

# + THE FUNDAMENTALS OF URBANIZATION

Evidence base for Policy Making



**UN HABITAT**  
FOR A BETTER URBAN FUTURE



# The Fundamentals of Urbanization

Evidence base for Policy Making

Copyright © United Nations Human Settlements Programme, 2016

All rights reserved

United Nations Human Settlements Programme (UN-Habitat)

P. O. Box 30030, 00100 Nairobi GPO KENYA

Tel: 254-020-7623120 (Central Office)

[www.unhabitat.org](http://www.unhabitat.org)

HS Number: HS/013/17E

ISBN Number: (Volume) 978-92-1-132730-4

## **DISCLAIMER**

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or regarding its economic system or degree of development. The analysis, conclusions, recommendations and views expressed in this publication do not necessarily reflect those of the United Nations Human Settlements Programme, the United Nations, or its Member States. Information contained in this publication is provided without warranty of any kind, either express or implied, including, without limitation, warranties of merchantability, fitness for particular purpose and non-infringement.

UN-Habitat specifically does not make any warranties or representations as to the accuracy or completeness of any such data. Under no circumstances shall UN-Habitat be liable for any loss, damage, liability or expense incurred or suffered that is claimed to have resulted from the use of this publication, including, without limitation, any fault error, omission with respect thereto. The use of this publication is at the User's sole risk. Under no circumstances, including, but not limited to negligence, shall UN-Habitat or its affiliates be liable for any direct, indirect, incidental, special or consequential damages, even if UN-Habitat has been advised of the possibility of such damages.

Excerpts may be reproduced without authorization, on condition that the source is indicated.

## ACKNOWLEDGEMENTS:

This report draws on the research carried out by the University of New York in cooperation with the Lincoln Institute of Land Policy and UN-Habitat. Data from UN-Habitat's Global Urban Observatory, the UN Population Division, the Chinese Academy of Sciences, the 2012 Atlas of Cities and other sources such as <www.citypopulation.de> were used to identify the universe of 4,231 cities having populations of 100,000 or more in 2010 which formed the UN Global Sample of Cities. These cities were stratified into 8 world regions, 3 country size categories and 4 city size categories from 171 countries. The sample includes cities in 78 countries, containing 5% of the cities and 29% of the population of the universe of cities in 2010. The sample was modified to correspond to the 5 UN world regions: Asia and the Pacific, which includes the countries of east, Southeast, South and Central Asia, along with the countries of the South Pacific, including Australia and New Zealand; Western Asia and North Africa, which includes the Arab countries, but not Turkey and Israel; Europe and North America, which includes Turkey and Israel; Sub-Saharan Africa; and Latin America and the Caribbean. This global survey was conducted in ten different languages and it involved the participation of more than 150 city-based researchers who completed the survey through research, interviews and contributions of local experts (academics, municipal government, private developers, NGOs).

A team coordinated by Shlomo Angel from the University of New York produced the initial manuscripts of the different chapters as presented below. UN-Habitat experts completed and expanded the respective chapters.

Coordinator: Eduardo López Moreno

Task Managers: Eduardo López Moreno and Claudio Acioly Jr.

Principal Authors:

- Chapter 1:** Legislative and Regulatory Regimes. By Pritha Gopalan, Shlomo Angel, Achilles Kallergis, Alejandro M. Blei, Patrick Lamson-Hall, and Nicolás Galarza Sanchez, Robert Lewis-Lettington, Anne Amin and Gianluca Crispi.
- Chapter 2:** Urban Planning is Declining all over the World. By Patrick Lamson-Hall, Shlomo Angel, Alejandro Blei, Nicolas Galarza Sanchez and Eduardo López Moreno.
- Chapter 3:** Making Housing Affordable in the Post-Habitat II Era. By Achilles Kallergis, Shlomo Angel, Pritha Gopalan, Alejandro M. Blei, Patrick Lamson-Hall, Nicolás Galarza Sanchez and Claudio Acioly
- Chapter 4:** Local Government Financing in Developing Countries: key challenges and solutions by Marco Kamiya and Ananda Weliwita,

Editors: Gordon Weiss

Design and Layout: Euclide Namema

Cover design: Euclide Namema

## The Fundamentals of Urbanization

This study is a major contribution to the fundamentals of urbanization. After three years of research, it has produced authoritative data, and qualitative and quantitative information on urban trends and conditions in the world's cities.

Urban areas, in a long-term perspective, confront a host of similar issues. The way in which regulatory policies are enacted and enforced and the form that urban planning and design take are part of these fundamentals. Equally important is how urbanization is financed, how the municipal finances work and what the capacities of urbanization to generate prosperity are.

The critical mass of data produced by the UN-Habitat Global Urban Observatory – in partnership with New York University and the Lincoln Institute of Land Policy – spanning over 25 years analysis (1990-2015), can help to determine not only the city's health, conditions and growth prospects, but also the critical areas of intervention where it is possible to have a transformative effect by adopting a clear local action framework.

This report reveals with compelling evidence that urban planning and design is declining all over the world. Cities are expanding in endless peripheries. Residential densities are reducing dramatically and public spaces are diminishing. This is a direct consequence of the poor implementation and enforcement of qualitative urban design. It is also due to laws and regulations that are weakly linked to sustainable urbanization.

Weak urban fundamentals also explain the production of housing solutions that are largely unaffordable, located in peripheral areas that increase urbanization costs and exacerbate socio-economic inequalities. They are also related to the perennial problems that cities face to generating revenues and mobilizing financial resources.



Strong fundamentals indicate the well-being of a city. They suggest that there is a viable framework in place, a clear business plan, strong planning institutions, and a sound regulatory regime.

Accurate data and information are essential to identifying sound urbanization. The UN-Habitat City Prosperity Initiative has learned this lesson over the past three years, and has adapted its monitoring framework to the measurement of the data which provide a better connection to policy responses and consensus building.

The UN Global Sample of Cities, which is the basis for the monitoring and analysis of this study, also responds to three city fundamentals: legislative and regulatory regimes, urban planning and design and urban finances. The analysis of the housing sector is timely and reflects the central theme of the Habitat III Conference, and identifies the increasing unaffordability that is spreading in both the developing and developed world.

This study provides substantive knowledge and the empirical foundation to help rethink the sustainability of the urbanization model; one that can result in equity, shared prosperity and environmental sustainability.

A handwritten signature in black ink, appearing to read 'Joan Clos', written in a cursive style.

Joan Clos

United Nations Under-Secretary-General and  
Executive Director, UN-Habitat

## CONTENTS

<b>LEGISLATIVE AND REGULATORY REGIMES</b> .....	10
1. INTRODUCTION .....	11
2. THE LEGAL STATUS OF PLANNING REGIMES .....	11
2.1 General Findings .....	11
2.2 The complexity of planning hierarchies .....	11
2.3 The prevalence of spatial plans .....	12
2.4 The effectiveness of spatial plans .....	12
2.5 Regional trends .....	13
2.6 Policy Recommendations .....	14
3. PUBLIC SPACE & BUILDABLE AREAS .....	14
3.1 General Findings .....	14
3.2. Regional trends .....	16
3.3. Policy Recommendations .....	17
4. PLOT AND BLOCK REGULATION .....	17
4.1 General findings .....	17
4.2 Regional trends .....	17
4.3 Policy Recommendations .....	19
5. DEVELOPMENT CONTROL AND THE PUBLIC REGULATION OF RIGHTS .....	19
5.1 General Findings .....	20
5.2 The prevalence of development rights regulation .....	20
5.3. Policy based development rights regulation .....	20
5.4 Development rights charges .....	21
5.5 Regional trends .....	22
5.6 Policy recommendations .....	22
6. IMPORTANCE OF HOUSING AND BUILDING CODES .....	22
6.1. General Findings .....	22
6.2 Regional trends .....	23
6.3 Policy Recommendations .....	24

