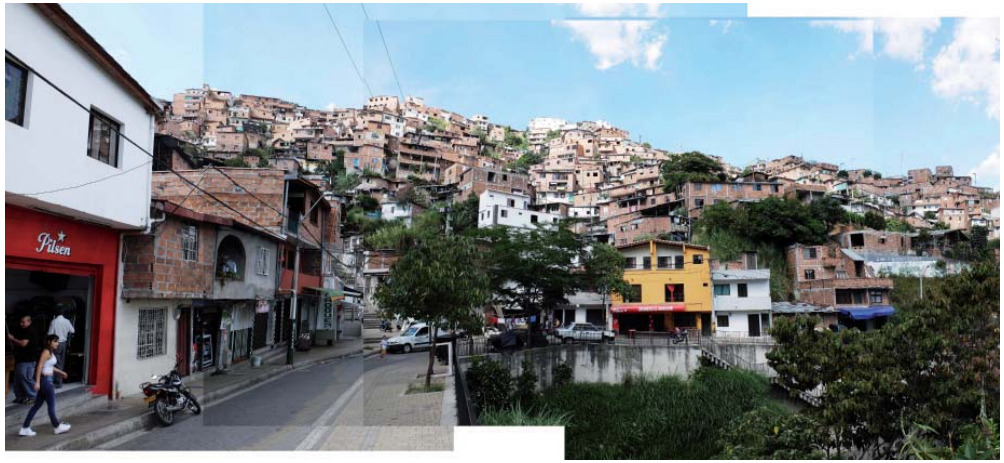
Key projects finished by 2007:

**The Parque Biblioteca España** (Spain Library Park) was designed by renowned Colombian architect, Giancarlo Mazzanti, and cost approximately US $4 Million which was partially funded by the Spanish Government. The library has three different areas for kids, young people and adults, public Internet centres, an auditorium, rooms for expositions, workshop rooms and day-care for children. This approach treats libraries as another dimension of public space [10]. When I visited, the library was undergoing a reported US $3.6 million worth of repairs to its faulty façade system.

**Parque Lineal La Herrera** - The purpose of the project is the environmental restoration of La Herrera stream, a natural corridor that cuts across the entire intervention area. The course of the stream has been highly compromised and its waters are severely polluted. The project reclaimed the degraded spaces, facilitating environmental restoration and the creation of public spaces designed for the community's enjoyment [16].

**Puente Mirador (Lookout Bridge) & Puente de la Paz (Peace Bridge)**. The addition of pedestrian bridges is intended to improve connectivity between neighbourhoods, often limited by the large number of streams and natural basins found in the area. This first bridge, located over the La Herrera stream, improves travel times to and from the Metrocable station and has become a new public space and meeting place between previously separate areas. New housing is being constructed at the entrances to both bridges [16].






**CEDEZO (Centre for business development of the district)** that supports small businesses of the area based on training, assistance, micro-credit and business events [10].

**Unidad deportiva de Granizal (Sport Center Granizal)** that turned an old run-down football field into 3 new football fields, 6 retail shops and public bathrooms [10].

**Paseo Urbano de La 107 (Urban Promenade).** This project redefined the area's public space to create a pedestrian promenade and build a park close the street. 107th Street is a straight road of 660 meters between the river and the Andalucía station. A 19-meter commercial corridor experienced a great increase in activity, becoming a popular meeting place [16].

**Paseo Calle 106 (Urban Street Promenade).** This is first street promenade project of the area, connecting La Candelaria Park, CEDEZO, Puerto Rico street, Mirador Park, Children's Park, and the Santo Domingo Library. The project emphasizes pedestrian movement and involves urban furniture, tree plantings, and paved streets. The street level is a fundamental space of social life, and the local economy is encouraged with the improvement of street and sidewalks [16]. When I visited this area in Santa Domingo commerce was booming. There was a festival during one of my visits, on one of Colombia's many public holidays, and the streets were full of people.

The key success measures are:

**5 new Library Parks** (Parque biblioteca) were built from 2005 to 2008, followed by additional 5 from 2009 to 2011. They are estimated to benefit around 784,000 people from all corners of the city. Providing vital cultural and educational spaces in the poorest neighbourhoods.

**The growth of public spaces** from 97,000 sqm in 1950 to 222,000 sqm. A 129% increase [10].

**The improvement of pedestrian mobility** that grew from no formal paths to 3,235 linear meters of paths and corridors [10].

**18 new parks**, 8 of which were built in neighbourhoods that had never had access to a park [8].


**Photo:** *Sergio Lubezsky - Santo Domingo, Medellin*

After Fajardo's Deputy Mayor, Alonso Salazar, took over the office of Mayor, he consolidated and advanced Fajardo's reform agenda and implemented several new PUIs. The second was is comuna 13 (Western District) , which was known as the most popular route through the Andes Mountains to the coast for arms, drugs and contraband. Gangs fought bloody wars for territory, making it one of the most dangerous areas in Medellin. Whilst the drug gangs still control much of the hillside, conditions have improved. Comuna 13 now features a library park, Metro-Cable and outdoor escalators, along with the fine-grain physical and social infrastructure delivered by the PUI. Under Salazar, a third PUI started in Comunas 8 and 9 (Eastern Districts) , and a fourth was planned for Comunas 5 and 6 (North-Western districts).

Even a truly innovative and proven approach to social inclusion, like the Integral Urban Projects (PUIs), is subject to political interference. This is demonstrated by Alonso Salazar's successor, Aníbal Gaviria, who campaigned on continuity and was elected on the same party ticket as Fajardo. However, during his time as mayor (2012-2015) he deviated from his predecessor's vision and methods, doing away with the PUI approach [13]. Instead he focused on a massive civic project called 'The Medellin River Park' (Parques del Río Medellín), which plans to re-develop 20km of riverbank over 15 years, including burying part of the city's major highway in order to concentrate the growth along the valley. The project is a huge financial gamble, estimated to cost more than US $1.8 Billion. It has begun in the neighbourhood of Conquistadores which contains mainly elderly residents, and benefits from an existing network of interconnected parks and public spaces in the adjacent suburb of Laureles. When I sat down with local architect Camillo Restrepo, he expressed his concerns; "It's not the right time for a project of this scale", suggesting the money would be better spent on a series of small precise inventions, urban acupuncture. He also stressed the importance of securing funding to maintain the social programs established as part of the PUIs and Library Parks. By refocusing on top-down planning strategies the city is neglecting the bottom-up engagement which helped revive it, and therefore runs the risk of undoing all the positive improvements of the last 12 years.

# Life Articulated Units (UVA)

### Public Enterprises of Medellin (EPM)

Medellin's transformation was largely possible due to the City's uniquely profitable and well run public utilities company. Empresas Públicas de Medellín (Public Enterprises of Medellin or EPM) was established in 1955 as residential utilities company which served the residents of Medellin. Whilst many municipalities in Colombia (and abroad) privatised their public utilities, Medellin held onto theirs and developed it into a multi-national corporation, which is now Colombia's second-largest enterprise. Nowadays, EPM is operating 48 different companies in seven Central and South American countries, and provides gas, electricity, water, wastewater treatment and telecommunications services. The company is 100% owned by the city of Medellin and the mayor serves as Chairman of the Board of Directors and appoints the CEO and other Board members. The commercial position of the company is not compromised because it operates as a private company. EPM pays taxes like any enterprise, and the city pays for utility services just like any other customer. This unique structure has allowed EPM to play a strong role in the city's transformation and success, as it is mandated by law to contribute 30% of its profit to the city budget [17]. In 2014 this was US $600 million [8]. These funds are largely spent on social investments. The success of EPM stands as an attractive alternative for cities contemplating privatisation.

EPM's numerous social projects benefit low-income families, and they include; subsidized power and gas connections, rural electrification initiatives, water and energy prepayment, educational programs, and numerous urban projects. Of particular interest to me whilst I was in Medellin were EPM's urban interventions in disadvantaged neighbourhoods called Unidad de Vida Articulada (UVA or Life Articulated Units). The word 'uva' translates to grape in Spanish, and is meant to evoke a trellis like network across the hillsides barrios.

## Life Articulated Units (UVA)

There are 20 UVA sites planned, with four currently complete as of 2015. INDER (Institute of Sports and Recreation Medellin) will build 8 sport and recreation centres, whilst EPM will build 12 social infrastructure projects around existing water tanks, sites which currently lie dormant. Whilst in Medellin I visited three UVA's: UVA de Los Sueños (The Dreams) in Batallon Girardot, UVA La Alegría (The Joy) in El Pomar and UVA La Libertad (The Freedom) in San Antonio & La Libertad. EPM's Departamento de Intervenciones Urbanas Sostenibles (Department of Sustainable Urban Interventions or DIUS) manage these projects. The in-house collaboration between a diverse multidisciplinary team of architects, urban planners, engineers, biologists and social workers enables DIUS to successfully deliver incredibly complex urban interventions with the community onside. I met with two DIUS Project Architects, Camilo Restrepo Villa and Leidy Ossa at the EPM headquarters in Medellin, to discuss the UVA projects.

The tank sites identified for the project were all large gravity-fed water supplies for domestic use, and were originally located outside the city. Rapid urban growth saw these sites surrounded by informal settlements.

When viewed from above, some of the tanks look like 'black holes' in densely populated urban areas, holdings great potential for much needed public space.

Potential tank sites were categorized into three types: public (no fences, generally in rural areas), semi-public (fenced but with restricted access, and private (fully fenced, no access). The private fully fenced tanks were usually in the most densely populated zones. The decision of which of these potential sites to develop was based on the needs of the population, population density, surrounding housing, access and proximity of the population.

Both Camilo & Leidy were quick to point out that EPM see this as a community-led design facilitated by the DIUS team. During the pre-design meetings, each member of the community was given a blank piece of paper and was asked to simply draw or write exactly what they wanted. No constraints were placed on what could be included. Some of the proposed ideas were not feasible, but what was achievable was explained at each design stage to the community by social workers. For instance, during community meetings for UVA de Los Sueños many children drew swimming pools and water slides, but unfortunately these weren't within the project budget, so the DIUS team designed jets of water for the children to play in and slides within the concrete steps which were very popular. The community also requested a communal laundry, which has now become a popular meeting point. Informing the community and requesting feedback regularly during the design process was critical to gaining their trust and consensus to proceed. Social workers engaged by EMP continue to monitor the success of the project after its completion.

One specific example of the success of was a lady living in a small house adjacent to the site began selling lunch to the construction

workers. After the project was completed she used the money she had saved to open a general store selling ice creams and offering photocopying and printing services, she was then able to afford to add a second storey to her house, which she now rents out for additional income.

The UVAs faced many difficulties, the major being the fast-tracked program to meet Mayor Fajardo's four year deadline for public projects. This deadline was created to ensure projects were completed during one term of government, and could not be derailed by rival political parties should power change hands. However, Camilo mentioned that comparable projects would be developed over 6-8 years in countries like Spain or Portugal, where he had previously worked. This 'rush' posed a potential for project failure if the community was not fully supportive.

One project which was not successful during community consultation was in the Corregimientos (township) of Altavista in the Southwest of Medellin. After being approached by EPM to develop a UVA site, the community rejected the proposal due to pressure from the combos (street gangs) who used the proposed site as a lookout point for police raids. There was also apparently some suspicion within the community about the use of public funds for such projects.

Administration of the facilities was another important factor, and critical to the long-term success of projects like UVA. When we visited UVA Los Suenos there were two staff, the EPM facility managers wearing green vests and the City of Medellin's security staff wearing blue vests. The risk with these projects is that with a change of government the current staff who have gained the trust of the community are removed, thus jeopardizing the established social programs, educational classes, security and access to facilities. Camilo Restrepo echoed this concern, "The best legacy the next mayor could leave the city would be to solidify and maintain the current community programs. Building more projects too quickly may be counter-productive if the established projects aren't maintained and administered successfully. The projects are very fragile and it doesn't take much for the social fabric to be torn again."

Eleven of the twelve sites were designed by the DIUS team at EPM, however a design competition was held for the twelfth site where EPM has two water tanks bordering five neighbourhoods. The young Cali architects Colectivo 720 won the competition and their design for UVA Orfelinato (orphanage) won the Holcim World Gold Award in 2015. Unfortunately, the project was presented as an individual intervention, rather than a network or 'trellis' of interventions, as it was originally conceived.

The UVAs are a very clever re-purposing of 'left-over space', but unlike the PUIs were often not strengthened by major transport infrastructure. This was most noticeable when I visited UVA La Libertad, and our taxi could not reach the site because the streets were too steep. After being shown around the facility, we had to walk 10 minutes, and catch a 45 minute bus down the mountain to the metro station. The UVA process is particularly resourceful because these dormant tank sites don't displace existing residents in the same way major infrastructure projects do. However, without the same focus on access and mobility as the PUIs, the effect of the UVAs is somewhat more limited.

# Public Infrastructure or Public Housing

All citizens have the right to adequate housing and standards of living. However, current housing models raise the questions; who is best to determine what 'better housing' is? Who will provide this housing? How will they do it? And, who will occupy it [18]? Considering these questions, 'social urbanism' as adopted by Medellin, stands as an alternative model to conventional public housing initiatives. Social urbanism is a term coined by Medellin around 2003 to describe the investments in public infrastructure as a culmination of political, architectural, urban planning and community collaboration to achieve physical and social improvements.

## Public Housing Issues

Many citizens believe governments should simply expand their public-housing programs to meet the growing demand for housing. There is no question that public housing is an important safety net for the most vulnerable in the community including the elderly, people with a disability or mental health illness, and carers. However, there is a second group of people called the 'opportunity group', which includes families, job seekers and young people. These people, when given the right opportunities, could be independent of government support. Public housing has the potential to entrench disadvantage amongst the 'opportunity group', by providing an incentive to avoid improving skills and gaining work, which will jeopardise their eligibility for government assistance [19]. Currently an increasingly unaffordable private rental market for people on low incomes is driving up the demand for social housing amongst the 'opportunity group'. Public-housing programs interfere with the capacity of capable individuals to house themselves adequately, and are used as a 'quick fix' by governments looking to avoid addressing larger structural problems within society.

Decisions made at the taxpayers risk and expense are inevitably less efficient and cost effective than the private sector who face a competitive market and bear the cost and responsibility for their mistakes. Exorbitant amounts of funding would be required for governments to meet the housing demand. I visited a few public housing precincts in Medellin, which consisted of high-rise buildings on the periphery of the city, with little access to public transport, education or employment opportunities. Some government housing in more convenient locations had resulted in displacing existing residents. It is clear that the most rapid and economical method of providing adequate housing is through the private sector, in particular by engaging with individuals capacity to build themselves.

## Social Urbanism: Public Infrastructure

One effective way to produce something that people don't want, is to interfere with the market. In Medellin, when the government gives people housing as a hand-out, people simply sell the apartments and invade other's land, creating a new informal territory.

*"These people will solve their housing needs if they are given proper social and economic opportunities, and public infrastructure plays a critical role in developing this."*

*Colombian architect Camilo Restrepo*

Whilst in Medellin I met Camilo, principal and founder of AGENdA Agencia de Arquitectura, and design critic at the Harvard Graduate School of Design at his studio. One of his most well-known projects is the Jardín Botánico (Botanical Gardens), which he designed in Collaboration with Plan B Architects. Originally a conflict zone or 'invisible frontier', they created a created a porous membrane to facilitate change. Hexagonal petals clad in reclaimed pine form

a latticed canopy, and serves as meeting place for people from all corners of the city. Camilo expressed his concern about the current approach to social housing: 'It's not the role of the government to provide housing for everyone'. But instead government must invest further in social infrastructure such as the PUI projects, to increase their capacity to enter the housing market.

## Land Tenure

Legalisation of informal settlements is an important process to include residents in the formal city, and encourages in-situe upgrading through secure property rights. I visited the Servicio Civil (Civil Service) offices at the Faculty of Architecture, University UPB Medellin, to discuss the application process for land tenure with volunteer, Julian David Gomez Escudero.

*The Servicio Civil offers technical advice for solving housing and temporary shelter problems with preferential assistance to people with low economic resources, and non-profit institutions, and is a compulsory subject for graduating architectural students.*

Whilst visiting barrios de invasión in Medellin it becomes apparent quickly that the poorer residents occupy land on the steepest parts of the mountains, most prone to mudslides and long walks from roads or Metro-Cable stations (if there is one). They had often built small lightweight timber, tarpaulin and sheet metal shelters, with no (or limited) access to sanitation, water and electricity. Reducing times on tenure applications, would allow these residents to more quickly transition to safe and secure housing, and for the city to more closely monitor the most vulnerable in these communities.

Julian explained that students provide measured drawings of the house or shelter, and also advice about the process to gain land title. Plans, Land taxes, public services certification are all checked and ensure they are up to date. The average tenure application process takes 3 years, and involves three steps; first attaining a house number for identification, then producing the ownership documents, and finally registering the property. Although most residents don't have the resources to pay the levees or time to apply for planning permission, it is required by the city of Medellin. Buildings which do not comply are technically illegal, and have no secure tenure. Organisation such Mejoramiento Integral de Barrios (Integral Neighborhood Improvement and Legalization of Settlements or MIB) also work on these issues at larger scales. By expanding the coverage of their land titling program the government could ensure more residents of informal settlements are recognised within the urban context of a city.



# Learnings from Medellin

Overview:
Alejandro Echeverri described the architectural expression of social urbanism in Medellin as a process of 'changing the skin of the city to make the politics visible'. My time in Medellin was spent observing the effects of this city wide political and social movement, and the architectural interventions which acted as a support mechanism. The city's recent political transformation was certainly the most interesting factor to study, and exemplified the importance for architects to participate in political discourse and community led design. Without a level of political activism architects cannot be participants in meaningful social change.

Key lessons were;

**1. Public Infrastructure more effective than public housing.** The government's role is not to provide housing for everyone, as this will never be possible. Instead, by focusing energies on social and economic opportunities through innovative public infrastructure, governments can instead increase a larger population's capacity to enter the housing market.

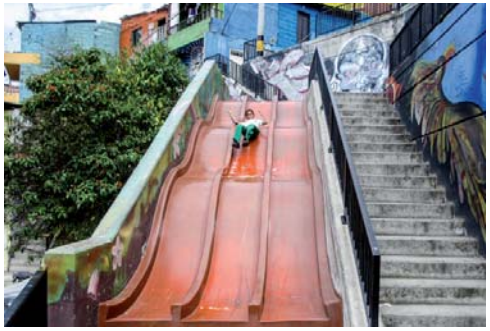
**2. Multi-facetted Social Projects.** Often well-intentioned social projects risk being diluted by the severe social problems, but by bringing together different social infrastructure (education, health, transportation, infrastructure, security, and public spaces), and implementing them simultaneously the Fajardo administration was able to diversify this risk.

**3. Decentralized model of intervention.** By transferring some of the responsibility for planning, financing and managing of the projects to the actual communities and the private sector it created both buy-in and consensus.

**4. Long term political continuity and commitment critical.** Without long term funding commitments to maintaining the social programs in the PUIs, Library parks and UVAs and community centres there is a risk that the positive social improvements might be short lived.

**5. Re-purposing of 'left-over space'** is an effective way to avoid displacing existing residents in order to provide sufficient public infrastructure for social improvement.

**6. Secure Tenure for informal settlements dwellers.** By expanding the coverage of their land titling program, the government could ensure more residents of informal settlements are recognised within the urban context of a city.



# References


**1.** McDermott, J. and S. Dudley. Colombia. Insight Crime, Investigation and Analysis of Organised Crime 2010; Available from: http://www.insightcrime.org/colombia-organized-crime-news/colombia.

**2.** Wolde, S. Colombia May See Rise of Left Wing Populism. 2015; Colombia could see the rise of a firebrand leftist leader, much like Venezuela, Ecuador and Bolivia. The country has all the fundamentals: a political spectrum leaning strongly to the right, high income inequality, and an unravelling party system. And paradoxically, peace with the FARC guerrilla group will only bolster left-wing populism.]. Available from: http://globalriskinsights.com/2015/02/colombia-may-see-rise-left-wing-populism/.

**3.** The World Bank, Colombia Urbanisation Review. 2012.

**4.** Salazar J, A., Born to die in Medellín. 1992, London: Latin America Bureau. v, 130 p.

**5.** Kurtz-Phelan, D. Q&A: Medellin Mayor Turns City Around. 2007; Available from: http://www.newsweek.com/qa-medellin-mayor-turns-city-around-96755.

**6.** Villa Moya, N. Sergio Fajardo, a political biography. 2013; Available from: http://www.colombia-politics.com/sergio-fajardo-a-political-biography/.

**7.** Andrews, M. and A. Fajardo, Does Successful Governance Require Heroes? The Case of Sergio Fajardo and the City of Medellín. 2014, UNU-WIDER (United Nations University). p. 13.

**8.** Nolen, S., 'Social urbanism' experiment breathes new life into Colombia's Medellin, in The Globe and mail. 2014: Medellin, Colombia.

**9.** Fink, A. and L. Zanetti. How the Colombian city of Medellín liberated itself. 2013; Available from: https://www.credit-suisse.com/us/en/articles/articles/news-and-expertise/2013/08/en/medellin-liberated.html.

**10.** Martin-Onraët, V. The PUI Project – Medellin. Development through Anthropology - De-Essentializing Development, Development without Stereotypes 2014.

**11.** Echeverri, A., Innovations for Successful Societies, M. Devlin, Editor. 2009.

**12.** Joseph, C. Medellín Metrocable improves mobility for residents of informal settlements. The City Fix 2014; Available from: http://thecityfix.com/blog/medellin-metrocable-improves-mobility-informal-settlements-low-income-accessibililty-equity-development-coby-joseph/.

**13.** Swope, C. How Medellín revived itself, Part 4: the road to "most innovative city". Citiscope - Breakthroughs, trends and innovations from cities around the globe 2014; Citiscope is a nonprofit news outlet that covers innovations in cities around the world. More at Citiscope. org.]. Available from: http://citiscope.org/story/2014/how-medellin-revived-itself-part-4-road-most-innovative-city.

**14.** Blanco, C. and H. Kobayashi, Urban Transformation in Slum Districts through Public Space Generation and Cable Transformation at North-Eastern Area: Medellin, Colombia. The Journal of International Social Research, 2009. 2/8.

**15.** Lowenthal, A. and P.R. Mejia. Medellín: Front Line of Colombia's Challenges. Voices from the New Generation 2010; Politics, Business and Culture in our Hemisphere].

**16.** Harvard University, G.S.o.D. The Northeastern Urban Integration Project. Veronica Rudge Green Prize in Urban Design 2016; Available from: http://www.urbandesignprize.org/past/medellin.

**17.** Merin, C., A. Nikolov, and A. Vidler. Local Government Handbook: How to Create an Innovative City. Knowledge @ Wharton - Public Policy 2013; Available from: http://knowledge.wharton.upenn.edu/article/local-government-handbook-create-innovative-city/.

**18.** Poirot, P. Is Public Housing Necessary? Mises Daily Articles 2010; Austrian Economics, Freedom & Peace].

**19.** Government, N., Future Directions for Social Housing in NSW. 2016.


*Juan XXIII (Comuna 13)*

# Rio de Janeiro, Brazil

## Historical and Political Context

Rio de Janeiro is an urban archipelago, a series enclaves separated by spectacular monolithic granite domes, lagoons, Atlantic rainforest and the undulating coastline of Guanabara Bay and famous beaches.

Of Rio's 6.3 million people, 1.4 million live within the 763 favelas. This means one in five Cariocas (Rio locals) reside in a favela. The city is divided into the morro (the informal hillside city) and the asfalto (asphalt flats of the formal city).

The dense urban fabric of Zona Norte and Zona Sul (northern & Southern suburbs) is in contrast to the sprawling, largely underserviced West Zone where much of the government's public housing initiatives are. In the 1960s and 1970s, Rio razed many of its favelas and relocated residents to the outskirts of the city. Brazil's first attempt at large scale public housing (known as MCMV) began in 2009, with Rio projecting 100,000 new homes for low income families by 2016, over half of these to be located in the West Zone [1]. These have been widely criticized by residents for lacking transport links, local employment opportunities, adequate public infrastructure and the presence of local militia.

Armed drug gangs control large areas of Rio's favelas. Over the last few years Brazil has become the world's largest market for crack cocaine and the second largest for powder cocaine, as well a key shipment route for the Trans-Atlantic market. Many see the constant violence between gangs over territory as evidence of the counties failed 'war on drugs' [2]. Recently there have been calls for drugs to be legalised and regulated on the basis of the harm drug trafficking does to poor communities, particularly in the Favelas.

In December 2008 Pacifying Police Units (Unidade de Polícia Pacificadora, UPP) were launched to reclaim territories which had long been neglected by authorities and were controlled by gangs. Incidents of excessive force, police corruption and the lack of follow up investment in social programs and infrastructure, have been widely reported. The UPP is the single largest government spending in the favelas of Rio, however most of the UPP's have targeted lucrative, centrally located favelas, simply displacing the drug trade and violence to the poorer periphery of the city. As of the end of May 2014, the program has reached approximately 264 separate favelas, with residents of these neighbourhoods experiencing greater mobility and personal safety, and allowing local businesses, social services and investor's access to previously unstable areas. The Pacification projects have arguably done as much harm as good.

According to figures from Rio de Janeiro city government, 22,059 families have been resettled from Rio's favelas since 2009, either because of their homes have been labelled 'at risk' or to make way for transport and other infrastructure projects related to the Rio 2016 Olympic Games [3].

The UN has criticised the Brazilian government's eviction policies on human rights grounds. Whilst politicians spin the upcoming Olympics as a catalyst for change, and an excuse to move forward more quickly with an already established agenda. The real motive for forced evictions in many areas of Rio is property speculation, and the gentrification process that has followed the UPPs has displaced many more residents to the periphery of the city.

The term 'favela' describes a diverse range of living environments, in some poverty is extreme,


**Photo:** *The Drifter - Police in the Favela*

**Photo:** *Marcello Finardi- Working in the Favela*

whilst others are similar to any other low income neighbourhoods in the formal city. Underinvestment in basic services and misplaced investment in public infrastructure is contributing to the poverty levels in favelas. 30% of Rio's population is not connected to a sanitation system (that's 1.9 million people), and in areas with formal connections only half the sewage waste is treated before entering local waterways and the Atlantic Ocean. This does not even account for some of the informal areas, therefore sanitation connection rates are likely much lower. Transport is also a highly contentious issue. The Metro-Cable in Complexo do Alemão and Providência (and the planned construction of one in Rocinha) were inspired by the model in Medellin. However, not all residents believe this a wise use of the money. "It's an unwanted gift," says José Martins de Oliveira, a Rocinha resident. These cable cars can cost hundreds of millions of Reais and many believe their construction caters primarily to tourists. Residents want improved sanitation and education [4]. Many residents have called for a more participatory design and budgeting processes, so that funds can be directed more effectively.

Income disparity continues to widen in Brazil. In 2003 the Worker's Party, which is one of the largest left-wing movements in South America, led by former president Luiz Inácio Lula da Silva (2003-2011) implemented the innovative Bolsa Familia (Family Allowance). It provides financial aid for poor families on the condition children attend school and have regular health checks, and is the largest programme of conditional cash transfers in the world. The programme has two goals, in the short-term to address the immediate issues of poverty, and in the long-term to address the trans-generational cycle of poverty by targeting education and health. The program is estimated to have increased income by 15-20%, but critics have argued this may have been equally caused by Brazil's transformative economic growth from 2002- 2008. Most recently the Workers Party, led by Dilma Rousseff, has been rocked by the Petrobras corruption scandal, which has posed serious questions about the government's integrity and the legacy of president Lulu.

*Rocinha: The largest Favela in Rio*

# Gentrification of Vidigal

During August 2015 I visited Vidigal, a relatively small favela in the South Zone, consisting of approximately 10,000 residents, perched on the hillside below the Morro Dois Irmãos (Two Brothers Hill). It is a community which prides itself on local culture and tight-knit social networks. Like all Favelas, much of the infrastructure and services were collectively developed by the residents over generations, without the support of government. With views of Ipanema Beach it holds claim to some of the world's most sought after real estate. Vidigal is only a short walk from Leblon, Rio's wealthiest suburb which contains some of the most expensive property in South America.

After pacification (reclaiming of territories from gangs) in 2011, the neighbourhood is changing rapidly. Vidigal has become a hotspot for artists, university students, and gringos (foreigners). What brings the estimated 1000 new residents are the beautiful views, convenient location and relatively cheap rent. The tourist sector has grown substantially, with many new hostels and hotels being built. One of the latest boutique hotels is charging up to 300 Reais per night ($120 AUD). New bars built by outside developers hold exclusive parties marketed at wealthy young Brazilians and tourists, charging entry fees which make them inaccessible to most locals. As a result of this gentrification, many long-term residents face economic eviction due to escalating property prices, which drive property speculation, rent hikes and an increased cost of living. Some conservative estimates have property prices about 40% higher than they were pre-pacification, and rent has tripled [5].

Gentrification of informal settlements raises a complex question; how can the city improve conditions for long-term residents without economically and culturally evicting them in the process? Development without displacement? Once conditions are improved in any neighbourhood, it inevitably becomes a more attractive prospect for outside developers and subject to the same market forces that operate in other areas of the city. On the one hand gentrification is the unavoidable by-product of progress, which brings upgrades to community infrastructure and services. On the other hand, the unique character and community of a neighbourhood is fundamentally changed through a set of social, physical and economic processes which force poorer residents to migrate to other areas of the city. Important organisations such as Vidigal's long standing samba schools are threatened. Urban planning policy is often singled out as the root cause, whereby low-density neighbourhoods in desirable

locations are unable to meet the demand of a growing middle-class. This prices the middle class out of the more affluent neighbourhoods, which they would have otherwise chosen to live in, and forces them to look elsewhere. In Rio, the effect of gentrification is magnified because the poor residents of the Favelas, often occupy some of the most valuable property in the city because of their prized locations.

Some of the residents I spoke to in Vidigal were excited about improvements to infrastructure and services, but also concerned that they may not be able to afford to stay in Vidigal to enjoy the transformation. Many were also worried that their local cultural identity and 'village' lifestyle was disappearing due to the influx of affluent 'outsiders'. According to the national census in 2010, 80% of Vidigal's population own their houses. The high ownership rate is good news, as it will protect most of the residents from short-term economic eviction due to rent increases. However, property speculators are moving in quickly on the 80% of Vidigal who own their homes. Seemingly large amounts of money are tempting more and more long-time residents to move away to affordable neighbourhoods on the outskirts of the city, far from their jobs and their circle of friends and family. The rapid gentrification facing the Vidigal community is common to many of Rio's Favelas, and their approach may be used as a model for addressing similar challenges in other parts of the city.

One proposed method for the community to control the impact of property speculation is collective land tenure through Community Land Trusts (CLT). These non-profit corporations are a neutral and sustainable model for maintaining affordability, and promote long-term community solidarity [6]. Essentially the CLT owns and manages the land, and individual households own and build housing on that land through a lease arrangement back to the trust. Because the parcel of land is owned by the trust, they also regulate resale prices. This is designed to give the building owner a fair return on their investment, whilst avoiding the dramatic market swings which promote property speculation and gentrification. This balance between private and collective ownership, could be extremely valuable in Vidigal. After all, the favelas already have a history of collective solidarity. It's known locally as Mutirão which means 'working together for the common good', and includes communal construction projects from housing, to paving streets and building sewerage systems. Collective land ownership in Vidigal may be the first and most important step towards preserving the neighbourhood's unique local identity and culture.

*"The favelas may not be modernism but they are the by-product of modernity. In their spontaneity, energy and resourcefulness, they represent an aspect of urbanity that is only now coming to be appreciated. And in its varied approaches to tackling urban poverty, Rio has been a laboratory unlike any other in Latin America. "*

*Radical Cities: Across Latin America in Search of New Architecture - Justin McGuirk.*

## Fine Grain Urban Fabric

*"Small footprint shops and apartments in a fine textured urban fabric yield smaller profits, spread out among many individuals and businesses in the community. Over centuries, this human scale urban fabric has proved to be adaptable to changing political and economic times, making the community resilient, and durable."*

*Making Cities Liveable [7]*

In several visits to the favelas of Rochina, Santa Marta, Vidigal & Complexo do Alemão, what stood out was the intimate scale of public spaces, streets and pathways which allow for social encounters to occur in very natural ways. Most of the neighbourhoods are high-density low-rise (i.e. 2-5 storeys), providing opportunity for casual encounters to occur between people in their houses and passer's by on the streets. Cariocas are often greeting their neighbours from the upper levels of their houses.

# Pedestrian Streets

As you walk through the favelas, what is most apparent is the life between the buildings. Stairs which meander up the hillside and between buildings are used as seating. People congregate in the streets, on roofs, in alleys, and on corners. Small local businesses are extremely common, and homes are often open to the street. What contemporary western living practices deems as 'private' activities are often performed publically or semi-publically, such as cooking, eating, and washing laundry. In this sense the private and public boundaries are blurred and in some cases non-existent.

Puxadinhos are informal extensions or add-ons to existing structures. They are generally created from left-over and recycled materials, and are particularly interesting because they often extend properties beyond private boundaries and into the public realm. This hybrid structures can generate new uses for existing spaces, a dynamic mode of expansion. A lack of private open space has forced the residents to use the streets as their 'yard' space, which enlivens the public open space.

Pedestrian paths are the dominate means of circulation in the Favelas. A limited network of single lane roads, built over many years mainly by the residents, provide vehicular access to key locations. The favelas were built predominantly without the car in mind, as most favela residents cannot afford to own or run a car. The steep topography and dense clusters of buildings, has left very little space for parking.

At the base of most Favelas, a mototaxi service exists, where motorcycles ferry residents up and down the favelas for only a few Reais. The first organised Mototaxi system in Brazil began in the North-east in 1996, and has since expanded to all parts of the country. Brazil's system is different to the tuk tuks or Auto-rickshaws in Asia, because they use normal motorbikes without special adaptions like open carriages. The higher average speed and route flexibility have made them popular in areas where the bus system is not suited. In Vidigal the mototaxi is the only form of public transport within the favela itself. The moto taxi service dramatically cuts down journey times with service being symbolic of the resourcefulness of the informal economy.

# Roof Terraces

Rooftops are well utilised by the residents of Rio's Favelas because dense clusters of building each compete for light, ventilation and vistas. The different layers of the favela are urban strata, similar to the structure of strata in a rainforest. With varying levels of natural light, ventilation and freedom of movement, each is used for different purposes. The 'forest floor' is street level and is teeming with life, whilst the 'understorey and canopy' are predominately private spaces for sleeping and living. The 'emergent layer' is the equivalent of the rooftops or terraces which are used for outdoor living and entertaining. They take advantage of spectacular coastal views and temperate climate. The activated top-layer of the favela has become a kind of raised social platform, where neighbours and friends gather for Churrasco (BBQs) and Chopp (cold beer).

Not all rooftops are trafficable, many are clad in terracotta tiles or corrugated iron. However, because there is often an aspiration to continue expanding upwards, for those with the resources a concrete slab provides a platform for this future growth. It also provides an interim outdoor living area, which is very valuable and often lacking in favelas. Often neighbours get together (Mutirão) to construct re-enforced concrete slab roofs that will provide strength for additional stories.

*Vidigal is home to over 63 Botecos (small street bars), with plastic chairs that spill out onto the street selling afternoon beers. One such bar is owned by Urcia, who is 71 years old, and has lived in Vidigal for 69 years. Her bar was originally three times its current size, but has shrunk as housing has developed around it. She lives upstairs in small apartment, where she shares a large rooftop with her neighbours. A group of young local guys gather for food and drinks on the rooftop, and they buy the beer from her shop below. This was a great example of trans-generational barriers being broken down. A diverse mix of ages living in the same neighbourhood, and interacting regularly.*




# Learnings from Rio

Overview:
During my two week stay in Vidigal Favela, and various visits to other favelas in the city, I was able to form an understanding of elements which might be retained as the favelas develop and mature over time. It was also an opportunity to endeavour to understand of some the hardships the residents are currently facing, and the positive aspect they enjoyed about living in the favela.