7. GOVERNANCE .....	24
7.1 General Findings .....	25
7.2 Regional trends .....	25
7.3 Recommendations.....	26
<b>URBAN PLANNING AND DESIGN IS DECLINING ALL OVER THE WORLD .....</b>	<b>28</b>
1. URBAN EXPANSION IN THE WORLD'S CITIES .....	29
2. MONITORING GLOBAL URBAN EXPANSION .....	31
3. MAIN FINDINGS .....	34
Conclusion .....	50
Annex 1: Methodology of the urban expansion programme .....	53
<b>MAKING HOUSING AFFORDABLE IN THE POST-HABITAT III ERA .....</b>	<b>56</b>
1. HOUSING AT THE CENTER OF THE NEW URBAN AGENDA.....	57
2. HOUSING AND URBANIZATION.....	58
3. AFFORDABLE HOUSING: AN INTERNATIONAL PERSPECTIVE.....	60
3.1 Global housing policy: A brief historical review .....	60
3.2 Housing affordability: Concepts and measurement .....	61
4. SELECTED FINDINGS OF THE GLOBAL HOUSING AFFORDABILITY SURVEY .....	62
4.1 The Housing Stock .....	63
4.2 Housing Shares: .....	64
4.3 Housing Shares: regional differences.....	64
4.4 Housing Shares: differences in GDP per capita.....	65
4.5 Housing Affordability .....	67
5. CONCLUSIONS AND RECOMMENDATIONS DRAWN FROM THE UN SAMPLE OF CITIES .....	74
5.1 Housing is Largely Unaffordable and calls for comprehensive policies:.....	74
5.2 Scaled-up policies for the delivery of multiple housing types: .....	75
5.3 A shift in the housing provision strategy: .....	75
5.4 A review of regulations:.....	76
5.5 Encourage innovative and more inclusive housing finance systems:.....	76
5.6 The existing housing stock is a capital good:.....	77
5.7 Attention to rapidly urbanizing low income countries: .....	77



6. BIBLIOGRAPHIC REFERENCES.....	79
Annex 2: Methodology of the Land and Housing Survey in a Global Sample of Cities .....	80
The 200-City Sample .....	80
Survey Methodology .....	81
<b>LOCAL GOVERNMENT FINANCING IN DEVELOPING COUNTRIES: KEY CHALLENGES AND SOLUTIONS.....</b>	<b>86</b>
1. INTRODUCTION .....	87
2. MOBILIZING FINANCIAL RESOURCES FROM LOCAL AND NON-LOCAL SOURCES .....	87
2.1 Local sources of revenue .....	87
2.2 Non-local financial sources.....	90
3. POLITICAL ECONOMY CHALLENGES OF LOCAL GOVERNMENT REVENUE GENERATION .....	93
4. FINANCING PUBLIC SERVICE PROVISION IN METROPOLITAN AREAS.....	93
5. FINANCING PUBLIC SERVICE PROVISION IN SMALL MUNICIPALITIES AND PERI-URBAN AREAS.....	95
Summary.....	97
References .....	97



## CHAPTER 1

# LEGISLATIVE AND REGULATORY REGIMES

- + THE LEGISLATIVE AND REGULATORY REGIMES AFFECTING THE URBAN ENVIRONMENT ARE HIGHLY DIVERSE, COVERING ALL ASPECTS OF HUMAN ACTIVITY AND CONCERN

## 1. INTRODUCTION

Just as urban planning and design have a fundamental influence on the shape and morphology of urban areas and practical financial strategies determine whether plans are feasible or not, law has a profound influence on whether objectives and commitments are followed through. It provides the guarantee that institutions will consistently pursue transparent objectives over time and that funds can be predictably invested on that basis.

Law also performs a balancing function of ensuring that all citizens and interests are treated as equitably as possible in decision making and resource allocation to achieve agreed policy objectives. Finally, law, particularly in its regulatory function, has a major influence on the details of what is, and what is not, built and protected in the urban environment. This affects the liveability and efficiency of a city but also often how it looks and feels. As such, urban law is not to be considered lightly but should be a central element of urban development, growth and place making.

The legislative and regulatory regimes affecting the urban environment are highly diverse, covering all aspects of human activity and concern. What is presented here are the relatively few elements that profoundly influence the structure and growth of urban areas and that provide the foundation for almost all other activity. If these are formulated, monitored and reviewed effectively, they will increase the opportunities to develop a prosperous city and to ensure that all who live there may be included in that prosperity.

## 2. THE LEGAL STATUS OF PLANNING REGIMES

Spatial plans create a path for urban growth that seeks to maximise the positive and minimise the negative effects of urbanization. They are not simply images of what is desired but also include a variety of regulatory tools for the management of the built environment.

Spatial plans normally occur at various levels from the national down to the neighbourhood in a hierarchy that is

intended to steadily translate policy from broad national strategy through to detailed street level patterns. The coherence and effectiveness of this hierarchy determines how much the built environment responds to policy direction and, in many cases, how prosperous and liveable a city is.

### 2.1 General Findings

- Planning hierarchies are often more complex than institutions are able to manage and enforce.
- The proportion of city extension areas covered by plans is decreasing.
- The observance and enforceability of plans varies significantly with particular challenges in low income countries.

### 2.2 The complexity of planning hierarchies

Countries must consider a broader analysis of the planning system to evaluate its effectiveness. If there are too many types of plans that include too many specifics and planning tools, the potency of the planning system decreases dramatically. In some low-income countries, the simple number of plans required by law is greater than the number of planners available to prepare, let alone maintain, those plans.

The required plans are often not produced and the planning system becomes sporadic in its coverage and tends to have very limited impact on the built environment. Even where greater capacity and resources are available, there has been a trend to overhauls of planning systems that have made them more complex.

The countries may have greater capacity to plan and implement, but often the coordination between different levels of government is unsuccessful. These complex systems, which are increasingly found in middle-income countries, can be implemented to an extent in major cities, but are cumbersome and not implementable outside major urban areas.

### 2.3 The prevalence of spatial plans

In recent decades, residential planning has decreased dramatically from 58% to 36%. In Africa, this number is as low as 9%, which represents an extreme decline in spatial planning. New growth areas are only partially complying with legislative requirements. In the majority of cities, expansion is unplanned and does not conform to rules, which has led to illegal street widths, a deficit of water connections, and plot sizes below the legal limit.

A related challenge for cities is to revise and update their spatial plans and regulations frequently, as an out of date or irrelevant plan can be worse than none. Although over 83% of cities have legally enforceable land use plans, with the exception of sub-Saharan Africa where this drops to 53%, a much smaller percentage edit these plans regularly. 78% of cities with official plans revise them every 5-20 years and only 20% of cities revise their plans within five years. Fast growth combined with infrequent plan revision means that cities are working with regulatory tools that do not fit their current, let alone future, needs.

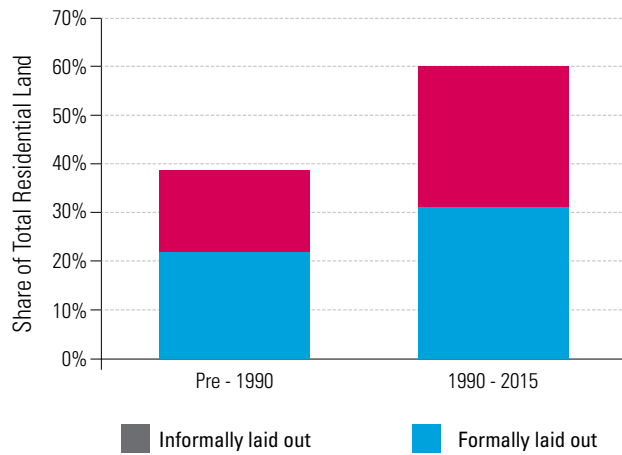


Figure 1: The share of areas laid out informally or not laid out at all in the pre-1990 areas and the expansion areas of cities in the global sample.

### 2.4 The effectiveness of spatial plans

The absence of a plan leaves urbanisation to spontaneous development, which will not promote an efficient urban fabric. Even where spatial plans are prepared, to be effective in binding citizens, there must be a link between those plans and law that gives the plans legal force and, in most cases, makes the plans legal instruments themselves. If plans are not rooted in concrete legal provisions that both mandate and facilitate their implementation, not only is it less likely the planning process will actually be applied, but also planning efforts will be more disorganized and inconsistent. A plan that does not have legal force is no more than official guidance to civil servants.

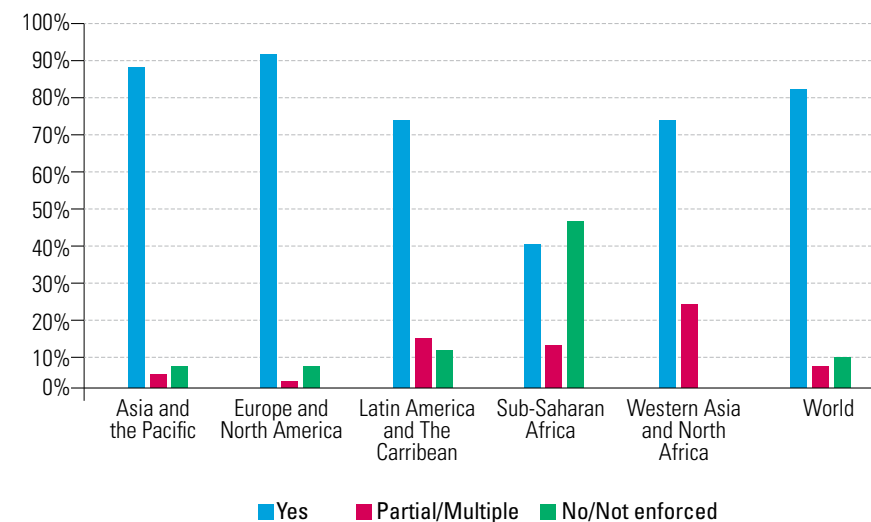


Figure 2: Adoption of land use plan across UN Regions.