The key lessons were;

1. **Low-rise, high-density** is an important typology for the development of social connections. An intimate scale of public spaces, streets and pathways allow for social encounters to occur naturally. This occurred naturally on the highly contoured terrain.

2. **Fine Grain Urban Fabric.** The favelas of Rio comprise of small footprint houses and shops which create a textured, diverse and human scale neighbourhoods. This building typology hs proven to be adaptable, durable and resilient.

**3. Pedestrian Streets.** Human scale streetscapes, amble foot paths and minimal traffic are all important factors in drawing people out of their private worlds, and encouraging them to interact with one another.

**4. Roof terraces** in residential design increase outdoor living spaces and become an important semi-public platform for interactions between neighbours and passers-by on the street, and are especially effective in low-rise high density on sloping sites. Rooftops are well utilised by the residents of Rio's Favelas because dense clusters of building each compete for light, ventilation and vistas.

**5. Small Retail Spaces.** The fine grain mix of small businesses in Rio's favelas can be contributed in part to levels of foot traffic. A rich market of small retail spaces, contributed greatly to the public domain and the local economy of the favela.

**6. Gentrification of informal settlements raises a complex question;** how can the city improve conditions for long-time residents without economically and culturally evicting them in the process? Development without displacement? One proposed solution is collective land tenure through Community Land Trusts (CLTs). These non-profit corporations are a neutral and sustainable model for maintaining affordability, and promote long-term community solidarity. Architects should reflect critically on the role they play in gentrification.


*Communal Street Library, Vidigal*

**Photo:** *Rafael Fabres - Favela Party*

**Photo (Above):** *Rafael Fabres - Vidigal Favela*

**Photo (Right):** *Ilia Kotchenkov - Favela Open Public Space*

# References


1. Helh, R. and M. Angelil, Cidade De Deus - City Of God: Working With Informalized Mass Housing In Brazil. 2013: Ruby Press (May 15, 2013).

2. Ramsey, G., Making Rio's Pacification Work: The Limits of 'UPP Social', in InSight Crime - Investigation and Analysis of organised Crime. 2014.

3. Muir, H., Brazil officials evict families from homes ahead of 2016 Olympic Games, in The Guardian. 2015: Rio de Janeiro.

4. Kuzma, R., One Year To Go to Rio 2016: An Overview of Rio's Misplaced Public Priorities, in Rio on Watch - Community Reporting on Rio. 2015.

5. Steele, F., Brazil Property: Buyers Target Homes in Rio's 'Pacified' Favelas, in Financial Times. 2013, The Financial Times Limited 2016.

6. Scott, A., Development without Displacement in Favela do Vidigal. 2015, Brazil Talk.

7. Crowhurst Lennard, S. Making Cities Livable. 2016; Available from: http://www.livablecities.org/.



**Photo:** *Dan Artsybashev - Vidigal Favela Rooftop*


# Cape Town, South Africa

## Historical and Political Context

The San people were hunter and gathers. They lived in the southern tip of the African continent for thousands of years before its written history and the arrival of European settlers. About 2,000 years ago the Khoi people, who were pastoralists and herders, migrated south to the Cape, and the two distinct cultural groups became known collectively as the Khoisan. After the great Bantu expansion from West Africa about 4000 years ago, many Southern African kingdoms were conquered and ruled by Bantu leaders. Bantu people are made up of over 400 ethnic groups in Africa, untied by a common family language and many customs. Around 1000 years ago the Bantu had reached modern day South Africa. As they migrated further south, two main ethic groups emerged, the Nguni (Xhosa, Zulu, Ndebele and Swazi tribes) who occupied the eastern plains and the Sotho-Tswana who lived in the interior plateau [1].

The Dutch East India Company established a small settlement at what is now Cape Town in 1652, which they saw as nothing more than a strategically located port to supply their trading ships to the Far East. From the beginning, slavery (of Africans and Asians) was a feature of the new colony. From their Cape Town base, the Dutch, German and French Huguenot settlers (known as Boers) used their superior weaponry to gain control of more land and resources resulting in many conflicts with the indigenous peoples. By 1795 the Dutch East India Company was in economic decline, and so the British seized the Cape to prevent it falling into the hands of the French [2]. A pattern emerged where the English speakers became highly urbanised and dominated politics, trade and finance, whilst the largely uneducated and devotedly religious Boers were relegated to their farms. The discovery of diamonds in the 1860's and gold in the 1880's created extreme resentment towards the British within the Boer community, who believed their impoverished republics had missed out on the economic benefits of the mines. As a result the first of two Anglo-Boer Wars broke out in 1880, ending in a truce. A British victory in the second Anglo-Boer War in 1902 provided an opportunity for unification of the colonies, and in 1910 the Union of South Africa was established. In 1915 the National Party was founded on the ideals of far-right Afrikaner nationalism, and became the first governing party of the country in 1924. After a period in opposition during the two World Wars, the National Party came into power again in 1948 on the back of their apartheid (the sate of being apart) policy which institutionalised racism and would change the country forever.

During the apartheid era (1948 - 1994) segregated townships were established for the three main non-white 'population groups'; black (native), coloured (mixed race) and Asian (mainly Indians, Indonesians & Malaysians). Coloured and Asian people received preferential treatment, which was designed to divide and conquer the three 'non-white' groups, providing the Afrikaner government with greater control. The policies were as much about physical and economic exclusion, as they were about political and legal suppression. Today Cape Town's urban fabric bears the scars of the divisive Group Areas Act, an apartheid policy which destroyed people's sense of dignity, community and livelihood.

*From 1960 to 1983, 3.5 million people were forcibly removed from 'white areas' throughout South Africa [3]. In Cape Town, perhaps the most shocking example was the bulldozing of District Six. A diverse and tightly knit community of all races was the antithesis of apartheid's central ideology, and so the government ordered 60,000 residents to be removed and their houses demolished.*

The Garden City Movement, an urban planning method which began in the UK in 1898, was reappropriated by the apartheid government during the 1950's, when the planning of the Cape Flats in Cape Town began. 'Green belts' (tracts of land with restricted building zones) were the fundamental

principle of the Garden City movement, and were originally intended to improve air quality, public open space and prevent urban sprawl. However, the apartheid government used these 'green belts' as buffer zones between black, coloured and white communities, sometimes taking the form of exclusive golf courses and nature reserves, but often just unoccupied wasteland. The homogenous suburban neighbourhoods typical of the Garden City Movement were well suited to the apartheid government's vision of a submissive population, and the concentrically planned ring roads were used to contain and control suburbs. Many of the ongoing social problems in the Cape Flats (gangsterism, violence, drug abuse and unemployment) stem from these urban planning policies implemented over 60 years ago.

*"Modernist design and planning was used by the apartheid government to perpetrate the largest social experiment in the history of mankind, and provided the perfect 'top-down' device to order, separate, divide and control the populace,"*

*Lindsay Bush, an urban designer with City of Cape Town [3].*

Today South Africa faces the triple challenge of poverty, inequality and unemployment. Over half of South Africans live below the national poverty line and more than 10% (5.4 million people) live in extreme poverty, on less than 15.85 Rand ($1.41 AUD) per day [4]. Income inequality within all racial groups has worsened since the end of apartheid, with the top 10% of the population accounting for 58% of the country's income while the bottom 10% accounting for just 0.5% [5]. South Africa has one of the highest unemployment rates in the world (currently at 25.4%), and youth unemployment has reached staggering 52.6% [6]. Sexual violence, assaults and murders are also amongst the highest worldwide. It is estimated that over 40% of South African women will be raped in their lifetime and that only 1 in 9 rapes are reported [7]. The country also has the largest population of people with HIV / AIDs in the world, with an estimated 6.3 million people living with the disease in 2015 (almost 20% of the adult population) [8].

20 years after apartheid, major racial segregation still exists in South Africa. According to the South African Reconciliation Barometer (2013), a public opinion poll which tracks social attitudes, less than 40% of South Africans socialise with people of another race. Furthermore, only 22% of white South Africans and 20% black South Africans live in 'racially integrated neighbourhoods', and 11% of white children, and 15% of black children go to racially integrated schools. Furthermore, internalised racism (one of the destructive legacies of Apartheid), is fuelling the violence between black South Africans and black immigrants (from neighbouring countries), with estimates of the immigrant population ranging from 2 to 5 million. This has been labelled by some as a 'new apartheid'.

# The Housing Deficit

The apartheid government responded to the housing crisis in black townships with monotonous grids of cramped four-roomed dwellings known to the locals as 'matchbox houses'. Chain-wire fencing often surrounded clusters of houses for police to seal off communities during raids. After apartheid ended in 1994 the newly elected government, the African Nation Congress (ANC) party, came to power. They promised millions living in poverty vastly improved public housing by means of the ambitious socio-economic policy called the Reconstruction and Development Programme (RDP).

According to the Department of Human Settlements, the government has provided nearly four-million "housing opportunities" – 903,543 serviced stands and 2,835,275 houses or social housing units, over the twenty years from 1994 to 2014 [9]. This is an impressive feat, however it does not come close to meeting the growing demand for housing stock. Estimates suggest 3 million households are currently in need of adequate housing, and this number is expected to grow substantially over the next 20 years [9].

*Human Settlements Minister Lindiwe Sisulu has noted that there are 2.2 million households (7.5 Million people) are living in 2700 informal settlements and backyard shacks across the country. As the number of households increases by 350,000 annually, the yearly delivery of 140,000 houses leaves a significant deficit.*

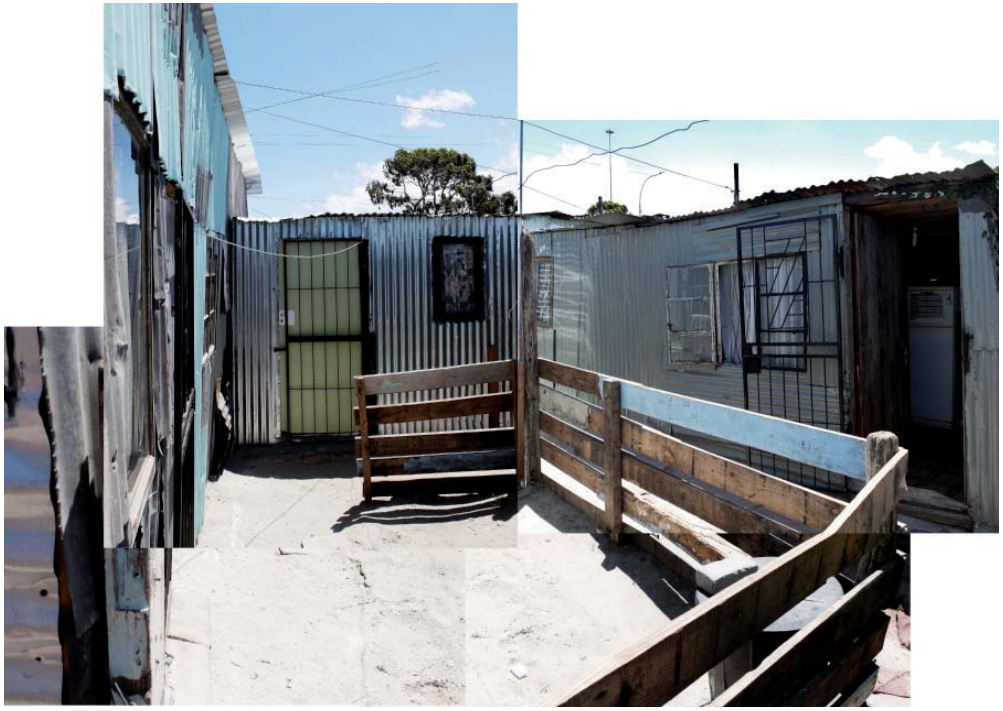
The result is a backlog with waiting times ranging from three months to more than 20 years [10]. In addition a lack of transparency surrounding the housing allocation process has caused confusion and distrust amongst those waiting. The 'RDP Houses' whilst upgrading residents living condition contribute very little to the public domain.

One such project which typifies the militaristic planning of the current government is the N2 Gateway Project in Cape Town, which has been highly criticised for its lack of consultation with residents. An estimated 25,000 units for shack and backyard dwellers will be built. However, the temporary

rehousing of thousands of residents to 'transit camps' in Delft has left many unable to afford the additional transport costs to commute to the city centre, which had led to a loss of jobs. The breakdown of neighbourhood ties has led to high crime rates and antisocial behaviour in the transit camps. The new houses that have been built strategically line the side of the N2 highway, the arrival route for international guests from the airport to the city bowl. Beyond this superficial layer, single storey corrugated iron shacks sprawl for as far as you can see. Housing is set back a minimum 60m from the road, a dimension which has been determined by the distance a person can throw a rock. Massive lighting masts are also designed with this dimension in mind, and they have been installed in townships along the N2 to light up largely inaccessible areas for helicopter surveillance [11].

Given this harsh reality, faced by millions of South Africans each day, it is crucial for politicians, planners, developers and architects in collaboration with the residents of the townships to explore alternative models of housing in South Africa.

*The 'one size fits all' policy of the past two decades, has produced monotonous rows of small overcrowded houses on the outskirts of the city far from workplaces, education institutions and health facilities. Thinking needs to embrace a genuine engagement with bottom-up resourcefulness and top-down resources.*



**Photos:** *Johnny Miller - Cape Town Aerials*
*Golf courses, highways and parks were used by the apartheid government to reinforce physical segregation.*

# Empower Shack Project

I visited Khayelitsha, a sprawling township located on the sandy low lying Cape Flats, 30km southeast of Cape Town's CBD. The area is a vast expanse of sand blown up over thousands of years by the strong winds from False Bay to the south east, and the Atlantic Ocean to the North West. The word Khayelitsha translates to "new home", but it was used by the apartheid government as a 'dumping ground' for Africans who were not permitted to live in the established townships of Langa, Nyanga and Gugulethu. Living conditions in Khayelitsha are poor. Residents often lack adequate sanitation, clean water, transport, protection from fires and flooding, personal security, public space, local employment, educational opportunities and secure tenure. Most of Khayelitsha's residents come from the Eastern Cape, and 90% are black South Africans, 8.5% coloured and 0.5% are white. Most of the population is young people, with 40% under the age of 19 years old.

Urban Think Tank (U-TT) is an interdisciplinary design practice foundered in Caracas, Venezuela by Alfredo Brillembourg and Hubert Klumpner. The practice is focused on high-level research, design and education in global contexts with goal of creating bridges between first world industry and third world informal areas. Ikhayalami is a Non-profit organisation whose primary aim is to develop and implement affordable technical solutions for Informal Settlement Upgrading. Urban Think Tank in partnership with the University ETH Zurich, Ikhayalami, the City of Cape Town, and local community groups are building 68 homes in B-T Section Site C, Khayelitsha. Whilst visiting Cape Town I was lucky enough to spend a week with teams from Urban Think Tank and Ikhayalami, working on the construction of their prototype row house and meeting some of the community leaders and residents of BT Community. Quotes from BT Residents, Khayelitsha:

*"One of the best things about living here is you can know your neighbour"*

*"One of the hardest things is living close to each other, to understand each other...the music is loud all night"*

*"Security is a big issue, gangsters will grab you as you catch a taxi"*

*"We don't choose our neighbours, we become one big family in BT"*

*"It's too dangerous to walk 5 metres to the tap at night"*

*"My neighbour can look after my house"*

Developing and maintaining the trust of the community was paramount to the success of the Empower Shack project for U-TT and Ikhayalami. The key elements they prioritised were; time spent listening and being present on site, a clear schedule of meetings and deadlines, and sensitive communication in tune with local customs and way of life.

## Reblocking

'Reblocking' is the core urban planning strategy proposed by Ikhayalami and adopted by Urban Think Tank, in reaction the cumbersome conventional approaches to informality in South African Townships. Ikhayalami explain this approach as 'a design and implementation process that is driven by the community and involves the reconfiguration of a settlement layout into one that is more rationalized allowing for the creation of demarcated pathways or roads, public and semi-public spaces all of which opens access for emergency vehicles, the provision of infrastructure and basic services which were not previously taken into account.' Small semi-public courtyards have been a huge success in past projects.

Critical to the approach is that there is an immediate improvement, which can become more permanent over time. The Empower Shack project was an opportunity for this proven strategy to be rolled out on a larger scale.

*The strategy actually capitalises on the resident's lack of tenure, using it as an opportunity to redefine property boundaries and increase open public space. This allows boundaries to expand and contract to suit the needs of residents, before they are granted formal property rights.*

Initially residents often see no value in public open space, but once it's been created they see the multiple benefits. The re-blocking strategy developed by Ikhayalami has recently been incorporated into the City of Cape Town planning strategy.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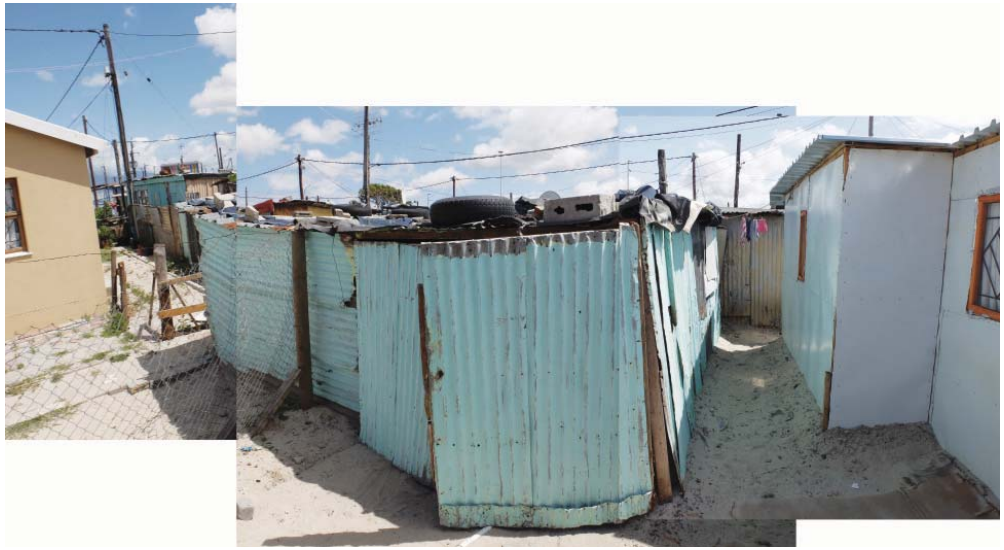


OYOTA

# Empower Shack: Vertical Expansion

*The first Empower Shack protoype for community leader Phumezo Tsibanto and his family*

*"Land is the asset of the squatter. People don't want to have thirty-year mortgages, they don't want to pay banks and get little boxes of social housing… They want to build their own home over time, with zero mortgage and zero credit. Seventy to eighty percent of the city is made up by housing, so we need a way in which we can empower people through housing and give some city-making ability to community-driven organizations."*

*Alfredo Brillembourg, Urban Think Tank [12]*

The re-bocking strategy is further enhanced by vertical expansion. In the townships two and three storey shacks are not common, as land is readily available and additional storeys require expensive structural elements (beams, loadbearing walls, foundations, etc.) and more complex construction techniques (sometime requiring bricklayers, carpenters, engineers etc.). But by adding a second storey, Brillembourg explains "they can double their capital".