**+ IN THE MAJORITY OF CITIES, EXPANSION IS UNPLANNED AND DOES NOT CONFORM TO RULES, WHICH HAS LED TO ILLEGAL STREET WIDTHS, A DEFICIT OF WATER CONNECTIONS, AND PLOT SIZES BELOW THE LEGAL LIMIT**

Complex planning systems and plans not only deter private actors and developers from compliance, but also impose hurdles for government agencies to implement and enforce them. Plans are often not well aligned with policy objectives or local needs. This is problematic because if they do not respond to the most important needs of a city, there will never be a bottom up impetus to

make them work. This creates a vicious cycle of neglecting plans that eventually renders them unusable. Since many low to middle income countries already face financial and human resources constraints, an inability to implement legislation compounds problems. As a result, the planning regimes are often not enforced at all.

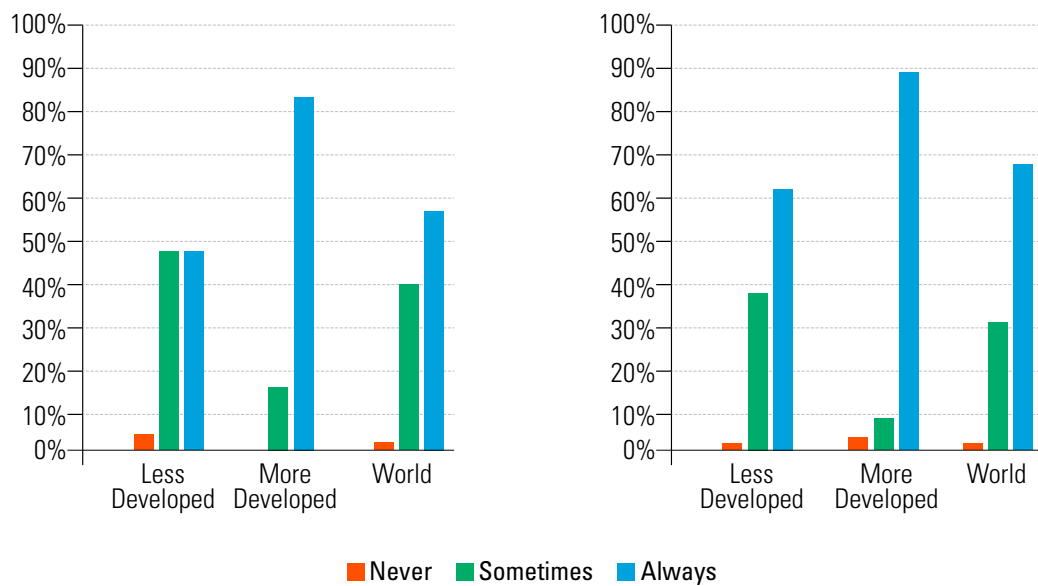


Figure 3: Respect for land use plans by private developers (left) and government agencies (right).

## 2.5 Regional trends

The extent to which planning systems are effectively designed and implemented varies greatly among countries, though there is a strong correlation to GDP. This is to say that the countries with clear legal grounding and an effective implementation of urban plans tend to have higher GDP.

For **very low income countries**, planning systems are generally not functional, with some limited exceptions in major cities. The legally required plans are only developed in some instances and they are rarely effective in achieving their objectives when they are developed. A number of factors contribute to this but poorly designed and technocratic legal instruments, complex planning hierarchies, limited relevance in plan content and weak accountability in subdivision planning and development consent are all common challenges.

**Low to middle income** countries mostly have planning systems with more legal grounding and institutional structure, but they face challenges with effectiveness. This is particularly true outside of the largest cities. Efforts to coordinate with policy and between different levels of government have limited success and detailed regulation and inappropriate standards tend to undermine implementation. In LDCs, 49% of cities report that private developers respect plans, while 61% reported that government agencies do.

In **middle income** countries, effectiveness and policy coherence both increase. 83% of private developers and 90% of government agencies are reported as respecting plans. Planning systems largely function in major cities, albeit with less success in smaller urban areas that have less capacity.

## 2.6 Policy Recommendations

For legislation to legally uphold urban plans, countries must focus on a number of policy solutions to create a planning regime that is implementable and enforceable.

- The formulation and adoption of plans must be done in an accountable and transparent manner to citizens. The instruments in a plan must have a clear institutional home and be enforceable. Fair and accountable procedures for modification and conflict resolution must also be included.
- Legislation must be specific enough to clearly designate responsibilities for planning, but also not too complex that developers and government agencies do not have the capacity or will to use it.
- Plans should also be revised on a frequent basis to assure that cities are well fit to keep up with rapid urbanization. Streamlined legal processes should make revising plans easier as well.
- Clear, concise, and locally relevant planning legislation will result in greater compliance, a smaller burden on local governments, and the overall creation of planning regimes that are influential in shaping cities, rather than complicating or hindering their growth.

## 3. PUBLIC SPACE & BUILDABLE AREAS

For cities to be well-planned, just, sustainable and equitable, they need public spaces. The core principle of public space is that it is designed for all citizens regardless of economic and political status, origin or nationality. For this reason public spaces have the potential to make a city more equal and inclusive.<sup>1</sup> Streets are a critical part of public space that affect flow throughout a city. Done poorly, they can cause traffic jams, pollution, lost productivity, as well as hazards for pedestrians and transportation. Streets must be made well, with correct widths, the installation of sidewalks, and proper connectivity.

Open areas, or green space, are another important form of public space. Not only can they be a tool to mitigate climate change, but they are also places where people from all backgrounds come together. These spaces create real human interaction to connect urban residents. As much as the design and quantity of public space is important, consideration must also be given to how it can be acquired and shaped for public purposes.

An important function of urban planning is to dictate what areas can and cannot be developed. This also determines what areas are for public use. Development may be restricted due to environmental concerns, the need for green space, or due to the city's boundary. Buildable areas are mainly defined at two levels. The first is at the national level, where the principal recognition of urban areas that may be developed is made. Planning authorities, often at the local level, define the second level of buildable area, which is the area within an urban settlement that may be developed, as opposed to protected areas, such as those at environmental risk. This exercise lays out the basic shape of an urban area.

### 3.1 General Findings

- Planning standards are not currently preventing a steady decline of the quality and quantity of public space in all regions of the world leading to decreased density, walkability and connectivity in urban spaces. The lack of adequate planning for urban expansion and inadequate provision for standards of public space in planning legislation and urban plans are contributory factors.
- Urban areas face major challenges in acquiring sufficient public space due to over reliance on expropriation to acquire land for public space and the absence in property and planning frameworks of regulatory tools that provide for the acquisition of land for public use by means other than expropriation.
- Rapid urbanization and weak planning have caused urban boundaries to spill over multiple municipal boundaries, complicating not only the definition of a city, but the extent to which the city can provide services like public space. Many cities have created policies to restrict the boundaries of the city to control growth but with mixed results.

<sup>1</sup> Pietro Garau, *Public Space: a Strategy for Achieving the Equitable City*

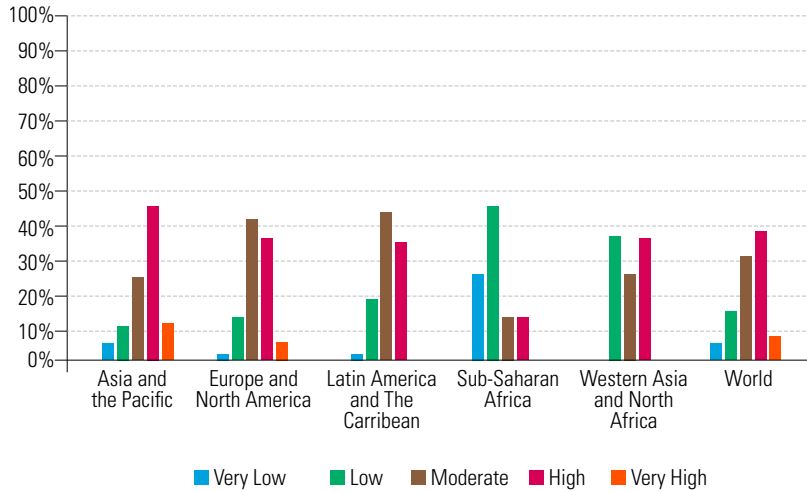


Figure 4: Containment Policies by UN Region.

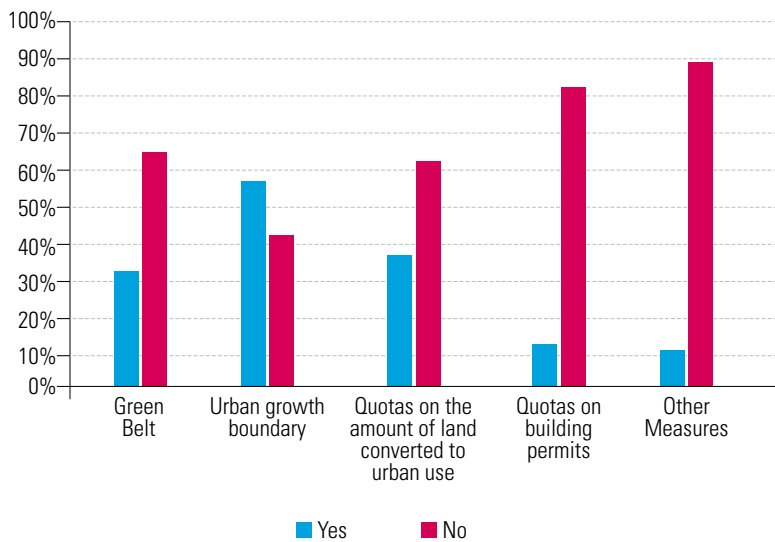


Figure 5: The prevalence of types of containment policies

**+ LOW TO MIDDLE INCOME COUNTRIES MOSTLY HAVE PLANNING SYSTEMS WITH MORE LEGAL GROUNDING AND INSTITUTIONAL STRUCTURE, BUT THEY FACE CHALLENGES WITH EFFECTIVENESS**

**+ FOR CITIES TO BE WELL-PLANNED, JUST, SUSTAINABLE AND EQUITABLE, THEY NEED PUBLIC SPACES**

**+ GLOBALLY, THERE IS A DEFICIT IN SPACE ALLOCATED FOR STREETS, WITH ONLY ABOUT 15% OF LAND ALLOCATED IN URBAN CENTRES AND 10% IN SUBURBS OR INFORMAL SETTLEMENTS**

Globally, there is a deficit in space allocated for streets, with only about 15% of land allocated in urban centres and 10% in suburbs or informal settlements, which diminishes the social cohesion and quality of life of residents. However, in city expansion areas the space allocated to roads is increasing everywhere except Africa.

Nevertheless, in over 50% of these cities, new streets were below the minimum legal width. Worldwide, there is a lack of connectivity between main arterial roads and local streets. One design method to increase connectivity is by using four-way intersections, but studies have shown a decrease in these, which leads to difficulties navigating these new areas of the city as it grows.

Cities usually acquire land for streets and public spaces through expropriation, sometimes known as eminent domain, using the power of the government to compulsorily purchase land from private owners for a purpose deemed to be in the public interest subject to a fair compensation. However, this method is usually politically unpalatable and expensive. In fact, globally, government land acquisition is reported as minimal or sporadic in 64% of cities. Alternative mechanisms, such as land readjustment, developer exactions, and land banking are needed. Some of these tools can be complex to use but they involve far less cost, whether in financial or political terms.

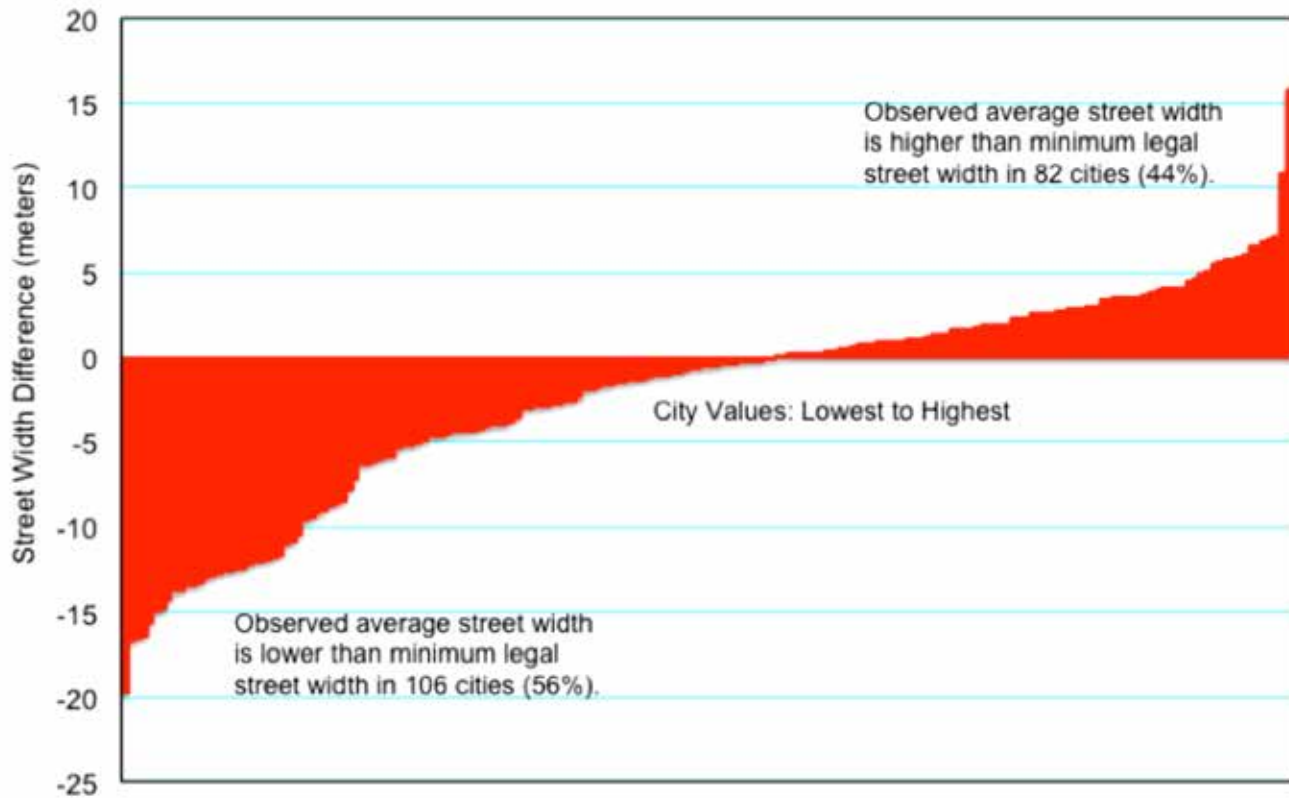


Figure 6: Observed street width vs. required minimum street width in the global sample of cities, arranged in increasing order.

### 3.2. Regional trends

**Latin American and European** countries have successfully implemented land readjustment schemes, whereas many **Asian and African** countries have had limited success. Turkey, for example, has a strong tradition of land readjustment despite a fragmented set of legal arrangements and the struggle of municipal authorities to implement infrastructure components.

**In all regions of the world**, public space is declining, but there are different forces driving this trend. In **African** countries, rapid urbanization has put pressure on expanding cities making it difficult to plan public spaces in advance. **Asian** countries are seeing similar patterns, but rather than a de facto reliance on private interests, they are actively seeking public-private partnerships to manage urban growth. In **Europe and North America** and other high income countries, cities are ageing and often shrinking and efforts to revitalize public spaces have increasingly been placed under the jurisdiction of private companies, thus leading to increasing privatization, resulting in a trend of “hybrid” spaces that are technically public, but run by private interests sometimes with policies of exclusion.

+ AN OVERWHELMING 85% OF CITIES REPORT ONE OR MORE REGULATIONS THAT LIMIT BUILDING SIZE IN THEIR EXPANSION AREAS.

+ WELL-WRITTEN URBAN LEGISLATION AND REGULATIONS WITH CLEAR AND ACCOUNTABLE PUBLIC SPACE STANDARDS CAN HELP LOCAL GOVERNMENTS MANAGE RAPID URBANIZATION AND ADDRESS THE GLOBAL DEFICIT



### 3.3. Policy Recommendations

The global public space deficit exists because current planning regulations are not keeping pace with urbanization.

- Well-written urban legislation and regulations with clear and accountable public space standards can help local governments manage rapid urbanization and address the global deficit.
- Planning and property laws must make adequate provision for the acquisition of adequate public space by a variety of means appropriate to need and government capacity.
- Legal measures for the containment of urban boundaries must allow for approaches and standards that are appropriate to growth projections and the needs of all sectors of society.
- The built-up area in many cities is not within walking distance of wide arterial roads because of the size of blocks and the absence of legal provisions allocating an adequate share of urban land for arterial roads.
- Plot subdivision and consolidation regulations appear to be too stringent and enforcement mechanisms quite weak. There is no clarity on the link between rules and policy that respond to actual need.
- There is rarely an effective strategy that considers plot sizes in relation to planned areas and the volume and nature of demand and the way plots are made available. Inadequate supply of inappropriately sized plots with an almost exclusive reliance on very limited market mechanisms inevitably contributes to exclusion.