The Empower Shack project adopts common building materials; timber, corrugated zincalume, corrugated polycarbonate (opaque windows), concrete blockwork, and reinforced concrete slabs on ground. Whilst the speed of construction was a priority, as many residents didn't have long-term alternative accommodation, an important part of the brief called for fire separation between dwellings. This drove the design of concrete blockwork blade walls, which slowed construction time but formed a fire rated barrier between dwellings. The masonry walls also form a robust and clearly delineated property boundary. Another major inclusion was the bathrooms on the first floor, as most residents in BT community didn't have an on-site bathroom, but instead used community toilets, which are particularly dangerous for women at night. The concrete slabs on ground were actually suggested by the Cape Town City Council, as a measure in case of flooding, which occurs regularly on the Cape Flats.

Beautifully crafted detailing is not the priority of the Empower Shack, as there is something far more at important at stake. As Andy Bolnick, founder of Ikhayalami, pointed out "the real litmus test will be by the residents. Usability and functionality will determine the success"



**Photo:** *Daniel Schwartz - Empower Shack Protoype Housing Complete - 2016*

*"The aesthetic of the house is the least of their problems and they can upgrade it over time", explained Alfredo Brillembourg. What the project hopes to retain is the idea of village life and street culture, by allowing the existing urban character to inform the transformation.*

*Empower Shack Protoype Housing Under Construction 2016*

# Empower Shack: Micro-Finance

The Empower Shack project by Urban Think Tank includes an integrated micro-finance programme for the ongoing pilot phase of 68 Houses within the BT-Section of Khayelitsha. The microfinancing programme is managed by local partner NGO Ikhayalami who have an in-house loan finance system. For the first four houses, residents made approximately 400 - 500 Rand ($44 AUD) repayments per month, over a 30 month period, and contribute their personal labour to the construction of their houses. Apart from the 4 women who were moving into the new houses, a number of other community members also worked as labourers, and were taught valuable skills and were paid for their time. They dug trenches for the concrete slab, laid reinforcement and helped construct the formwork whilst I was there.

The Empower Shack system is nothing like the more mainstream retail MFIs in South Africa because Ikhayalami are in control of the end use of the funds and have a direct relationship with the future residents so micro-debt can be managed and monitored responsibly. Repayment capacity is carefully assessed through community and individual consultation sessions. As with any pilot project, residents requested extra features which were not in line with the financial modelling, however the Urban Think Tank and Ikhayalami teams were able to realign community expectations with the individual's resources available for the project.

*Ikhayalami founder Andy Bolnick pointed to 'mechanisms of choice' as an important feature of the financial model, whereby if you reduce the area of your house, compensation is provided. This process provided residents with the 'marketplace literacy' necessary to make informed financial decisions.*

As the project looks to expand from the first 4 demonstration houses, to the next phase of 64 houses, Ikhayalami founder Andy Bolnick pointed out that 'Material selection and construction techniques must consider the financial model, they must be scalable to avoid a project becoming a one off'. The scalability of the micro-loan system will be an interesting challenge for Urban Think Tank and Ikhayalami. The larger the financial model, the greater the administration costs associated with collecting the funds and the need to charge interest to cover these costs becomes greater. Unless these administration costs are covered by the City of Cape Town, private investors (who may require large returns on their equity) will be integral for the project to grow. Managing this growth will be the challenge for Urban Think Tank & Ikhayalami.

*Andy Bolnick explained that the replication of this project on a large scale requires a 'social movement'. Larger scale projects may also require a financial movement to ensure the scalability of the micro-financing can be carried out with the residents interests protected.*

I've discussed some of the questions currently being raised about the scalability and regulation of larger micro-finance institutions in Appendix A to this report.

The research, design and media phases of the Empower Shack project benefits from ongoing support from University ETH Zurich, who act as 'the guarantor behind the operation'. This is also where the Urban Think Tank co-founders Brillembourg and Hubert Klumpner teach. Additional funding sources have been attained through private philanthropy and sponsorship from Swiss Re Insurance group, Vhernier fine jewellery and individual donors. The funding of community housing projects through

*Empower Shack Demonstration House Under Construction*

private philanthropy and sponsorship, is a great way for architects to self-initiate projects, and 'corporate responsibility' schemes are often untapped resources. Depending on the donor, these models can create a need to balance community needs with a demand for 'marketable' content for the private funding source to promote their good will. Urban Think Tank were well equipped to manage this process, because they record, document and archive so much of their process and findings. Their interdisciplinary team consists of architects, researchers, filmmakers and journalists, who are focussed not only on producing design solutions but also recording the process from initial community meetings through to construction. The extensive archive of interviews, film, photos and written articles is a valuable database for designers and the community. Most importantly the archive is used to promote and communicate the benefits of such projects to ensure the ongoing growth of this process.

# Appendix A
# Micro-Credit Financing: The Question of Scalability

Micro-financing is a banking service for low-income and unemployed individuals or groups who wouldn't otherwise have access to financial services (including credit, savings, insurance and funds transfers). Micro-credit is the lending of small loans to low-income borrowers who may not have a verifiable credit, collateral or employment histories that traditional lenders require for security. Micro-financial institutions must charge interests on these loans, in order to meet operating costs, debt commitments and allow for growth (just like traditional banks); and this is where the debate over the effects of micro-credit loans is focused [13].

Microfinance institutions (MFIs) have much higher interest rates than 'normal banks', because of the additional administration costs associated with lending and collecting amounts through thousands of tiny loans, which sometimes involve door to door collection.

*The average microfinance interest rates in Africa was 39% in 2005, in other countries interest rates are as high as 80%* [14].

Advocates argue that microfinancing helps alleviate poverty by promoting entrepreneurship, small businesses, and financing of improved living conditions. A 'bottom-up' process of wealth creation, through informal micro-enterprises and self-employment. However, evidence on the topic is mixed and many critics have argued that micro-credit loans are a 'debt trap' for the most vulnerable in our societies, and a way of privatising or outsourcing welfare and important health and education infrastructure which should be provided by the state. They argue that the 'free-market' rarely ever works in favour of the poor in reality as it might in theory.

Modern microfinancing practices began in Bangladesh in 1976, with the establishment of the Grameen Bank. In 2006 the bank and its founder Muhammad Yunus were jointly awarded the Nobel Peace Prize winner. Yunus famously claimed that "Poverty will be eradicated in a generation" and "The poor themselves can create a poverty-free world." According to estimates by the World Bank, more than 500 million people have directly or indirectly benefited from microfinance, and the UN declared 2005 'the year of micro finance' [13].

So why is micro-financing so popular and widespread?

The message of 'self-help' and idea that poor people can 'work themselves out of poverty' is very attractive to the international donor community and governments. Micro-finance avoids the need for wealth redistribution, and provides an opportunity to cut welfare and infrastructure investments for the poor.

The core principle behind micro-finance institutions is that because they are profitable, they can be scaled up and will 'have a bigger and long-term impact' on reducing poverty. Unfortunately, this profitable model also attracts private investors demanding high returns on their equity, which has serious consequences for the end client.

The 'break-out' phase for microcredit in South Africa occurred after apartheid from 1995 – 1999, and the model was spruiked by development agencies as a golden ticket to self-employing and empowering the poorest black communities. However, in reality the benefits of 'financial inclusion' promised by micro-credit lenders have not been evident. One of the key arguments against micro financing is that it deals only with the supply-side, and does nothing to increase local demand, the market size remains the same but as new microenterprises emerge the price of the

goods and services is driven downwards. Theses hyper-competitive markets are oversaturated, and in South Africa research shows that incomes of the informally self-employed (micro-enterprises) actually fell by 11% from 1997 – 2003, to bare survival levels [15]. Furthermore, post-apartheid economic policies in South Africa were focused on meeting the strict loan conditions set by the International Monetary Fund (IMF) and the World Bank, and consisted mainly of cutting government spending, wholesale privatisation and trade liberalisation in order to meet debt repayment obligations and address inflation. Combined with the influx of micro-creditors in 1995, local demand for small scale goods and services was greatly diminished, and many poor South Africans were left spiralling into debt.

*"Bombarded with microloans in such a way that today they simply cannot repay even a fraction of what they owe (estimates are that 40% of the South African workforce's income is spent on repaying debt), South Africa's poor are now caught in a microdebt-trap of unimaginable proportions. Only now are people realising that the real aim of the private banks and microcredit institutions in South Africa – exactly as in the case of Wall Street's infamous sub-prime lenders – was not to help their poor clients, but to extract as much value from them in the shortest time possible before leaving the sector and moving on to other fields of business"* [16].

*Professor Milford Bateman, the author of Why Doesn't Microfinance Work? The Destructive Rise of Local Neoliberalism.*

Without proper regulation micro-finance institutions (MFIs) are incentivised to pursue reckless enrichment strategies, and lose sight of their central objective to assist the poor. The main operating cost of many MFIs is actually senior management. One example in South Africa is Capitec Bank, who's CEO, Riaan Stassen, was listed on South Africa's top 50 richest people in 2010. Capitec acquired and consolidated a number of small micro-lending businesses when they began in 1997, and over time they became more skilled at pushing microcredit on the most vulnerable [17]. The 'affordability assessment' conducted by Capitec irresponsibly evaluated repayment capacity and they had no control over the end use of the funds. Capitec continued to grow, in spite of the dangerously high levels of debt their impoverished borrowers were accruing. In 2012, 34 unarmed miners at the Marikana mining complex were gunned down whilst protesting the unmanageably high levels of micro-debt they had built up, in part due to Capitec's aggressive marketing campaigns. It was the country's worst state violence since the apartheid era [17].

The key issue I see is scalability. If micro-finance is to be 'scaled-up' then it requires a non-profit model, at affordable rates of interest and payment terms variable to suit the individual's capacity to repay the debt.



# Key Lessons from Cape Town

Overview:
I was fortunate enough to spend a week with Urban Think Tank and Ikhayalami in Khayelitsha, which was an amazing learning experience. Whilst assisting with their prototype row housing project 'Empower Shack' and meeting the teams provided an insight into the complexities of managing projects in the Townships of Africa.

Key learnings were:

**1. Public Housing won't meet demand.** South Africa has one of the highest delivery rates of public housing in the world but it still doesn't come close to meeting its housing demand. The houses which are provided, have poor amenity for the users and the neighbourhood. People's building capacity and resourcefulness must be incorporated in the solution.

**2. Self-Built Housing as a means of reconciliation.** The scars of apartheid run deep in Cape Town, and are evident in the built fabric of the city. Opportunities for residents to build their own houses, establishing local identities and restoring dignity along the way, could be part of the healing process for South Africa. This process could also be replicated in many other countries where indigenous peoples have been poorly treated (such as Australia). Responsible financing, design support and secure land tenure need to be negotiated first.

**3. Re-blocking** involves 'rationalising' the planning of informal settlements to allow for the provision of basic services, access and public space. The strategy also capitalises on the resident's lack of tenure, using it as an opportunity to redefine property boundaries and increase open public space. This allows boundaries to expand and contract to suit the needs of residents, before they are granted formal property rights.

**4. Vertical Expansion** is an opportunity for residents to 'double their capital'. In the sprawling townships increased levels density will provide increased casual surveillance of the streetscape in order to reduce the serious security risk resident's face on a daily basis. An increased level of density may provide more opportunities for informal businesses and entrepreneurs.

**5. Micro Financing.** Micro-credit systems has serious issues surrounding ethical scalability. Larger for-profit models are incentivised to pursue reckless enrichment strategies, and lose sight of their central objective to assist the poor. At the small scale, non-for profit models can manage and monitor micro-debt responsibly. Repayment capacity at this scale is carefully assessed through community and individual consultation sessions, and there is control of the end use of the funds.

# References


1. Encyclopedia, N.W., Bantu, in New World Encyclopedia. 2016.

2. Wikipedia, History of South Africa (1815–1910), in Wikipedia. 2016.

3. Fataar, R. and B. Petzer, Cape Town's Anti-Apartheid Urban Plan, in Next City - Inspiring Better Cities. 2014, Next City.

4. Tech, B., Shocking levels of poverty in South Africa revealed. 2015, Business Tech.

5. Wilkinson, K. FACTSHEET: The housing situation in South Africa. Factsheets & Guides 2014; Available from: https://africacheck.org/factsheets/factsheet-the-housing-situation-in-south-africa/.

6. The World Bank. Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate). 2015; Available from: http://data.worldbank.org/indicator/SL.UEM.1524.ZS.

7. Middleton, L., 'Corrective Rape': Fighting a South African Scourge, in Time Magazine. 2011, Time Magazine: Cape Town.

8. AVERT, A.H.a.A. HIV and Aids in South Africa. Global information and advice on HIV & AIDS 2014; Available from: https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/south-africa.

9. Chiumia, S. Mr President, S. Africa is not the only country giving free housing to the poor. Africa Check 2014; Sorting Fact from Fiction].

10. Greyling, S. and S. Oldfield, Waiting for the state: politics of public housing in South Africa, in The Conversation. 2015, The Conversation: Cape Town.

11. Wainwright, O., Apartheid ended 20 years ago, so why is Cape Town still 'a paradise for the few'?, in The Gaurdian. 2014.

12. Brillembourg, A., Interview with Alfredo Brillembourg, founder of Urban Think Tank, L. Amaya, Editor. 2015, Archinect.

13. Investopedia. Microfinance. 2015; Available from: http://www.investopedia.com/terms/m/microfinance.asp.

14. Rosenberg, R., et al., Microcredit Interest Rates and Their Determinants 2004 –2011. 2013, Microfinance Information Exchange (MIX). p. 32.

15. Kingdon , G. and J. Knight, Unemployment in South Africa, 1995-2003: causes, problems and policies. 2005, Global Poverty Research Group.

16. Bateman, M., Microcredit has been a disaster for the poorest in South Africa, in The Gaurdian. 2013: Opatija.

17. Bateman, M., Microcredit – South Africa's New Gold Rush, in Review of African Political Economy, (ROAPE). 2015. p. Economic trickery, fraud and crime in Africa.




# Mumbai, India

## Historical and Political Context

Bombay (anglicised from the Portuguese name Bombaim) meaning 'good bay' was renamed Mumbai in 1995 after the city's patron Hindu Goddess Mumba-Devi. Bombay was once an archipelago, consisting of seven islands that were gradually united over a 150 year period of land reclamation. This process began in 1710.

Large swaths of modern day Mumbai are man-made invasions of the tidal flats in the Arabian Sea.

The first known permanent settlement in Bombay was by the Koli and Agri fishing communities around 600BC. In the third century BC, the city was conquered by one of India's greatest emperors , Ashoka the Great, who ruled almost all of the Indian Subcontinent from 268 to 232BC. After his demise, countless rulers of the Silahara dynasty took over until the Muslim rulers of the Kingdom of Gujarat annexed the islands of Bombay in 1343 AD. Bombay remained governed by the Sultans of Gujart until the Treaty of Bassein in 1534 AD handed control to the Portuguese. As Bombay was a deep water port, large vessels were able to dock there for trade and military purposes. Then in 1661, the marriage treaty of Charles II of England and Catherine of Braganza, Portugal placed possession of Bombay with the British, as part of Catherine's dowry to Charles. In 1690, the Mughal Empire conquered the Island of Mahim, which required a large payment by the English to Aurangzeb, the Mughal emperor, to negotiate their peaceful evacuation of the city. The British East India Company established Bombay as "the Gateway to India" by the end of the 1700s, exporting raw cotton, tea, gold, textiles and spices to Britain, and importing millions of pounds of British made goods. The cotton mill industry was once so large it made up three quarters of the city's labour force. The rule of the British East India Company was transferred to the Crown from 1858 to 1947, during which time the Industrial revolution saw rapid development of infrastructure and technologies such as railways, roads, canals, bridges and telegraphs, connecting Bombay to distant cities and agricultural lands.

The British were ruthless in their dealings with those who stood up for the rights of Indian citizens, implementing a 'divide and rule' policy which widened Hindu-Muslim divisions, and led to the formation of the All Indian Muslim League in 1906. Economic plunder, criminal negligence, violent reprisals and racial discrimination by the British saw insurgent uprisings break out across the country during the mid 19th century, and by the 1920s the national movement had become very aggressive. Mahatma Gandhi led the Indian National Congress in nationwide campaigns for reducing poverty, improving women's rights, religious and ethnic amity, ending untouchability and achieving self-rule. Ghandi's vision of a united country through religious pluralism was sadly never realised, as the country was partitioned along religious lines. The majority Muslim areas became the new nation of Pakistan and the majority Hindu and Sikh areas became modern day India. As independence approached, conflict intensified between Muslims, Sikhs and Hindus, and an estimated half a million people were killed in the violence. In August 1947, whilst the violence continued, British rule ended and Pakistan & India gained their independence. Nowadays, India is comprised of 79.8% Hindus and 14.2% Muslims whilst Christians, Jains, Sikhs, Jews and Buddhists also form smaller percentages of the population [1].

# Mumbai & India: Population & Informal Settlements

India has the second largest population in the world, with over 1.2 billion people, containing 17.5% of the world's population and tipped to surpass China as the world's most populous country by 2022, with its population expected to peak at 1.7 billion in 2050. It has the fastest growing and largest youth population in the world, currently 356 million 10-24 year olds, a demographic with enormous potential for social and economic change [2].

69% of the population live in rural areas, whilst 31% stay in urban areas, giving India the largest rural population in the world [3]. However, over the coming decades rapid urbanisation will see India's current urban population of 410 million grow to nearly 814 million by 2050, accounting for more than 50% of the population [3]. This massive urban migration is causing the growth of informal settlements and informal economies.

Mumbai is ranked as the 6th most populated city in the world with a total metropolitan area home to over 22 million people in 2016.

It is projected to become the fourth most populous city by 2030 when the population surges to 28 million. Its population has grown 2.5 times faster than the country's population over the last 100 years [4].

The municipality of greater Mumbai is 603.4 square kilometres, with a density of 24,814 people per square kilometre. Which is staggering when compared to greater Sydney's current population density of 373 people per square kilometre (66 times less dense than Mumbai). The most populated area is the 'island city', which has 43,447 people per square kilometre, whilst the least populated North-eastern suburban district has 9,335 people per square kilometre. For comparison, Pyrmont-Ultimo is Australia's densest suburb at 13,850 residents a square kilometre. When fully complete in 2030, the $13 billion urban renewal project at Sydney's Green Square will be the country's densest suburb, at around 22,000 people per square kilometre.

*Despite Mumbai's general prosperity, about 54% of its citizens (an estimated 6.2 million) live in some 2,000 slums cramped in about 8% of the city's land area. This is believed to be the largest proportion and absolute number of slum dwellers in the world [5].*

Mumbai's informal settlements continue to outpace social and structural urban development, growing 11 times faster than the city itself, with 100 to 300 new families arriving in Mumbai each day [6].

# Dharavi: Historical and Political Context

In the late 19th Century the area now known as Dharavi was an island, surrounded by a mangrove swamp and inhabited by Koli fisherman. Land reclamation opened up new tracts of free and unregulated property, which attracted settlers from all over the country. Some of the first of these new settlers were the Gujarati who established a pottery colony, after they were relocated by authorities from the city centre. Leather tanners and embroidery workers soon followed. The new residents built small dwellings in close quarters, with workshops on the ground level and living areas on the first floors. These 'shop-houses' mimicked a vernacular architecture from the migrant's traditional villages, and gave rise to the unique fine-grain urban fabric in Dharavi.

Over the next 100 years, Dharavi became India's largest slum and the second largest in Asia (after Orangi Town in Karachi, Pakistan).

It is home to somewhere between 800,000 and 1 million people in just 2.39 square kilometres; making it the most densely populated area on the planet (334,728 people per square kilometre). This incredible density means Dharavi is more than 6 times denser than New York's Manhattan Island, which has 50,000 people per square kilometre.

It has a literacy rate of 69%, making it the most literate slum in India. The employment rate is as high as 85%. Business turnover in Dharavi is estimated to be around US $650 million per year [7]. Only 20% of Dharavi's residents work outside the area, and its home to an estimated 20,000 micro-enterprises and small businesses. The US $30 million leather industry alone is said to employ 200,000 workers [7].

Dharavi is located in central Mumbai, between two suburban railway lines, making it a convenient place to live. Considering Mumbai has some of the highest middle and upper class rental prices in the world, Dharavi presents an affordable alternative, as rent can be as low as AUD $10 per month. There is a huge variation in incomes from extreme poverty through to the new rich, all housed in a mix of formal, semi-formal and informal housing. I (like many architects and urban planners) was particularly interested in Dharavi; for its density, diverse living conditions, active streetscapes, informal economy, and the numerous controversial plans for its redevelopment.

# Dharavi: Public Health Issues

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# Dharavi: Diversity & Adaptive Spaces

During my time in Mumbai, I stayed with the Chawda family in the Gujarati pottery area called Kumbharwada (Kumbhar: potter and wada: settlement). The Gujarati community consists of over 10,000 people, and were some of the first to settle in Dharavi. Thus it is one of the most established neighbourhoods, and most residents are employed and have access to basic services. Suresh Ruuder and Prellia live here with their three children, Trupti (11 years old), Jigar (9) and Maneshvi (6). Suresh works in shipping and is away for 8 months of the year, so Prellia raises her three children with the help of her step mother whilst he is away. She also runs a small tailor business from her home, where she makes saris.

In Dharavi it is common for three generations to live under the one roof, and families often sub-let additional rooms to supplement their incomes. Intergenerational connections are fostered from a young age. Suresh's father and mother work in pottery, and the rear of their house opens to the laneway which contains the kilns and drying space. Because Suresh's parents work from home, the Chawda children have developed a close relationship with their grandparents, and a respect for other elders in the community.

> Multi-generational homes not only meet caregiving and financial needs, but also provide built-in opportunities for a family closeness, child-care, and increased well-being for children and older citizens.

The Chawda house has been adapted to cater for the needs of older and younger generations. The rear upper level contains living spaces for Suresh's parents. The front of the house, contains living quarters for Prellia, Surresh and their children, and the front upper floor is used for hanging laundry, sleeping and contains a small toilet. The separation of provides a level of independence and privacy when required, however connections on both floors also allows the house to become one large family home.

*Trupti and her grandfather*

*The Chawda family home*

The lack of bulky furniture, fixtures and fittings allowed the small rooms in the Chawda's house to take on a multiplicity of uses. The compact living / dining / kitchen / study, on the ground floor was used for a wide variety of activities, including; cooking and eating family meals, watching TV, children's study, working, and sleeping. Jigar and I even played indoor cricket here. Prellia spent much of her time preparing meals, sewing Saris, washing and cleaning. Meals are always eaten as a family, sitting cross legged on the floor. Afterwards the kids use this area for homework, watching TV and playing games. This space worked to strengthen the family unit.

The wet room was a small tiled room used as the main entrance. It contained the only tap in the house, which meant it was also used as a laundry and shower, and served an important hygienic function as a place to wash your hands and feet and store your shoes. The two sets of double hinged doors open to the street or main living quarters, providing a threshold between public and private domains, and a means to filter the constant bustle of the adjoining laneway. The concrete hob is used to contain water within the wet area and to prevent flooding from the street. It also acted as a means of delineating the public thoroughfare from the private residence. The family slept on small mattress and mats, which were neatly stacked away during the day. This allowed precious space to be converted into alternate uses. The compact planning was a product of financial constraints, however the result is a series of hybrid spaces which are advantageous in many ways. There are important lessons for architects here, about how people can utilise space, making the most of every square metre.

During summer the un-insulated corrugated asbestos roof sheeting heats the house to unbearable temperatures. Even in late winter I could feel the radiant heat from the roof. Those who can afford it use air-conditioners and electric fans to cool their small houses. Prellia estimates they spend up to AUD $200 on monthly electricity bills during summer, which is a considerable outlay for their family. To keep cool the family sleep downstairs most of the year.

It is estimated that each Gujarati family requires 92 sq.m of space for storing clay and finished pots, installing kilns for baking, and some require a street frontage too for selling the finished product [8]. These open areas have also become concentrated areas of social interaction. Kids play cricket, women gather to chat, and during one of my visits there was a wedding.
Other spaces within the community are also cleverly adapted for multiple uses, outdoor spaces are constantly transformed into places of social interaction and work. Whilst walking down a street one day, I noticed a Muslim community had converted an area of the street into a mosque for daily prayer. The call to prayer is played outside, and rugs are laid on the newly swept street. Chai stalls are another important feature of the Dharavi's social fabric, where groups of men congregate to chat, smoke and relax.

Within Dharavi's neighbourhood there was a wide range of income levels, which promoted some levels of urban revitalisation, poverty alleviation and economic desegregation. Poorer residents were often scattered throughout diverse, middle-class neighbourhoods. Where I stayed in Kumbharwada, quite a few single male students rented a room from a family and lived alone. The affordable rent was mutually beneficial, but so was the social connection between these different groups.

**Photo:** *URBZ - Dharavi street gathering*

# Dharavi: The Informal Economy

*"Have we overlooked the most powerful resource when addressing inequality and poverty?"*
*Robert Neuwirth, Author of 'Shadow Cities' [9]*

India's informal economy is responsible for 50% of its US $1.85 trillion GDP, and 90% of its labour force is employed informally, according to a 2013 report by Credit Suisse. Most productivity growth has occurred outside government regulation, protection and taxation systems, due to a lack of economic opportunities in the formal economy. It is estimated that 75% of all businesses in India are part of the informal or 'grey' economy [10]. Hundreds of millions of rickshaw drivers, shopkeepers, construction workers, farmers, domestic workers, rag pickers, street vendors, tailors, repairmen, and more, are forced to seek work in this largely invisible 'shadow economy'. On the one hand the informal economy is a creative and dynamic means of production, and a necessary transition into the formal economy. Few or no tax obligations and reduced red tape generates economic activity and promotes entrepreneurship. However, it also leaves the poorest workers with little or no job security, unprotected by labour laws and vulnerable to exploitation. Given this complex mix of productive capacity and exploitative practices, there is a need for a more nuanced view of informal economies. In order to meet the distinct needs of informal entrepreneurs and labour, India must develop linkages between the formal and informal economies which will help informal enterprises grow and the poor to enter the formal economy.

A symbol of Mumbai's resourcefulness is the recycling centre in district thirteen. Housemaids and rag pickers sift through the estimated 8000 metric tonnes of waste produced by Mumbai each day, and take it to Dharavi for recycling. There are about 15 million people in India who earn a living from the collection and recycling of waste. They are among the most marginalised and oppressed, mostly Dalit (previously known within the caste system as Untouchables). After it arrives, over 200 different types of plastic are pre-sorted and bundled in large woven polypropylene bags. Then sorting factories prepare the plastics for washing, by separating further types and colours. Washed plastics are laid out on rooftops for drying. The plastic is then ground into flakes and sold to a granule maker, who produces pellets which are sold back to plastic manufacturers.

In this district alone, 80% of Mumbai's waste is recycled, and the industry employs more than 50,000 people in the plastics industry.

Without this industry, people say that Mumbai would literally drown in its own waste. Yet while the environmental and employment benefits are evident, many of the workers endure appalling conditions. In the sorting factories at night workers sleep on the ground, where they have spent the day working whilst squatting and sorting. Often these are peasant farmers from Uttar Pradesh, who migrate to Dharavi for 9 months of the year to work 12 hour days in dark, cramped rooms exposed to hazardous chemicals in exchange for approximately AUD $3-4 per day in wages.

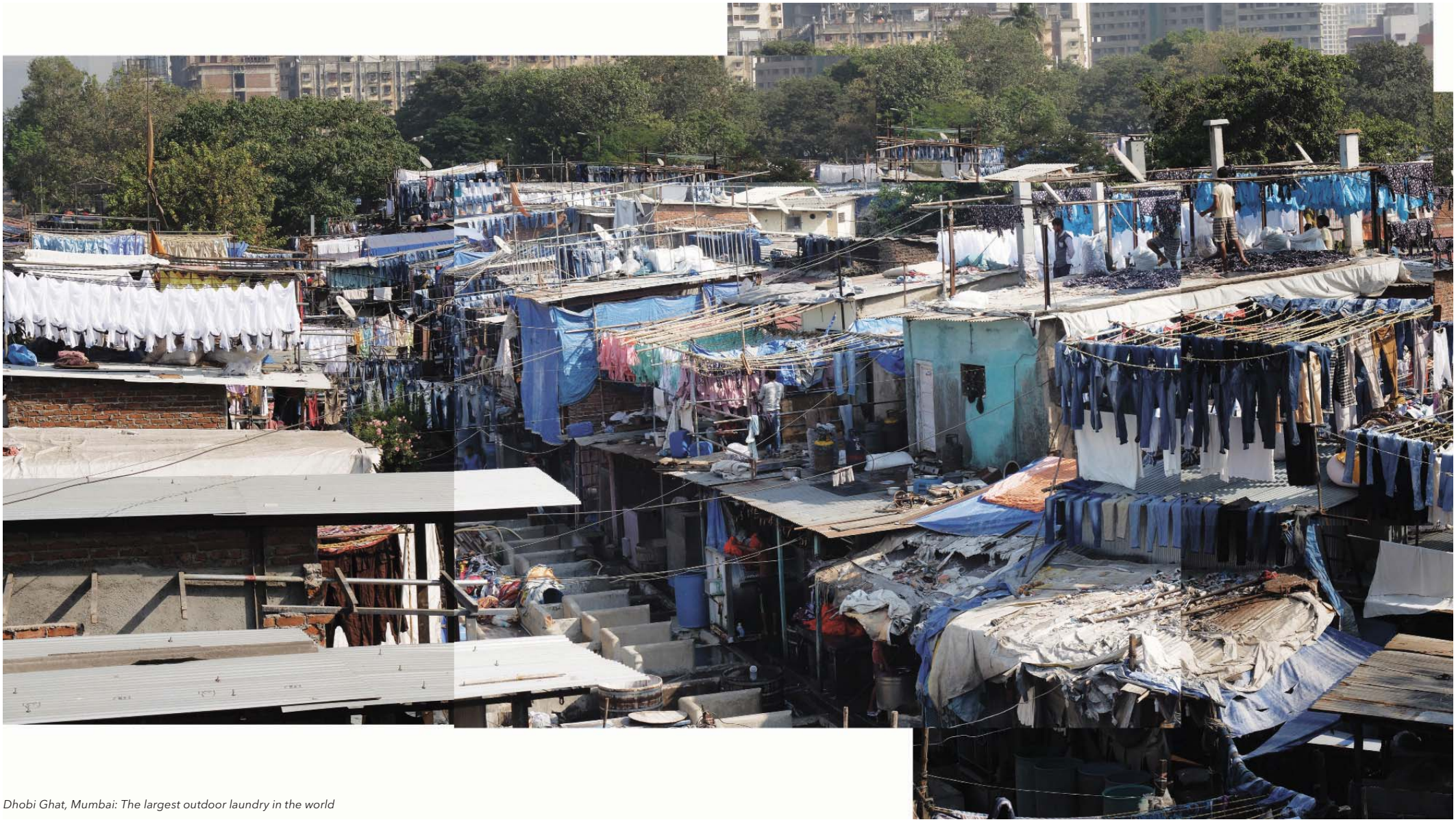
This poses the question, how will development take place without destroying or disrupting this informal economy? Incrementally formalising and relocating the recycling business to another site in Dharavi requires careful attention to ensure livelihoods are not destroyed but also health and safety is greatly improved. Architects have an important role to play in the connected urban renewal of informal business precincts.

**Photo:** *Rohit Lahoti - Dharavi: The street  becomes a mosque*

**Photo:** *URBZ - Dharavi: sorting plastics for recycling*



**Photo:** *Pierre Omidyar - Dharavi Street*



*Dhobi Ghat, Mumbai: The largest outdoor laundry in the world*

# Dharavi: Redevelpment Plans

Dharavi is located in the heart of the city. The increasingly valuable land has led many politicians, developers, architects and urban planners to devise schemes to raze the slum and replace it with high-rise residential and commercial ventures. They revolve around expanding the adjoining business district, Bandra-Kurla Complex. The state government is currently seeking expressions of interest for the latest project to demolish and rebuild 75% of Dharavi, which is estimated to be worth US $2.1 Billion. In order to achieve commercial profitability, Dharavi was given a special floor space ratio (FSR) of 4, whilst the prevailing FSR in the city is 1.33. Developers are now lobbying the Airport Authority to lift building height restrictions from 56 metres (13 floors) to 75 metres (18 floors) [11]. Under the current plan, residents in the first sector will receive 38 sqm apartments (based on the size of their current houses), and the remaining slum dwellers would get houses of 32sqm apartments [12]. The project has proceeded with little or no community consultation, and residents understandably feel disenfranchised with the process. So far, developers have regarded the well-being of the existing residents as a hindrance to profits, rather than the primary objective of the project.

The proposed tabla rasa approach not only risks displacing thousands of the most vulnerable people, as only residents who have lived in Dharavi before 2000 are eligible for new housing, but also endangers livelihoods and enterprises accumulated over generations. For Dharavi's organic and complex layers to be preserved, a community-led approach is required.

When I spoke to many residents in Dharavi, some saw moving into high-rise as upgrading their socio-economic status. Friends and relatives will visit more often they said. It is understandable residents of Dharavi are looking forward to less stigmatisation, improved amenities, views, more privacy, and security; as these are all benefits people have claimed high-rise living provide. However, high-rise is also the only opportunity for upgrading currently being presented to them, because it makes the most sense from the property developer's perspective. In other words it is based on the least financial cost to the developer and ignores social, economic and capital costs of the residents.

If urban planners and architects have learnt anything from the 20th century modernism, it should be that high-rise isolates and concentrates the socio-economic disadvantaged, encouraging further stigmatization and perpetuating the cycle of neglect. Failed high-rise public housing in the United States, Latin America and Australia exemplify the failure of this typology to provide a transition to the middle class. Low-rise high density models have not been discussed in current proposals by the city of Mumbai.

The main limitation to upgrading and redevelopment in Dharavi has been land ownership. Until residents have secure property tenure, speculative designs for in-situe upgrading are inconsequential. In, 1895, the

British colonial government granted the squatters a 99 year land-lease, however this was not extended in 1995. According to the 2010 Dharavi Redevelopment Project, 60% of Dharavi's land is owned by the Municipal Corporation of Greater Mumbai (MCGM), 13% by the State Government, 17% by Private owners, and 10% by Railway corporations and other entities.

*"The rich man will be left in possession of his wealth of which he will use what he reasonably requires for his personal needs and will act as a trustee for the remainder to be used for society."*

*Mahatma Gandhi explains his principle of trusteeship, whereby whatever is in excess of the basic human needs should be used for the proportion of the common good. He did not believe in forceful dispossession of wealth, but voluntary contributions towards a type of community inheritance.*

Community land Trusts (CLTs) are seen as a potential solution to this complex issue of land ownership, and would ensure the appreciation in land value would accrue to the community and not individuals, allowing property to remain affordable. There have been calls for the various levels of government to release ownership rights of the 83% of land they control to the Dharavi Community Land Trust (made up of community members, landowners, and neighbourhood associations). Under this system the residents would be empowered to plan in-situe upgrades, without the threat of eviction. Plural, a multi-disciplinary collective recently proposed this idea during a 2014 international ideas competition called 'Reinventing Dharavi'. Their entry was judged the winner by competition organiser the Urban Design Research Institute (UDRI).