## 4. PLOT AND BLOCK REGULATION

The size and permitted coverage area of plots, and to a large extent blocks that may be built upon has a significant impact on the accessibility of land and on street dynamics and service demands. These elements should be effectively regulated and actively managed to fairly balance burdens and benefits.<sup>2</sup>

### 4.1 General findings

- Inappropriate regulations on plot and block sizes are not only compromising densification efforts but also the generation of flexible street networks that favour walkability and biking.

### 4.2 Regional trends

#### 4.2.1 Standards for Plot Sizes

In most LDCs, there are no legal parameters that regulate rules on parcelling and land subdivision. They rely on administrative and customary practices to fill the gap, which falls short of acceptable minimum standards. The situation is slightly better in lower MDCs where most of them have a plethora of standards affecting dwelling size, minimum distances between opposing windows and room sizes that indirectly affect plot size.<sup>3</sup> This is far from an ideal situation since the lack of a centralized legal standard engenders uncertainty and informality.

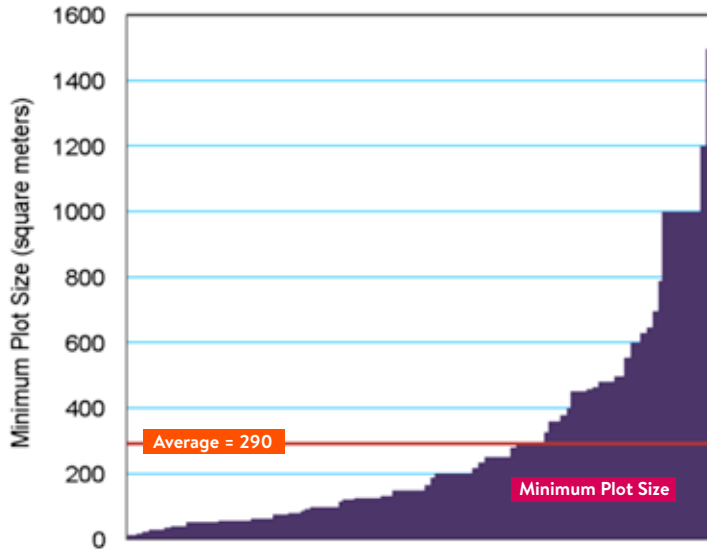
In MDCs, it appears that an established system of plotting regulations exists. For instance, in Egypt, it is evident from the law<sup>4</sup> that the minimum plot size for urban land is 120 m<sup>2</sup> which leads to easier demarcation, planning and subdivision of urban land.<sup>5</sup>

<sup>2</sup> UN-Habitat, 'Action Framework for Implementation of the New Urban Agenda' (2016) pp.3.

<sup>3</sup> For instance, the Building Code of Kenya (1969) stipulates, as part of achieving the minimum housing requirements, that a housing structure should have at least two bedrooms each measuring a minimum of 7m<sup>2</sup>, with a separate kitchen and conduit ventilation. This effectively means that a minimum plot size for a residential house in Kenya is approximately 450 m<sup>2</sup>.

<sup>4</sup> See Art.26 of the Executive Regulations on Building.

<sup>5</sup> UN-Habitat Regional Office for Arab States, 'Legislative Analysis to Support Sustainable Approaches to City Planning and Extension in Egypt' (2015).



✦ THE REGIONAL AVERAGES FOR WALKING DISTANCE TO AN ARTERIAL ROAD IN EXPANSION AREAS HAVE DECLINED IN LATIN AMERICA, WESTERN ASIA AND NORTH AFRICA MORE THAN OTHER REGIONS; BUT SUB-SAHARAN AFRICA IS THE MOST DEFICIENT REGION WITH ONLY 68% OF EXPANSION AREAS WITHIN WALKING DISTANCE. ON AVERAGE WORLDWIDE, 80% OF THE AREA OF A CITY BUILT PRE-1990 IS WITHIN WALKING DISTANCE OF SUCH A ROAD WHEREAS THAT SHARE HAS FALLEN TO 55% IN POST-2015 CITIES

Figure 7: Wrong regulations are compromising densification efforts.

Regardless, for best practices, regulatory regimes should explicitly advocate for the creation of small serviced plots (20-100 m<sup>2</sup>) to generate compact building forms as opposed to excessively large plots (+850 m<sup>2</sup>) that make density difficult to achieve.<sup>6</sup>

In the UN Sample of Cities, the majority of cities reported regulations that require a minimum plot size in residential subdivisions (60%), with the required minimum legal plot size in the expansion area of cities averaging 290m<sup>2</sup>. This indicates that the smaller plots that would support densification, particularly for the poor, were not allowed in most cities.

Plot subdivision and consolidation is generally either too strictly regulated according to inappropriate plot sizes or not subject to adequate planning guidance at all. This encourages the informal subdivision of residential land, which is identified by its lack of street paving, sidewalks, and street lighting. In the UN Sample of Cities, two-thirds of the reported plot sizes in informal land subdivisions, especially in **Sub-Saharan Africa** and **Southeast Asia**, are smaller than the minimum legal plot sizes. The average reported plot size in informal land subdivisions is 84m<sup>2</sup>, and it is significantly lower than the average minimum legal plot size, 180m<sup>2</sup>, in cities with informal layouts. Ultimately,

these findings indicate that new layouts do not comply with subdivision requirements, suggesting an ineffective balance between the stringency of subdivision laws and the capacity of enforcement mechanisms.

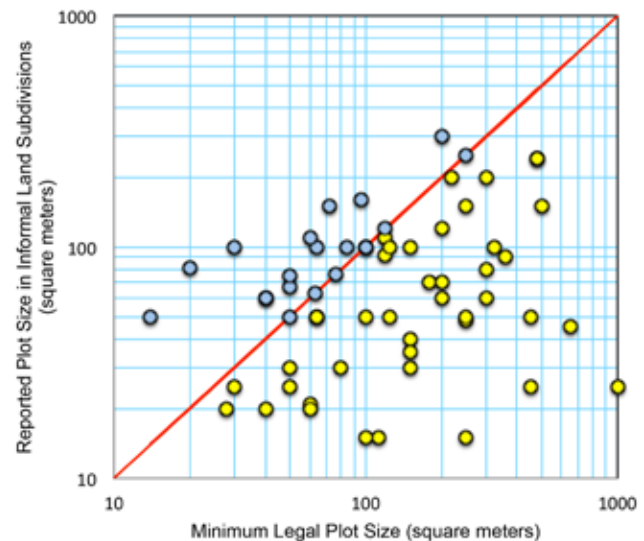


Figure 8: Two-thirds of the reported plot sizes in informal land subdivisions are smaller than the minimum legal plot sizes (yellow dots below red line).

<sup>6</sup> See Jonathan Tarbatt, *The Plot: Designing Diversity in the Built Environment: A Manual for Architects and Urban Designers* (2012).

## 4.2.2 Urban Mobility

The presence of street networks with large blocks creates an unwalkable urban fabric because this increases the route distance between points. Alternative routes are also restricted, as opportunities to access parallel roads are reduced. Block sizes should range from 50 m-100 m, with sizes between 60 and 80 m striking a good balance between competing urban demands.<sup>7</sup>

The global sample of cities has considered the share of a city's built up area that is within walking distance (625m) of wide arterial roads suitable for trunk infrastructure (18+ meters). The regional averages for walking distance to an arterial road in expansion areas have declined in **Latin America, Western Asia** and **North Africa** more than other regions; but Sub-Saharan Africa is the most deficient region with only 68% of expansion areas within walking distance. On average worldwide, 80% of the area of a city built pre-1990 is within walking distance of such a road whereas that share has fallen to 55% in post-2015 cities. This means that almost half of the newly built areas of cities are not within walking distance of arterial roads. This deficit in arterial road access is partly due to a lack of land allocated to arterial roads. An ideal network could comprise a 1km grid of arterial roads, say, 30 meters wide. Such a configuration would occupy 6% of the land in a city and therefore, regulations must ensure that adequate land for streets and arterial roads—at least one-third of the land converted to urban use—is acquired and laid out in advance of their occupation.