# Learning from Dharavi

Overview:
During my visits to Dharavi I was able to form an impression of the micro and macro elements of the slum. Whilst the public health issues are appalling in many instances, there were many positive and inspiring social aspects of Dharavi which were supported by informal self-built housing and commercial areas.

Key lessons were;

**1. Public health issues** of clean water and sanitation in Dharavi require urgent attention, and should be addressed regardless of speculation over future development plans.

**2. Mixed-Income Neighbourhoods.** Within Dharavi's neighbourhood there was a wide range of income levels, which had promoted some levels of urban revitalisation, poverty alleviation and economic desegregation. Poorer residents were often scattered throughout diverse, middle-class neighbourhoods. This diversity is not catered for in the developer proposed high-rise model.

**3. The Informal economy** provides a means for transition but also exploitation. Incrementally formalising and relocating informal economies requires careful attention to ensure livelihoods are not destroyed but also health and safety is greatly improved. There is a need for a more nuanced view of informal economies. In order to meet the distinct needs of informal entrepreneurs and labour, governments must develop linkages between the formal and informal economies which help informal enterprises grow and the poor enter the formal economy.

**4. Adaptive spaces** with multiple uses strengthen local social networks. The compact planning of the dwellings I visited was a product of financial constraints, however the outcome was a series of hybrid spaces which created social cohesion and improved street life. By utilising space and making the most of every square metre, the slum had developed a self-sustaining model of high density low-rise living.

**5. Multi-generational homes** not only meet caregiving and financial needs, but also provide built-in opportunities for a family closeness, child-care, and increased well-being for children and older citizens. The developer high-rise model is less flexible for generational evolution.

**6. Valuing the existing infrastructure.** The social, economic and capital costs of the residents must be properly valued as the first step of any redevelopment process.

**7. In-situe upgrading of slum areas.** The proposed tabla rasa approach not only risks displacing thousands of the most vulnerable people, but also endangers livelihoods and enterprises accumulated over generations. For Dharavi's organic and complex layers to be preserved, a community-led approach is required.

**8. Land Tenure.** Redevelopment (including In-situe) should only occur once community land tenure is resolved. Community land Trusts (CLTs) are seen as a potential solution to this complex issue of land ownership, and would ensure the appreciation in land value would accrue to the community and not individuals, allowing property to remain affordable.

# References


1. United Nations, World Urbanisation Prospects. 2014, United Nations (Department of Economic & Social Affairs): New York.

2. United Nations Population Fund, U., State of World Population - Adolescents, Youth and the Transformation of the Future, in The Power of 1.8 Billion. 2014. p. 136.

3. India, C.o., Rural Urban Distribution of Population (Provisional Population Totals). 2011: New Delhi.

4. World Population Review, Mumbai Population 2016, in World Population Review. 2016.

5. The World Bank, W.a.S.P., The Mumbai Slum Sanitation Program. 2006, The World Bank.

6. Institute, M.G., India's urban awakening: Building inclusive cities, sustaining economic growth. 2010, McKinsey Global Institute.

7. Engqvist, J.H., M. Lantz, and Royal University College of Fine Arts Art & Architecture., Dharavi : Documenting Informalities. 2009, New Delhi: Academic Foundation. 303 p.

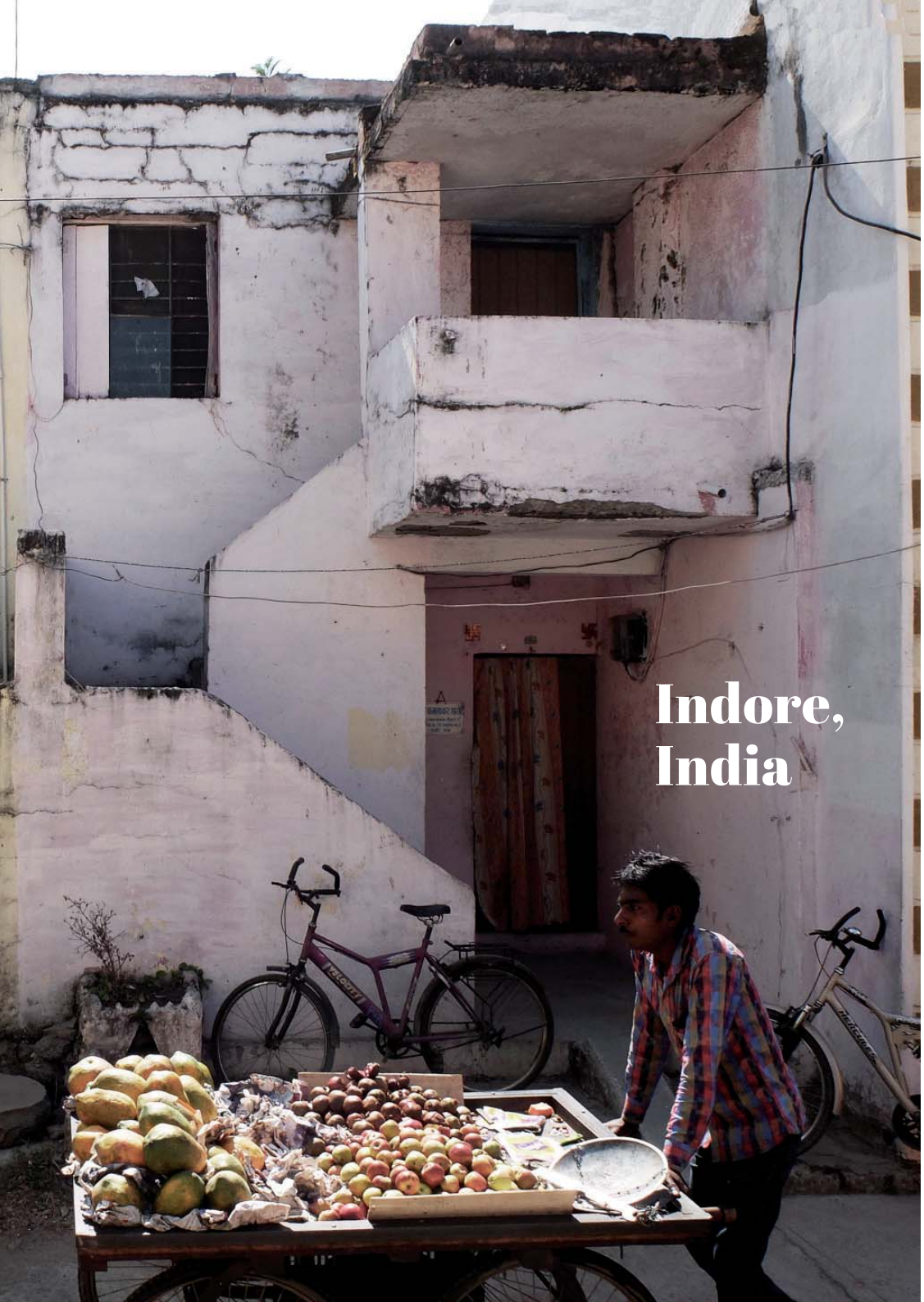
8. Fernando, V., In the Heart of Bombay: the Dharavi Slum, in dialogues, propositions, histoires pour une citoyenneté mondiale. 2009.

9. Neuwirth, R., Shadow Cities : a billion squatters, a new urban world. 2005, New York: Routledge. vii, 335 p.

10. Barman, A., Informal workers, making up 90% of workforce, won't get a good deal till netas notice them, in The Economic Times. 2013.

11. Babar, K., Dharavi redevelopment: Poor show forces authority to postpone bid submission deadline again, in The Economic Times. 2016.

12. Yardley, J., In One Slum, Misery, Work, Politics and Hope, in The New York Times. 2011, The New York Times.

# Indore, India

## Historical and Political Context

Indore is the largest and most densely populated city in Madhya Pradesh (a central Indian state), with over 2.5 million people in the greater metropolitan area. The city is the prosperous commercial centre of the region, which has a multicultural population including Marathi, Gujarati, Marwari, Muslims and Sindhi. Long-term and seasonal migrants coupled with a natural population growth have seen the city limits expand rapidly in recent years.

The Urban Health Resource Centre estimated in 2011 that over 900,000 people live in slums, which was nearly half the city's total population that year.

## Aranya Community Housing: Sites & Services

In January 2016 I visited the Aranya Community Housing project. The objective of Aranya Community Housing (known locally as Sector 78) is to provide housing, community and commercial facilities for primarily low-income and poor families, in a socially balanced and ethnically mixed environment. To achieve this, the architects focused on micro and macro design strategies which support cohesive social relationships, encouraged tolerance between ethnic groups and achieved affordability targets. The masterplan was completed in 1983, and a significant portion of the public infrastructure, community facilities, serviced sites, 80 demonstration houses and privately developed houses had been built by 1989. However construction is ongoing, as the project promotes incremental development by means of user involvement. The architect's client was the city's town-planning office, the Indore Development Authority (IDA), and it was funded by the government-owned corporation HUDCO (Housing and Urban Development Corporation) in partnership with the World Bank.

Initially on the periphery of the city, Aranya Community Housing has since been completely engulfed by the city's urban growth. It is now situated in an extremely valuable and connected location. The site is 6 km north of the city centre on 88.75 hectares of land. The initial population was estimated to be 43,000 people, however the project was designed to grow to 65,000 people over time (about the same size as the Green Square Development in Sydney). The township was designed to contain all essential infrastructure (water, sewerage, stormwater drainage, roads and electricity)

and community facilities (educational, commercial, security, health and recreation). In sites and services projects such as this one, roads and utilities constitute the major portion of the project cost (50-70%), and hence efficient design of these elements is critical for the project's success [1]. The residents I spoke to mentioned that Aranya had serious issues with the stormwater drainage and sanitation systems. During the monsoon season, there are major flooding events causing drains to backlog and flooding of the ground floors of homes.

Planning occurred across a range of scales from broader urban context to the detailed dwelling and service core layouts. The architects devised five scale ranges within which to work; township, sector, community, street/cluster and dwelling.

*'A fine-grain distribution of persons was part and parcel of the social idealism in the planning [1] (Referring to ethnic, religious and socio-economic diversity).*

This concept formed the foundation of the township level planning, along with a central circulation spine. At the next scale, the site was carved into six sectors (ranging from 7,000-12,000 people) and diagonally bisected by parks. Each sector was then divided into several smaller communities of 700-1500 people based on the concept of pols (housing clusters) or mohallas (neighbourhoods) found in traditional villages and towns. The street / clusters were organised groups of 10-50 households around semi-private open spaces, designed to promote face to face social encounters [1].

At the dwelling scale, rather than supplying conventional housing, basic service cores containing a kitchen and bathroom were provided on serviced plots. 'The built form is then extended by the occupants at a pace in tune with their capacity to mobilise resources' [1]. Sites for the economically weaker sections (EWS) ranged from 'site with service core, to site with a service core and plinth, to site with a service core, plinth and a room. People could choose the option that best suited their need and ability to pay'. Sites for the higher income groups, were only sold as plots [1]. Overall there are 6,500 residential plots, of which 65% were allocated to the economically weaker section (EWS). Plot sizes range from 35 sq.m for EWS residents, through to 457 sq.m for high-income residents. There are also plots for multi-storey apartments.

Central to the architects approach was an ability to think conceptually and work through details simultaneously. One example is the three tiered hierarchy used to plan open spaces. Public, semi-public and semi-private zones were designed to strengthen social networks at a range of scales and activities. Public (28%) consisted of formal playgrounds at township scale, semi-public open spaces (48%) was made up of linear green spaces and pedestrian paths at the sector and community scale, and Semi-Private open spaces (24%) involved small squares at the street level and small public/private spaces at the individual dwelling unit level.

*Aranya Demonstration Houses 2016*

# Interview: Vastu Shilpa Foundation

Before visiting the Aranya Community Housing, I first travelled to Ahmedabad, Gujarat, in December 2015 to discuss the project with the architects who designed it. Vastu Shilpa Consultants (VSC) was founded in 1956 by renowned Indian architect B.V. Doshi, who worked for Le Corbusier early in his career and later collaborated with Louis Kahn. VSC work in parallel with their in-house research institute, Vastu Shilpa Foundation (VSF) which has focused on exploring cultural, community and environmental design principles. I met with Mr Rajeev Kathpalia, a trustee and Joint Director of Vastu Shilpa Foundation, in their offices at Sangath, Ahmedabad.

*"Aranya has developed into something well beyond what was anticipated. The levels of density and vibrancy of the community has far exceeded the original vision', said Mr Kathpalia.*

"81% of families have stayed on in Aranya". Unfortunately however, the government has withdrawn from schemes such as Aranya since the 1980's and 90's, and current policy and thinking centres on privately developed social housing. The "politics of the city are immensely complicated", he explained, and have greatly influenced the built outcome and community organizational structures. Different community and political groups control each of the 6 sectors at Aranya.

Aranya was based on a housing project for Life Insurance Corporation (LIC) in Ahmedabad, which was designed by B.V. Doshi in 1973. A project which centres on a sites and services approach, planned for future incremental growth, with mixed incomes and ownership patterns incorporated into 324 units arranged in a duplex terraced unit scheme on 54 plots. Many lessons learnt from this project were explored further in Aranya, such as building clusters, rear courtyards, exterior staircases and shared roof access.

*"People have more financial capacity than we give them credit for", mentions Mr Kathpalia. One unexpected outcome he points to in Aranya was that EWS residents were willing to pay extra for better quality toilets and other facilities for their basic service cores.*

A large part of the Indian economy is based on the informal economy. This financial resilience and resourcefulness is something that VSF identified, which allowed them to provide a larger scale of housing solution than similarly priced conventional housing schemes.

With the benefit of hindsight, I asked which improvements VSF might make to Aranya. It could have been more inclusive, Mr Kathpalia explained, with "better organizational systems, which allow owners to have a larger say". Opportunistic property developers moved in quickly, and have strayed away from the masterplan and fine-grain cluster / street designs originally envisioned. Another aspect he mentioned for improvement were "natural systems (particularly water, stormwater drainage and sanitation), that needed to be integrated on the larger scale". The project focused too intensely on the macro (house configurations and clusters) and not enough on larger overarching services and infrastructure systems. Currently, VSF are working on a large 'systems project' in Ahmedabad, which explores greater flexibility and adaptability at an urban scale.

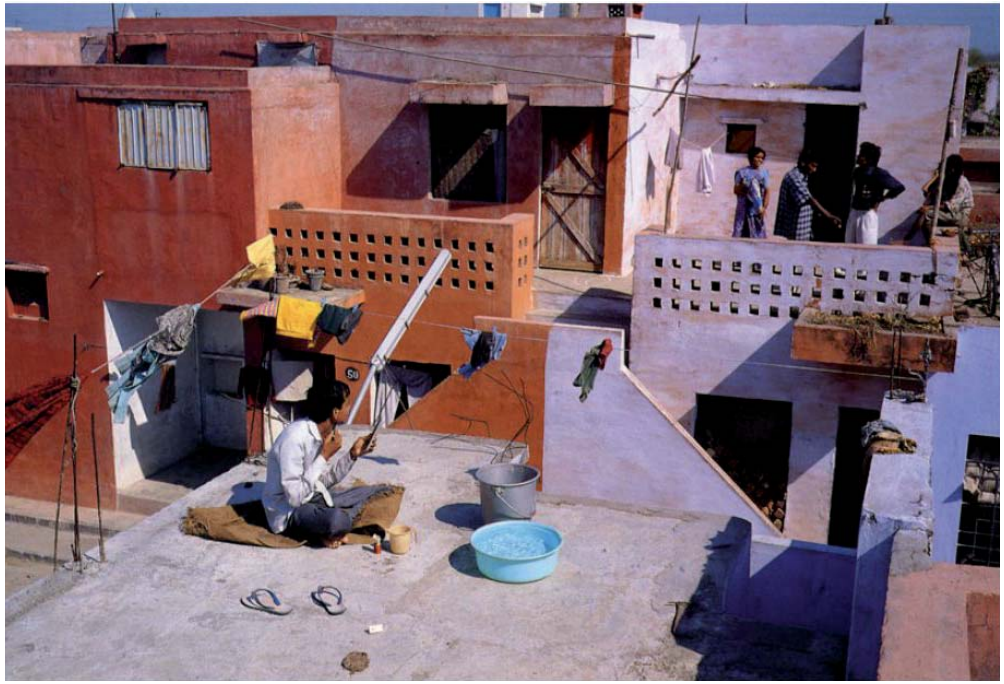


**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya Demonstarion Houses 1989*

**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya Housing Typologies 1989*

*Aranya Demonstarion Houses 2016*

**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya Demonstarion Houses 1989*



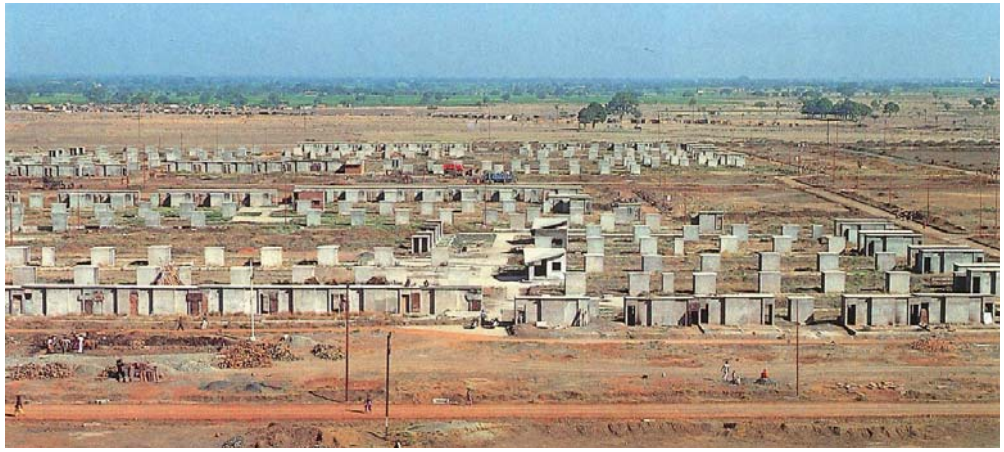


**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya Site & Service Cores 1988*

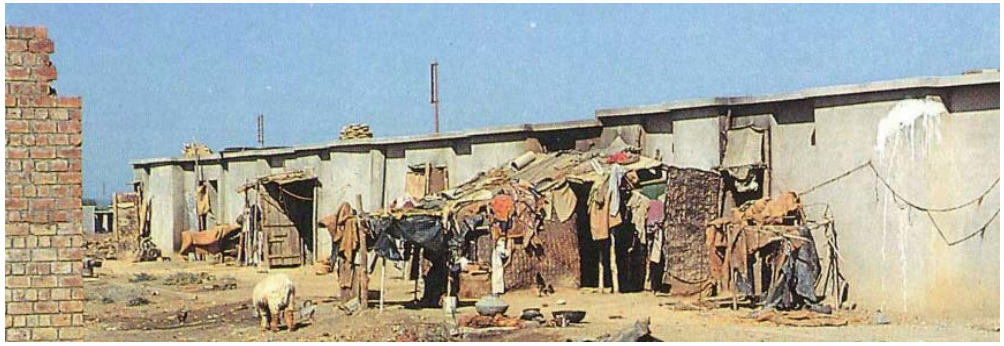


**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya Site & Service Cores 1988*

*Aranya Demonstration Houses 2016*

**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya*

**Photo:** *Vastu Shilpa Foundation (VSF) - Aranya*

*Aranya Demonstration Houses 2016*

*Aranya Demonstration Houses 2016*

# Community & Street Level Clusters

I visited the Aranya Community Housing to form an impression about the success of this highly ambitious project, 27 years after the first phase of construction was completed. I was particularly interested in how the community and self-built housing had matured over time.

I was able to compare the original 80 demonstration houses, which were well photographed after their construction, to the current housing stock. After wandering the streets for some time, I noticed that only two of the 'red row houses' remained as designed in 1989. The neighbourhood had been completely transformed by the resident's ongoing modifications and extensions. My first impressions were of brightly painted facades, street trees, pot plants, balconies, street furniture and external stairs opening onto the street. The scale of the streets and lack of private cars made the neighbourhoods walkable and the streets were well used by all the residents. The local school is only two blocks away from the demonstration house area, and many children were riding their bikes and playing on the streets. Women were on the streets, gathering in small groups outside their houses. A strong sense of community was evident.

VSF created a detailed methodology for the evolved hierarchies, using the following checklist for planning at the community / street level:

1. Promote person to person contact through clusters of human scale.

2. Provide an individual character to each cluster.
3. Create a functionally sympathetic and an aesthetically pleasing street environment.

4. Provide spaces for social and religious activities

5. Promote income generation at a cluster level.

6. Provide all essential amenities and utilities to every street.

7. Define clearly each cluster territory, and the sense of entry.

8. Have regard for pedestrians and bicyclists.

9. Optimise cluster patterns for economic infrastructure provision and easy access.

Row housing was chosen to reduce road and services reticulation and in turn project costs, however this efficient use of land also supported social interaction between residents through clusters of 10-50 households sharing open spaces. The human scale of the streetscapes made Aranya a very enjoyable place to walk around, and I imagine a great place to live.

*"Dwellings were grouped around short streets and cul-de-sacs to form clusters…The smallest streets were at least 4.5m wide, with an adequate right of way for emergency vehicles. A band of 0.5m on both sides of the street acted as a transition space between house and the street…Street widening, twists and staggers gave a sense of character, and an element of surprise. The most important aspect of the street pattern within the cluster was the recognition of streets not only a network for movement, but also a setting for various activities [1]".*

*Aranya Demonstration Houses 2016*

*Whilst Aranya's masterplan is an imposed 'top-down' planning strategy, it also allows a certain level of freedom. A kit of building elements was supplied by the architects, including staircases, openings, railing variations and house extension options.*

Residents were encouraged to create personalised variations on a standardised plan by rearranging these elements, this process has been successful at diversifying the character of the street, which is a very pleasing attribute of the scheme. I could see modifications of the external staircases and balconies which appeared to be adopted by many residents in the area I visited. The two streets of 80 demonstration houses are impressive in their architectural expression, and have had an impact on the urban character of the immediately surrounding plots. However, in the context of Aranya's additional 6,420 plots, the impact of these demonstration houses has been less. One of the reasons being, that high-income plots did not contain service cores, and as such have not adopted the planning principles VSF set-out to instil in the project. These have been developed mostly into ordinary apartment blocks or bulky single dwellings with little consideration for the public domain.

In order to avoid the segregation of income groups, plots were arranged in concentric rings of diminishing sizes. The outer rings of larger and more expensive plots had good vehicular access, while the lower income plots were clustered around open spaces with an emphasis on pedestrian traffic. The clustering pattern of the smaller plots reduced the effect of the high net density and at the same time, it took advantage of the lower site costs and encouraged social interaction' [1]. From my observation of Aranya, the demonstration house plots had developed a fine-grain urban texture, with vibrant, safe streets and what appeared to be well established social networks and high functioning community.

# Dwelling Unit Level: Transitional Spaces, Extensions & Modifications

Central to the scheme was that most of the development was 'serviced site' only, whilst the EWS sites had service cores. 'A minimal dwelling was designed so that it could be progressively upgraded and enlarged. At the initial stage, the dwelling consisted of a basic service core and a room. The basic core could be merged into the future ground floor extension. Space was provided for a staircase in the front porch or the rear courtyard to reach the roof terrace. This would eventually serve the first floor, built to cater to the growing needs of the family. The balcony and the roof terrace provided additional open spaces, useful for sleeping outside during summer nights. Each dwelling would have a private open space. The variations in the use of traditional elements like otlas, platforms, balconies, doors and windows in the same layout would give each house a unique character [1]". An Otla is a transitional space which marks the transition between the street and the house.

The transition from public to private spaces in critical to the success of low-rise high density dwellings, to ensure adequate levels of privacy are maintained whilst also optimising the opportunity for social interactions between residents.

This was another aspect which I thought was successful. "The degree of publicness of various spaces of the house correspond to a sequence which began with the entrance and the most public parts, and led to the more private areas or domains. Otlas, platforms and porches were transitional spaces between the street and the house. The degree of publicness of these spaces was highest within the spatial arrangements of the house, these spaces could also be used as shops or workplaces. On the other hand, the courtyards at the rear were the most private spaces of the houses. The toilet core was justifiably located adjacent to the courtyard. Between the otta and the courtyard was the living area of the house, followed by the kitchen. The spaces were so arranged that the house became progressively private [1]'.

House extensions were carefully considered, an aspect often neglected in sites and services projects. The architects studied 'various site and services projects, other planned housing projects and informal settlements to evolve and incorporate guidelines'. The result was a 0.5m transition zone between the street and the house was zoned for future expansion for structures that enhance the character of the street. Permitted structures included: otlas, platforms and open staircases. The flexibility this rezoning afforded residents, and the diversity of the streetscape that resulted was an extremely

successful element of the scheme in my opinion.

Otlas (raised concrete/ tiled platforms) are used in Araya as a transition space to separate the dwellings from the street. Otlas take on many functions from storing family possessions, preparing food, studying, sewing, reading, playing, drying laundry to religious activities. In Aranya water is only available for 1 hour in the morning, so the Otla (where taps are located) becomes a concentrated place of social activity during these times. At other times, the otla facilitates casual social interactions. During festivals and celebrations a canopy is used to link otlas across the street, literally turning the street into a communal outdoor room [2].

*Architect Mohit Keni describes the otla as "the element of transition between the public (street) and the private (house) domains considered to be profane and sacred, respectively. It is the first point of contact of the house…Visitors are asked to remove their footwear…here before advancing into the interior of the house. It becomes a centre for informal gatherings of small groups adding life to the street" [2].*

*One of the last demonstration houses that has not been radically extended or altered*



# Community Participation: Finance & Allocation

Aranya contains a number of socially idealist principles and innovations which have been cleverly researched and developed by VSF. The project is a rigorous exercise in master planning and subdivision, which was in contrast to the informal settlements I had visited previously. The 'client' was a government agency (Indore Development Authority) and, for that reason the opinions of the intended residents were underrepresented.

*The project lacks a level of community participation in regards to the design, allocation of plots and financial systems. Without the community's active participation, which creates buy-in and consensus, the long-term objectives to provide housing for 'primarily low-income and poor families' is minimised.*

Many of these factors were beyond the control of the architect, who took on a more traditional 'top-down' planning role. Despite this the outside to inside planning works well to create and promote social interaction.

The "ethically balanced" neighbourhoods that the architects envisioned were a very admirable goal, however they were also difficult to implement in practice. Muslims were the first to sell plots assigned to them, due to the insecurity they felt within the Hindu community. One resident commented that Aranya had "no Muslims, not originally, not ever". Sectarian tensions between Hindus and Muslims, have resulted in Muslim minorities living together in contained communities or enclaves in most Indian cities. It was therefore always going to be very difficult to achieve the social idealism of "a fine-grain distribution of persons" in the context of Hindu-Muslim neighbourhoods. Had Muslim and Hindu communities participated together in the design and allocation processes, there may have been a greater chance at achieving some integration through a sense of common ownership of the project between these two groups.

The loan repayment system was based on the average income of the family, and the loan balance was paid in monthly instalments. The chargeable costs and affordability were calculated on 12% interest rates over a 20 year loan. For example, the

cost of a most basic 35 sqm EI plots (service core, without plinth or room) were priced for the most financially disadvantaged citizens (EWSI) who were earning between 150-200 rupees per month in 1990 (equivalent to approx. 1,380 Rupees or $49 AUD in 2016). This group of people were asked to pay 12.5% of their monthly income (25 Rupees) towards the value of their plot, which was 4409 Rupees (equivalent to approx. 30,300 Rupees or $625 AUD in 2016) [1]. The relatively low percentage of monthly income dedicated to repayment of the loan, was designed so they could spend another 20%-30% of their monthly income on building their new home. The funding agencies Housing and Urban Development Corporation (HUDCO) and the World Bank, stipulated a minimum of 65% of the plots be affordable by the EWS without any external subsidies, although some cross subsidisation within the project was acceptable.

*"An attempt was made to cross-subsidise the lower income housing through the profit generated by selling plots at market prices to high income groups [1]".*

The mixed-Income incremental housing system is subject to the same market forces as other areas of the city. Private investment is important to raise capital to construct the new housing and subsidise the low-income plots, but this also encourages property speculation. In Aranya, the 65% of the plots assigned to the economically weaker sections (EWS) at highly subsidised rates, left them vulnerable to property speculation.

*I spoke to a small number of residents, who reported EWS plots being sold "multiple times" before anything was even built. By 1995, the resale price of a 35 square metre plot was approximately 10 times the price paid by the original beneficiary, according to local property brokers [3].*

The large amounts of money offered by property speculators proved too tempting for many of the poorest and most vulnerable plot owners, who often sold up and moved back to slums on the outskirts of the city. Of the 80 demonstration houses, the residents I spoke to said only a handful of the houses were occupied by the original residents. It's important to note, I'm only speculating here, as some of EWS residents may well have sold their properties for a substantial profit, transitioned to middle-class, and moved away for a number of other reasons. Today the VSF estimate the average price of a residence in Aranya is 800,000 Rupees ($16,430 AUD), which is 26 times the value of the 35sqm EI plots assigned in 1989, after inflation is accounted for.

From my discussions with residents some typical occupations and incomes in Aranya currently include a taxi driver: 4000 Rupees per month ($80 AUD which is $960 AUD per year), government official at the District Collectors Office: 16000 Rupees per month ($320 AUD), and government official working at a passport office: 39,000 Rupees per month ($780 AUD). The average wage in India per month (according to the International labour Organisation) is 19,000 Rupees ($390 AUD). My understanding, from talking to some residents, was that there is a wide range of incomes in Aranya, but most residents are now middle class.

The allocation of plots is another issue which could have been improved upon. Residents mentioned that plots were offered to government employees and local politicians "free of charge", who then employed private developers and property brokers to sell them on their behalf. According to the residents very few of the intended users, the economically weaker sections (EWS), received plots that they were promised. This is a symptomatic of the 'free-market' rarely ever working in favour of the poor in reality as it might in theory. Without proper regulation and protections, the most vulnerable are often economically evicted or excluded from desirable locations, before they have an opportunity to improve their situation. This community like many of the others I visited may have benefited from Community Land Trusts (CLTs), in order to protect the area from rapid gentrification and the displacement of poorer residents from communities.

The major risk of micro-credit loans, such the system used for Aranya, is the 'debt trap' they present for the poor. Many of the original EWS residents who received the plots at Aranya were unable to pay the instalments, and were subsequently charged a penalty fee by the Indore Development Authority (IDA).

This penalty system resulted in a debt spiral for many residents, causing great stress and resulting in them selling their plots with the debt notices for very modest returns [3]. This was very damaging for the community building process.

**Photo:** *Vastu Shilpa Foundation (VSF) - Demonstration Houses 1988*

# Key Lessons from Aranya

Overview:
After visiting Aranya community Housing, and discussing g the project the architects (Vastu Shilpa Foundation) I was able to form an understanding of the successes and failures of this innovative project. A project I believe should be studied by more architects.

The key lessons were:

**1. A 'Whole of Community' approach** to planning including detailed consideration of housing, work, play education, health and social services is a critical underpinning element of this scheme.

**2. The financial model, protection and support mechanisms** for the most vulnerable residents are critical to prevent them becoming trapped in a debt spiral. If poor residents aren't given ongoing financial and social services support, the project becomes only housing for middle-class. Again, community land Trusts (CLTs) are useful mechanism for negating the negative effects of property speculation on the economically weaker sections. This must be implemented in a manner which does not deprive the EWS from the benefits of property investment and wealth creation, but also so they do not land back in another slum with the proceeds of the intended EWS housing scheme.

**3. Community-led design and budgeting** would greatly improve the Aranya model, creating greater buy-in and consensus on a range of issues.

**4. Services and Site approach** is a proactive approach for governments and to take to the future growth of cities. Especially low income housing with a user investment in the growth of the house. Through forward planning of service reticulation and community infrastructure (the most expensive aspect of any township project) many of the enormous costs associated with in-situ upgrading of informal settlement can be avoided. The residents are also provided with the basic utilities they need to incrementally improve their housing and local businesses.

**5. Incremental Owner-Built housing** within the framework of 'services and sites' can promote earlier the ability of low-income group's in society to earn, save, borrow, invest and build housing as a means of both social inclusion and wealth creation

**6. Outside Vs inside design rational.** In Aranya the design of the individual residence starts with the outside (public space) and moves inside to more internal (private spaces). This is in contrast to a conventional 'Western' approach to residential design which begins with the internal planning (private spaces) and moves to the outside (public spaces), which are often an afterthought.

**7. Transitional spaces from public to private** is critical to the success of low-rise high density dwellings, to ensure adequate levels of privacy are maintained whilst also optimising the opportunity for social interactions between residents. Hybrid vernacular structures such as otlas can be effective for these purposes.

**8. House extensions** should be encouraged through planning policy to improve the character of the streetscape. Transitional zoning of permitted structures such as otlas, platforms, balconies, roof terraces and open staircases can achieve this.

**9. Regulation and transparency** surrounding the plot / dwelling allocation process must be carried out to prevent widespread levels of corruption and ensure the objectives of the project are upheld.



# References

1. USAID-HUDCO Shelter Design and Analysis Grant Programme, et al., Aranya : an approach to settlement design : planning and design of low-cost housing project at Indore, India, March 1990. 1st ed. 1990, New Delhi. xi, 171 p.

2. Kaza, K., The Otla: A 'Free Space' in Balkrishna Doshi's Aranya Settlement. 2010, Unitec New Zealand School of Architecture.

3. Khosla, R., Aranya Low-Cost Housing. 1995: Indore, India. p. 3.

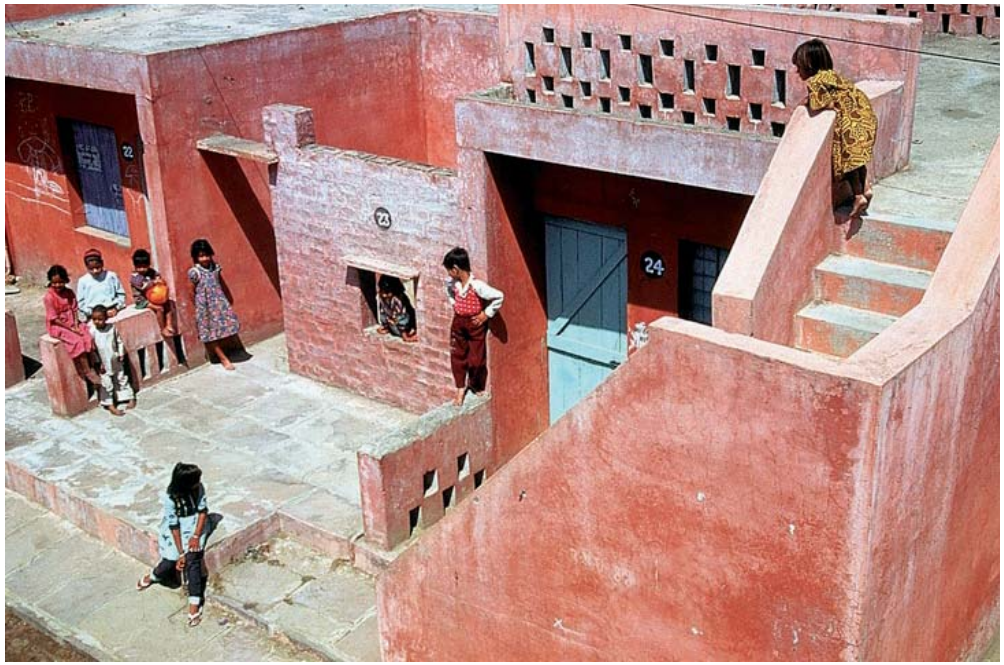



**Photo:** *Vastu Shilpa Foundation (VSF) - Demonstration Houses 1988*

# Conclusions & Speculative Applications

## Low-Rise High-Density

*"Density needs to be re-imagined as a number of socio-economic exchanges per area"*

*Teddy Cruz, Architect and Urbanist*

In the informal settlements I visited on my study tour I observed small dwellings, shared common spaces and higher density. In both the in-situ upgrading of informal settlements, and the development of new housing in affluent neighbourhoods, there are universal benefits of adopting these principles. The alternatives are simply not socially or environmentally sustainable. Low-density suburban precincts encourage urban sprawl, in which broad streetscapes of detached dwellings on the periphery of the city are dependent on private car ownership. On the other hand, High-rise residential is vertical urban sprawl which separates residents from the street, reducing the chances of social encounters critical to the energy of a city and social capital. It also limits potential for self-created economic activity which have broad social and community benefits.