## 4.3 Policy Recommendations

- Regulatory regimes should explicitly advocate for the creation of small serviced plots (20 to 100 m<sup>2</sup>) to generate compact building forms as opposed to the excessively large plots (290 to 850 m<sup>2</sup>) that make density difficult to achieve.
- Regulations must ensure maximum block sizes that promote walkability and access to trunk infrastructure and lay expansion areas out in advance of their occupation.
- Subdivision regulations need to be reviewed in light of the projected volume and nature of need especially in cities with informal layouts so as to better guide future urban expansion.

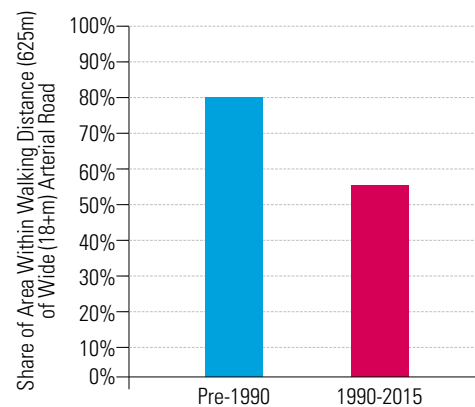


Figure 9: The provision of wide arterial roads within walking distance is declining.

# 5. DEVELOPMENT CONTROL AND THE PUBLIC REGULATION OF RIGHTS

Development control is the public regulation of construction, usually through some form of consent or permit process. This is most obvious in the case of land use conversion, often at the urban periphery, where permission to change from agricultural to urban use can result in a five or ten times multiplication of value.

Development control also includes a number of other elements, important among which are i) the 'footprint' or 'plot coverage' rules, i.e. what proportion and area of a given plot may be built on, ii) the floor space that may be constructed, often calculated as a 'floor to area ratio'<sup>8</sup> and, in some cases, iii) building height limits. Taken together, these elements determine the maximum floor space that can be built on a plot and, along with location and servicing, they have a significant impact on the commercial value of a plot.

All three, but particularly plot coverage rules, also have a major impact on how a building connects to the street next to it, affecting the liveability of the area and its commercial vibrancy. Further, they are a determining factor for population and, therefore, service needs.

<sup>7</sup> Tarbatt, J, 2012

<sup>8</sup> A floor to area ratio is a number that when multiplied by the total area of a plot gives the total buildable floor space for that plot. For example, a plot with a total area of 10,000 sq m and a floor to area ratio of 2, could accommodate up to 20,000 sq m of floor space. If the plot was allowed 40% coverage, or 4,000 sq m, that would produce a maximum of five equal floors (5 x 4,000 = 20,000), or more if upper floors contained less floor space.

### 5.1 General Findings

- Development rights are widely regulated.
- Development rights regulation is often poorly linked to densification and liveability objectives
- Charges for development rights are widespread but vary significantly and income is often not proportionate to the infrastructure and service burdens created

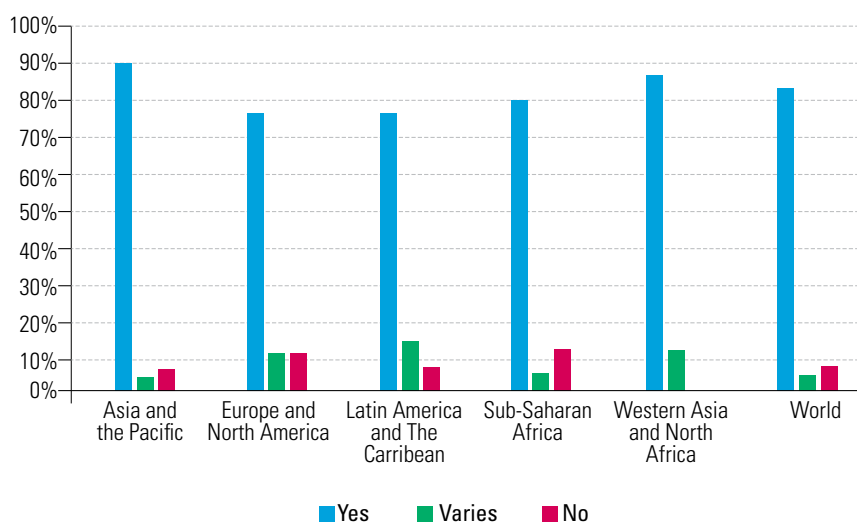
### 5.2 The prevalence of development rights regulation

An overwhelming 85% of cities report one or more regulations that limit building size in their expansion areas. Of the 85% that report such regulations, 68% had Maximum Floor to Area Ratio regulations, 59% had Maximum Building Height regulations and 57% had Maximum Plot Coverage regulations. Building size regulations are therefore firmly in place across the majority of cities in the sample, and are prevalent across world regions (figure 10).

Despite the prevalence of development rights regulation, some caution needs to be exercised as to its effectiveness. Both regional reports to Habitat III<sup>9</sup> and the World Cities Report<sup>10</sup> note challenges with low levels of current property registration and high levels of informality that limit revenue collection and that are also very likely to limit the potential of development rights regulation.

### 5.3. Policy based development rights regulation

As highlighted earlier, development rights regulation can have a significant impact on density and street dynamics. As such, regulation should be developed clearly in furtherance of policy objectives in these areas. However, despite widespread policies of densification and urban compactness, regulatory limits on the potential for desirable densification are in effect in the majority of cities. For example, cities often conservatively regulate Floor to Area Ratios (FAR). The average Floor Area Ratio (FAR) allowed on the periphery of cities in the global sample was 2.2, while the average maximum building height allowed was 33 metres, or approximately 10 floors (figure 11).



**+ AN OVERWHELMING 85% OF CITIES REPORT ONE OR MORE REGULATIONS THAT LIMIT BUILDING SIZE IN THEIR EXPANSION AREAS**

Figure 10: Presence of building size regulations across UN Regions.

<sup>9</sup> For example, UNECA & UN-Habitat, Habitat III Regional Report for Africa: Transformational Housing and Sustainable Urban Development in the Africa (2016).

<sup>10</sup> UN-Habitat, World Cities Report, p. 153. Available at [http://wcr.unhabitat.org/main-report/#section\\_eight](http://wcr.unhabitat.org/main-report/#section_eight). Website last checked October 2016.

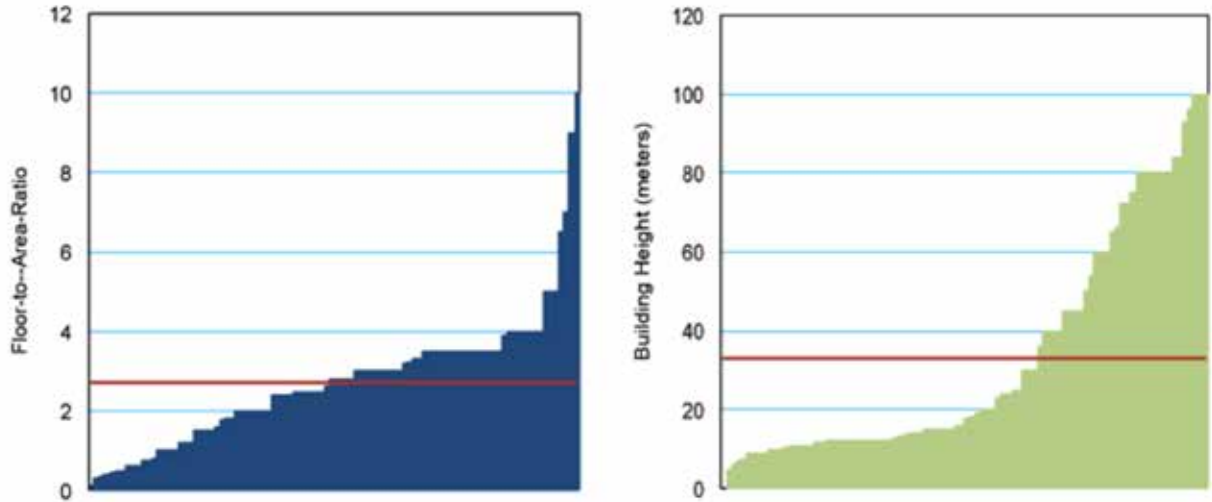


Figure 11: Maximum allowable Floor Area Ratios (FAR) (left) and maximum allowable building height (right) in the sample of cities, arranged in increasing order from lowest to highest.

A further clear example is that 62% of all cities, and 72% of cities in less developed regions, reported that multi-family buildings were either not allowed, or allowed only in a small share of the area, clearly limiting opportunities for densification. Additionally, the internal subdivision of units, addition of new units, and the addition of floors were not allowed in the majority of cities. Units could not be subdivided in 53% of cities; additional dwellings could not be added in single-family plots in 60% of cities; and additional floors could not be added in 65% of cities. Greater numbers of cities in MDCs had these restrictions than cities in LDCs.