*"Meaningful contact with ground level events is possible only from the first few floors in a multi-story building. Between the third and forth floor, a marked decrease in the ability to have contact with the ground level can be observed. Another threshold exists between the fifth and sixth floors. Anything and anyone above the fifth floor is definitely out of touch with ground level events."*

*Jan Gehl, Danish architect and urban design consultant.*

The global housing market, including Australia, needs to move away from detached dwellings as a solution to housing demand. Alarming statistics confirm Australian houses are the biggest in the world, and are getting bigger. The average floor area of a new free-standing house in Australia is 243 square meters, and average floor area per capita is 89 square meters [1]. For comparison the average size of an Indian house is 47 square meters (roughly 20% the size of Australian Houses), and the average floor space per capita is 11 square meters. Land ownership forms a deep seeded part of the Australian psyche, a detached suburban house with a big backyard typifies the 'Australian Dream. Perhaps most concerning is that Australian cities footprints relative to their population, make them the least densely populated cities in the world. In Sydney, the SEPP 65 legislation guarantees architectural involvement in multi-unit, higher-density apartment design. However, a large proportion of our housing will continue to be provided as detached dwellings for the general housing market.

High rise residential towers also pose a serious threat to the livability of neighbourhoods. In Waterloo, Sydney, the State Owned Corporation UrbanGrowth are 'master developers' of a new high-rise residential precinct with 20-30 storey towers housing around 70,000 people per square km. The quality of the streetscape and public amenity will no doubt be compromised to meet the required returns on investment.

High-density low-rise developments have the benefit of being able to pay for well-located sites normally occupied by high-rise developments, allowing future residents access to transport links, employment, education and health facilities. In Rio de Jainero, a large number of the older and subsequently more developed favelas have been built in some of the best locations in the city, walking distance from public transport, employment opportunities and the cities beautiful beaches. In contrast, the townships of Cape Town are located far from the city center resulting in high unemployment rates and socio-economic division.

If our private domain is made more compact then as compensation our public spaces need to provide more variety and adaptability. How poorly public space in Australian cities is used becomes apparent when visiting foreign cities, whose collective space is often more cleverly utilized for community events and daily activities. In Medellin, the library parks provided much needed public space for the hillside favelas and were brimming with locals and visitors on the weekends.

**Photo (Left):** *Ilia Kotchenkov - Favela Public Open Space*

# Pedestrian Cities

*"The street is a room by agreement"*
*Louis Kahn*

I observed high levels of pedestrian activity in the informal settlements in which I visited. Many streets were compact, narrow and busy with human activity. Most residents could not afford to purchase or maintain a car, and subsequently relied on walking, cycling and public transport.

The mass-produced car revolutionized mobility and convenience, and in turn had unprecedented influence on the urban planning and living patterns in our cities. The prioritization of cars in our cities during the 20th century, has created a dependency on fossil fuels, produced air and noise pollution, health issues due to sedentary lifestyles, increased social isolation, urban sprawl, and urban decay. Private cars have also increased the demand for public spending on vehicular infrastructure (roads, highways, bridges, etc.) at the expense of social infrastructure (schools, health, public space, etc.) The destructive effect on the physical and mental health of people is still not fully appreciated.

Car-orientated urban design over the last 50 years has also encouraged an inactive lifestyle. People are spending increasing amounts of time behind screens, driving cars and on their couches, hardly moving a muscle. Average journey times to regularly visited places have increased in large cities as a result of the car. Autonomous driverless cars are expected to be on the road by 2020, and could create further problems for our cities by making it more attractive to drive. They have the potential to increase the number of car trips, in turn increasing energy use, expensive infrastructure, urban sprawl and health issues as a result of more sedentary lifestyles [2].

*"All over the world, regardless of climate, religion or culture, we are all the same species. We are Homo Sapiens and we are made as a walking animal and have the same biological history. So *pedestrian cities are really about making a good urban habitat for homo sapiens."*
*Jan Gehl, Danish architect and urban design consultant*

Health can be measured quite accurately, and research shows it's important to accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day, to avoid long-term health issues such as obesity, heart disease, anxiety and depression. Walking and cycling, can integrate our required exercise levels into our daily routines, reducing our reliance on planned exercise and further artificial and costly facilities such as gyms.

*The decline of a fine grain mix of small businesses in cities can be contributed to increases in private car use.*

If business owners feel the need to provide on-site parking to attract customers, commercial and retail precincts become more disparate, reducing the amount of pedestrians. Foot traffic is particularly important for small retail business, as people tend to congregate in front of stores whilst walking, which can greatly improve sale figures. In the informal settlements I visited, the majority of customers lived within a distance that they didn't have to drive, so business owners needed only develop, and maintain just enough space for their shop. A rich market of small retail spaces, contributed greatly to the public domain, and increased opportunity for social-economic mobility.

Cities have always been the most important place for meeting, however car-dominant design has marginalized pedestrians. Human scale streetscapes, ample foot paths and minimal traffic are all important factors in drawing people out of their private worlds, and encouraging them to interact with one another.

*"A good city is like a good party, you know it's working when people stay for much longer than really necessary, because they are enjoying themselves."*
*Jan Gehl*

Whilst in New Delhi I visited the offices of Micro Home Solutions, and the team showed me a recently designed pilot project for in-situ slum upgrade in Sundernagari, North-Eastern Delhi. Following an intense community engagement process, the 830 households rejected outright the high-rise proposals, on the basis that their home-based livelihoods would not function in a high-rise structure, they cited the lack of available spill-out spaces to work and share, and the transport of materials and goods. A key element of the brief was for the dwellings to be 'close to the street at all points'. In response the architects developed a low-rise scheme with 'elevated streets' which were the domain of people, not cars.

The elevated streets became an extension of the living spaces and workshops, a place for kids to play and residents to socialize. The primary objective was to create a cohesive socio-economic community, which nurture and retain the home-based livelihoods [3].

**Photo:** *Ritesh Uttamchandani - Dharavi Street Festival*

**Photo:** *Alejandro Lavie - Capetown Township - Cooking Goats Head*

**Photo:** *URBZ - Dharavi Construction*



# Shared Spaces: Intentional Communities

Improved public life between the buildings is critical for the health of our neighbourhoods. On my study tour I observed shared community and public spaces in all of the informal settlements I visited, some were more successful than others in achieving this. From shared Laundromats and street side libraries in Medellin and Rio, to the workshop spaces in Dharavi, residents lived collectively in order to make the most of small plots and poor services. Clever storage solutions and multifunctional spaces, allow dwellings to be more compact and increase opportunities for social interactions between citizens.

Intention communities may provide the necessary link between the need to comply with top-down planning regulations, and the ability to engage with bottom-up ingenuity and resourcefulness. Intention communities are planned residential communities designed to have a high degree of social cohesion and teamwork, they include collective households, cohousing communities, ecovillages, communes, and housing cooperatives. A core design principle of intentional communities is their extensive common facilities (such as laundries, living areas, kitchens, office spaces, gardens, gyms, pools, workshops, child playrooms, guest rooms, etc.). A 'voluntary contribution model' is key to success of these communities, providing an opportunity to share not an enforced participation.

Common facilities reduce construction costs and the ecological footprint of the building(s), and they also provide an environment for casual social encounters which are critical for the liveliness of a residential community. These communities often report the highest levels of occupant satisfaction, but are least represented in housing stock [4].

*'Living on the planet a little lighter is easier if we share stuff… people who fundamentally know that their lives would be better if they cooperated with their neighbours."*

*Charles Durrett, American Architect who introduced the cohousing model to North America.*

In summary new housing typologies need to emerge in both the developing and developed world to provide more flexibility to residents at all levels of society.

# Open Source Design

Large-scale social change requires broad multi-disciplinary coordination, yet the architectural profession remains focused on isolated interventions by individual practices. Sharing commissions, information and ideas, allows architects to accomplish more quality work, more quickly.

Open-source architecture has the potential to completely change the future of the profession.

Open source is the practice of making designs available for everybody and anybody to use or modify. It has been widely and successfully adopted for the design of computer software, most notably the Linux operating system. There are clear applications for the architectural profession.

Imagine an open source architectural community where you can freely download designs, experiment, and then contribute your improvements and fixes. Submitted changes would be reviewed, and ultimately merged into the project. A process by which professionals and ordinary citizens can collaborate on design projects in a public domain, generating an increasingly more diverse scope of design perspective. It could completely revolutionise how we conceptualise, design and build our physical environments.

Building Information modelling (BIM) represents the first technological step in this process, as it utilizes model-based collaboration where multiple participants work on a synchronized central model that is integrated and can be shared among them at project phases. Technological advancements are not far off brining open source architectural and urban design into the mainstream. Until such a time, how can we more effectively adopt principles of shared knowledge and collective work patterns into our current practices? Design practices such as Urban Think Tank are active in this new territory of open-source design and cross disciplinary collaboration, allowing them to have a larger scope of work than conventional architectural practices.

Technology enables collaboration of individuals and firms. Tasks can be allocated to the best and most qualified resource. Architects need to change their work models in order to address the global housing crisis. Open-source design practices represent one such change.



# Expanding Australia's Refugee Resettlement Program

According to UNHCR, there are more than 50 million refugees around the world. Fewer than 0.3 per cent of the 11.7 million refugees under the UNHCR's mandate live in Australia, placing Australia 48th out of 187 countries. Our ranking slides even further when measured against the size of the population (62nd) and the country's wealth (74th) [5].

The global resettlement need for refugees has doubled since 2005, while the Australian government's annual resettlement quota has remained static. There are 13,750 places in its refugee and humanitarian program each year, which represents only 7% of the people immigrating to the country.

In September 2015, the Australian government has announced another 12,000 places for Iranian and Syrian refugees, which are estimated to cost about $700 million, or $58,000 per person. However, the majority of the roughly 200,000 people who immigrate to Australia annually are skilled workers and extended family members [6]. Australia really should reassess its capacity to resettle refugees, particularly given its position as one of the wealthiest countries per capita in the world.

**Speculative Application for Incremental Housing**

A bigger and more inclusive Australia requires additional housing and public infrastructure. Currently, welfare and integration costs associated with large numbers of refugees are often cited by politicians as a justification for capping the international refugee quota. Refugees need time to adapt to a different cultural context, overcome language barriers and find means of employment. During this transitional process, most find accommodation in the private rental market. What if the government provided sites & services projects, such as the one I visited in Indore? Incremental building projects provide an interesting model for expanding Australia's refugee resettlement program. Self-built low-rise high-density housing would provide the potential for temporary employment, skills training and solidarity amongst new arrivals. Most importantly, whilst the government would own the 'site & services', the owner-occupier would own what they build for housing, incentivizing them to accumulate capital and skills.

**Speculative Application of Informal Economies**

Under the current system, refugees often receive some welfare payments (ranging from $16,000 - $19,000 AUD per adult per year) [7]. Their transition into the formal economy is difficult due to high housing costs, language barriers, prejudice from employers, a lack of applicable skills and cultural differences. Whilst employment rates are low amongst resettled refugees, so is engagement in English language courses and other types of study. The effort to attain employment is present, however the pathways are not so clear. So how can Australia provide more support for refugees to enter the workforce without dramatically increasing the cost to tax payers?

The informal economies I visited on my travels hold some interesting potential applications for transitional employment and affordable housing for an increased refugee intake. If the government allowed informal businesses to exist within a semi-informal or deregulated environment it could promote entrepreneurship within the refugee community.

# The Architect as a Catalyst for Change

The status quo financial model for private and public-private housing, involves a property developer. The developer takes a level of risk by financing the housing and in return expects a substantial reward, usually about 20 to 30% on their investment. From the outset the project centers on the 'economics of the deal', which inevitably applies pressure on the architect to diminish the 'quality' of the building in order to lower costs. The developer's profit margins must be protected at all costs, and the interests of future residents and broader urban context are often compromised.

In publically funded projects, the government is the architect's client. Governments operate on 4-6 year election cycle, and this timeframe can dictate much of their policy making. Insufficient time is often spent researching and documenting design solutions, and the focus often falls on quantity of dwellings or public buildings, not the long-term quality of the social outcome. The government primarily motivated by securing votes for re-election, and spending the least amount of money to do so. Traditional political parties who most often hold power, quickly lose sight of long-term livability objectives and urban design that promotes social cohesion.

How can architects partake in the 'economics of the deal', in order to realign project objectives to better serve the interests of the public?

One possible solution is for the architect to take on the role of 'ethical developer' to better serve the needs of the urban poor. A small community of architects are taking a more entrepreneurial approach to procurement. Instead of 'waiting for the phone to ring', they are generating theoretical projects and building prototypes. These are self-funded initiatives, developed in collaborations with NGO's, philanthropists and community groups. This model repositions the interests of the urban poor and the broader community above all else.

Limited-profit housing may be another means by which architects could participate more actively in the financial modelling of projects. Limited-profit housing is geared towards a broad group of the population and unlike 'social housing' is not understood to be an element of social assistance aimed solely at benefitting low-income groups. The developer's profit margins are capped, which allows the saving to be passed onto the purchasers. The sustainable financial model allows it to be repeatedly made available over multiple generations with socially and environmentally oriented objectives. Theses may include shared living and outdoor spaces for social cohesion, centralised and sustainable energy systems, and locations close to public transport.

*"The role of architects in our society, today in the 21st century, is to reflect critically on the social issues of our time"*
*Alfredo Brillembourg, Urban Think Tank [8]*

**Photo (Right):** *Ilia Kotchenkov - Rocinha Favela*

# A New Role for the Architect

"As architects we don't have to simply design objects, we can design many more things. The design of social programs and at times political processes can be an interesting topic that has been absent from our debate."
Teddy Cruz

The role of the architect has been gradually eroded over the 20th Century, by the relinquishing of responsibilities to project managers and private finance initiatives. The architect has been demoted from 'project lead' to a glorified consultant or sub-contractor. Architects are overruled or 'out of the loop' when it comes to important decisions that affect the quality of the public domain and building performance.

*"Our generation of architects has not been politically active… we have been consumed in the means of production and in simply making buildings"*
*Alejandro Zaera-Polo [9]*

Are architects merely connoisseurs of style? Those most adept at predicting trends? Decorators and form-makers? Or can architecture be used as a tool for addressing inequalities in society? Architects are uniquely equipped with a broad education and problem solving skills suitable for addressing the dangerous divide between rich and poor, formal and informal.

*"Ultimately the new generation of architects are very dissatisfied with what they see happening in their cities. Architects in a way have become underpaid civilians in the system. A lot of us are actually working as factory workers for developers: underserved, underpaid, under-respected. And some of us are very dissatisfied with the impact of the profession, so we have adopted a more activist role like that of Santiago Cirugeda, Kunlé Adeyemi, and many others".*
*Alfredo Brillembourg, Urban Think Tank*

An activist architect, is one who doesn't wait for private or government commissions but who identifies a worthy cause, engages directly with the parties effected, and sources available funding to make it happen. Skeptics say this is short-lived idealism, inevitably beaten out of young architects once they enter the 'real world'. But there are many successful examples of architects working outside conventional modes of practice to engage with the urban poor. Recently they have achieved some media coverage, most notable the 2016 Pritzker prize laureate Alejandro Aravena and the work of his practice Elemental. It beholds the profession to take seriously the goal of greater equality, by placing greater emphasis on the humanitarian role of architectural activism.

*"If there is a precondition to activism, it is being proactive. Your client does not even know you exist, cannot afford your services and has come to expect no help from you anyway, because your client is the urban poor. So in the first instance, being an activist architect means pinpointing a difficult context and, with the support of the local community, creating an opportunity to intervene: it means self-initiating"*
*Justin McGuirk, Author of Radical Cities [10].*

**Photo:** *(In)visible Reality - Student Submission: University of Johannesbourg*

**Image:** *Urban Think Tank - Open Building Protoype - residents are responsible for customized infill development over time*

# References


1. Sorensen, E. Why are our houses getting bigger? Property News & Information 2013; Available from: http://www.realestate.com.au/blog/is-bigger-better/.

2. Plumer, B., Will driverless cars solve our energy problems, or just create new ones?, in The Washington Post. 2013.

3. Micro Home Solutions, M., Community Involvement and Design Innovation in Slum Redevelopment, in Mahila Housing Sewa Trust. 2014, mHS City Lab: Sundernagari, Delhi.

4. Belk, C., Cohousing Communities: A Sustainable Approach to Housing Development. 2006, UC Davis Extension.

5. Whyte, S. and I. Ting, As world refugee numbers hit 50 million, Australia goes backwards, in The Sydney Morning Herald. 2014.

6. Government, A., Fact sheet - Australia's Refugee and Humanitarian Programme, D.o.I.a.B. Protection, Editor. 2015: Australia.

7. Government, A., Payment rates for Newstart Allowance, D.o.H. Services, Editor. 2016.

8. Brillembourg, A., Interview with Alfredo Brillembourg, founder of Urban Think Tank, L. Amaya, Editor. 2015, Archinect.

9. Zaera-Polo, A., The Politics of the Envelope: A Political Critique of Materialism, in Volume. 2008.

10. McGuirk, J., Radical cities : across Latin America in search of a new architecture. 2014, London ; New York: Verso. 296 pages.


**Photo:** Municipality of Medellin - Parque Biblioteca España