Finally, as mentioned earlier, the frequency with which land use plans, and therefore usually also development control regulation, are updated is relatively low. This is likely to mean that they are somewhat out of step with policy and need. This will be particularly true in urban areas that are experiencing rapid growth.

While many cities try to contain their expansion, the compact city agenda—requiring densification that goes hand-in-hand with slowing down urban expansion—is clearly not in force in a majority of cities, given the combination of multiple building size regulations, plot size restrictions, and inadequate opportunities for development of multi-family units on the urban periphery.

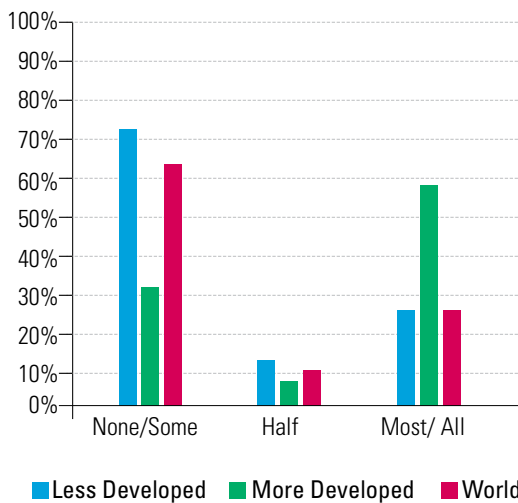


Figure 12: Share of multi-family dwellings

### 5.4 Development rights charges

As noted previously, the allocation of development rights through regulated means can have a significant impact on the commercial value of plot. As is established by the prevalence of development rights regulation, these rights are usually distinct from an owner’s principal property rights and do not accrue to the owner until legally granted by a public authority.<sup>11</sup>

<sup>11</sup> Levinson, Arik. 1997. “Why oppose TDRs?: Transferable development rights can increase overall development.” *Regional Science and Urban Economics* 27 (3):283-296; Smolka, Martim. 2013. *Implementing Value Capture in Latin America: Policy Focus Report*. Cambridge, MA: Lincoln Institute of Land Policy.

At the same time, decisions on development rights increase costs to the public in the form of infrastructure and service needs. As a result, the granting of development rights is often charged for in some manner distinct from any increase in value-based property taxes. These one off charges may simply be variable fees according to the rights allocated in a particular plot. They may also be more complex, involving tradable rights among plots, or even among areas of a city. A further approach has a more in kind nature, where development rights may be granted in return for the provision of services or infrastructure.<sup>12</sup>

The nature of development rights charges appears to have a strong correlation with GDP per capita levels, although in some cases more at the municipal than national level. In low income contexts, charges are mostly limited to relatively simple fee structures. These fee-based systems are rarely able to generate revenues that are proportionate to infrastructure need. In middle income contexts, more complex structures allowing for the purchase, and sometimes transfer, of rights create large revenues that are major contributors to infrastructure development financing. Cities such as Sao Paulo, Ahmedabad, Mumbai and Bangalore are notable in this regard.<sup>13</sup>

## 5.5 Regional trends

In LDCs, the prevalent trend is for the regulation of development rights in a manner that is inappropriate to densification priorities and to population needs and growth projections. It seems likely that this is often because of out of date regulations and weak or absent planning strategies. In addition to having a negative impact on the liveability and economic potential of urban areas, this also means that many cities are failing to make use of potential revenue streams that could provide significant support to infrastructure development.

In MDCs, and wealthier cities in LDCs, development rights are more actively managed for both design and financial purposes. The effectiveness of these strategies varies according to their complexity and the strength and accountability of the decision making and implementation processes that support them.

A small number of MDCs have developed what might be described as markets in development rights, based on the ability to transfer rights within cities or areas of cities. This complex type of system is demanding in terms of the capacity to promote densification and other design policies, as well as in terms of financial management.

## 5.6 Policy recommendations

- Development rights should be actively regulated as a means of promoting densification and street level design objectives;
- The financial potential of development rights regulation should be legally recognised and local governments encouraged to make use of it according to their respective priorities and capacities.

# 6. IMPORTANCE OF HOUSING AND BUILDING CODES

Cities are more inclusive when they provide affordable housing for all with good access to labour markets. For housing to be adequate, ample, affordable, and accessible to urban labour markets, land and housing regulations must be made more realistic and responsive, property rights in housing must be better organized. Building and land use regulations should also be an effective lever for increasing safety and resilience.

## 6.1. General Findings

- Elements of building codes, such as those governing setbacks, barriers and entrances, floor area ratios, minimum dwelling unit and plot size, maximum building height, and maximum land in residential use, can compromise densification efforts. Regulations that limit the potential for desirable densification are in force in the majority of cities.

<sup>12</sup> UN-Habitat & GLTN, *Leveraging Land: Land Based Finance for Local Government* (2016)

<sup>13</sup> Walters, Lawrence C. 2013b. "Land value capture in policy and practice." *Journal of Property Tax Assessment & Administration* 10 (2):5-21; Peterson, George E. 2008, *Unlocking Land Values to Finance Urban Infrastructure*. Washington DC: The World Bank; UN-Habitat, *Supply of Land for Development: Land Readjustment Experience in Gujarat India* (2013)

- Inappropriate building and housing codes may be exclusionary, encourage informality and undermine the rule of law because they set standards that are inaccessible to many and also tend to raise construction and related costs to a point that the majority cannot afford, driving construction to the informal sector.
- Effective building codes represent a socially acceptable balance between risk and affordability and should manage the balance between individual interests and the health, safety, and general welfare of the communities. Unrealistic standards often cause builders to evade the formal sector, subsequently losing on the benefits of health and on safety regulation.
- Much of the disorder on the edge of cities is found in the informally settled areas of cities with low Gross Domestic Product (GDP) per Capita. In these cities, inappropriate regulations force poor citizens to build informally, creating growth outside of the formal planning process. In these cases, the residential fabric is often poorly integrated into the existing city, spatially segregating new neighbourhoods and isolating the poor.

## 6.2 Regional trends

Rent affordability concerns are present in both LDCs and MDCs. In some low-income countries of **Africa**, building codes still rely on archaic regulations strongly influenced by frameworks introduced during periods of colonial rule. For instance, a code that stipulates that a housing structure should have at least two bedrooms each measuring a minimum of 7 m<sup>2</sup>, with a separate kitchen and conduit ventilation. These specifications are obviously beyond the means of the poor and many lower middle-income families.

In **Latin America**, households that are unable to meet housing needs through formal sector mechanisms typically resort to informal solutions by obtaining illegally subdivided lots and constructing their houses

incrementally without the benefits of following health and safety regulations. Incremental construction has been accepted in several countries through various approaches within the framework of specific projects, such as core housing. Recent affordable housing strategies have focused on community involvement and on encouraging self-help home building and renovation activities by households in urban settlements. However, the building regulatory process has failed to provide guidance for incremental construction practices or to provide continuing oversight through the extended period of construction.<sup>14</sup>

In the **Caribbean** region, the example of Barbados can be highlighted. There are virtually no informal settlements<sup>16</sup>, due to the combination of several factors but notably, (i) a strict implementation of the building code, and (ii) an implementation of adverse possession laws effective after 20 years of undisputed and quiet enjoyment of urban occupation. The implementation is led by the Ministry of Housing and Lands.

The **Asia-Pacific** region is highly vulnerable to natural disasters and the impacts of climate change. By the end of 2015, 48 countries in the Asia-Pacific region had submitted their Intended Nationally Determined Contribution (INDC) to the UN Framework Convention on Climate Change. INDCs represent climate action targets including mitigation targets. The majority of these targets aim to create sustainable cities through the implementation of stringent building codes and flood protection measures. China has announced its intention to control emissions from buildings. Similarly, India includes minimum energy standards, and energy saving through thermal insulation is promoted in Japan and Mongolia.

Another important international agreement for the region is the Sendai Framework for Disaster Risk Reduction 2015-2030. The framework recognizes the need to address land use and urban planning, building codes and environmental and resource management to substantially reduce disaster risk and losses in lives, livelihoods and health in communities and countries.

<sup>14</sup> Building Regulations for Resilience – Managing risks for safer cities – World Bank Group 2015

<sup>15</sup> World Bank national accounts data - 2015

<sup>16</sup> UN-DESA Human Settlement Country Profile, Barbados, 2004

### 6.3 Policy Recommendations

There is a need for public authorities to revise and update regulations to make them responsive and relevant for urban growth.

- It is fundamental to develop building codes suitable for local, social and economic conditions that facilitate safe use of local building materials and practices. Code provisions should reach a balance between technical requirements and the ability of people to pay.
- Building codes should be better linked to planning systems, particularly at the neighbourhood and subdivision levels, to promote compatibility in design objectives and to avoid unnecessary conflicts or duplications.
- Building codes and regulations should be locally relevant and adaptable especially in countries with highly variable income levels and climates or particular localised hazards.
- Legislation should provide for periodic review and updating (3 to 5 years cycle), for incorporating new knowledge related to construction material and practice and to changing realities. It is also necessary to strengthen the implementation of building codes, to establish plan review mechanisms, site inspections, and effective permitting at the local level.

## 7. GOVERNANCE

Urban governance refers to the process by which democratically elected local governments and the key stakeholders in cities – business associations, unions, civil society, and citizens – make decisions about how to plan, finance and manage urban areas. It is critical in shaping both the physical and social characters of urban regions. It has an impact on the quantity and quality of local public services and the efficiency with which they are delivered. Moreover, it determines whether costs are shared throughout the city region in a fair and efficient way. It also affects the ability of residents to access their local authorities and engage in local decision-making, as well as holding local authorities accountable.

**+ FOR HOUSING TO BE ADEQUATE, AMPLE, AFFORDABLE, AND ACCESSIBLE TO URBAN LABOUR MARKETS, LAND AND HOUSING REGULATIONS MUST BE MADE MORE REALISTIC AND RESPONSIVE, PROPERTY RIGHTS IN HOUSING MUST BE BETTER ORGANIZED**



*La Rambla, the 1.2 kilometer-long pedestrian mall, Barcelona, Spain @Shutterstock*



## 7.1 General Findings

- The roles and responsibilities of local authorities regarding urbanization and urban management are still largely fragmented across all developing regions, but also with challenges in more developed regions, which makes it difficult to adequately tackle the issues brought by rapid urbanization, such as sprawl and climate change.
- Despite the trend towards increasing devolution of planning and administration functions, there is a need to make sure that responsibilities, powers and funding are matched and that local revenue options are adequately explored according to the local context. Regulations to improve efficiency and transparency of public spending are called for all regions.
- Many countries have adopted regulations on public participation in the planning process, however, although important, it is evident that in its current form it is rarely successful in effecting change, because the opportunities for participation are not geared towards the outcome, but mainly the process and they are not consistent across the decision making points in the life of a plan.
- Powers and responsibilities should be defined in terms of policy priorities – i.e. what needs to be delivered – guided by subsidiarity, whereby issues are dealt with at the most immediate (or local) level consistent with their solution.

## 7.2 Regional trends

Throughout **Asia**, persistent gaps exist between policies and plans for urbanization and their actual implementation, at national and local level. Institutions have not kept pace with urbanization and, mostly, governance frameworks are yet to adapt to new social, economic and technological complexities. Urban development policies remain fragmented across local, provincial and national government lines and responsibilities. Especially in the region's secondary cities governance modalities, legal frameworks and institutional capacity are insufficient.

For example in most Chinese provinces urban governance remains inadequate with high ratios of illegal construction plaguing numerous cities, in addition to lack of public goods and services, and sometimes alarming levels of environmental pollution and traffic congestion. The governance of urban corridors and mega-regions are fragmented, extending across municipal and sometimes even national boundaries. The Jakarta Call for Action and the Jakarta Declaration<sup>17</sup> request for greater balance on the responsibilities and roles of different levels of government in the management of urban areas and surrounding towns and for partnerships to be based on the principle of subsidiarity.

The impacts of rapid urbanisation across the **Arab** region are exacerbated by fragmented and complex legal and institutional structures that are often ineffective in implementing policy. Limited coordination between the different ministries and institutions responsible for urban development, between central and local levels of governance, and among local government units complicate the implementation of comprehensive and transparent governance framework.

Central technical agencies and ministries set national, regional and local urban policies while the power of municipal authorities is restricted to the implementation of local plans. Although this has allowed cities to undertake infrastructure improvements, efforts to enhance the capacity of municipal authorities in order to decentralize administrative responsibilities have been uneven.

The prevailing trend has been to devolve responsibilities to the local level without the necessary fiscal decentralization. In Lebanon, municipalities have jurisdiction over works with a “public character”. Given their broad responsibilities and the administrative constraints (human and financial resources), municipal unions have emerged as a way for city councils to consolidate their capacities. Thirty-six of the 48 municipal unions in existence today were formed in the last ten years<sup>18</sup>.

<sup>17</sup> Regional Preparatory Meeting Habitat III

<sup>18</sup> Atallah, Sami. 2012. “Decentralization in Lebanon.” The Lebanese Center for Policy Studies. March 2012 << <http://www.lcps-lebanon.org/featuredArticle.php?id=6>>>

### + THE JAKARTA CALL FOR ACTION AND THE JAKARTA DECLARATION<sup>17</sup> REQUEST FOR GREATER BALANCE ON THE RESPONSIBILITIES AND ROLES OF DIFFERENT LEVELS OF GOVERNMENT IN THE MANAGEMENT OF URBAN AREAS AND SURROUNDING TOWNS AND FOR PARTNERSHIPS TO BE BASED ON THE PRINCIPLE OF SUBSIDIARITY

In most **African** cities, effective and democratic urban governance and management are lacking due to the limited implementation of national decentralisation programmes and ambiguity over the urban responsibilities. The Africa Economic Outlook<sup>19</sup> calculated that between 2003 and 2012, Africa lost an annual average of US\$60.3 billion (close to 4 per cent of GDP) through illicit financial.<sup>20</sup>

Rapid urban growth in Latin America has created complex systems of cities and large metropolitan areas with administrative entities subdivided into territories that have political and budgetary autonomy, and can span over multiple territories outside the central municipality, creating unique challenges of multilevel governance and administration with powers shared between different levels of government with different levels of autonomy.

The effects of growing environmental challenges, including climate change, clearly do not respect the administrative boundaries. This emphasizes the need for collaboration and coordination between various levels of territory, government and institutions. Although LAC cities have developed various institutional models, the existing legal and institutional frameworks and lack of financial capacity have not always allowed an effective urban governance to address the complexities. The Brazilian Constitution enshrines participatory local government and connects it to the right to the city. Thus, the legal system is defined as a means to activate participatory governance institutions to address the imbalance of power and resources in society.<sup>21</sup>

Urban governance in **Europe** is largely decentralized, with the competencies of the federal/national governments generally limited to formulating policies and legislation, establishing norms and standards, and providing subsidies for housing. Urban policies are usually designed at the national level but, in almost all cases, implemented at the local level. The privatization of infrastructure in many European countries has resulted in the withdrawal of the government from housing provision, which has afforded the private sector more opportunity to act, with varying degrees of success. Initial reviews of governance reform and better spatial planning in the metropolitan areas of Paris and Aix-Marseille, focusing on the transportation network and coordination of local public policies, suggest that GDP could rise by just fewer than 4% over the long term through these reforms.<sup>22</sup>

## 7.3 Recommendations

“The success of the SDGs will be determined to a large extent in the world’s cities.”<sup>23</sup> However, the fundamental prerequisite for this is responsive and accountable urban governments endowed with appropriate legal powers, adequate financial allocations and the human capacity to drive a transformation agenda.

The inadequacy of technical and managerial capacities of local authorities to discharge their urban management functions in addition to cumbersome bureaucratic procedures, lax enforcement of regulations, and the corrupting influence of low wages, particularly at the local level are witnessed across developing regions. Institutional readiness and capability cannot be divorced from financial resources. In both developed and developing countries, the vast bulk of tax revenues and public expenditure still accrue to, and emanate from, central government. Subnational governments collect less revenue and expend substantially less than national governments, especially in developing countries.

<sup>19</sup> UN Economic Commission for Africa (2015) Africa Economic Outlook, 2015, page 45. <http://www.africaneconomicoutlook.org/en/outlook/>

<sup>20</sup> UN Economic Commission for Africa (2015) Illicit financial flows. Report of the High Level Panel on the illegal financial flows from Africa.

<sup>21</sup> Fernandez, E. (2010) Participatory Budgeting Processes in Brazil—Fifteen Years Later, in C. Kihato, M. Massoumi, B. Ruble, P. Subirós and A. Garland (eds) Urban Diversity: Space, Culture, and Inclusive Pluralism in Cities Worldwide. Washington DC: Woodrow Wilson Centre & Johns Hopkins University Press.

<sup>22</sup> HABITAT III Regional Report On Housing and Urban Development For The UNECE Region: “Towards A City-Focused, People-Centred and Integrated Approach to the New Urban Agenda”

<sup>23</sup> SDSN Thematic Group on Sustainable Cities, 2013

The key issues for unlocking finance are at the local level, whether through the mainstreaming of property taxation or through innovative and regulated land value sharing mechanisms. In general, the range of regulatory and fiscal tools must be significantly expanded, in support of comprehensive planning and development by cities and clusters of cities. These regulatory and fiscal tools must better support urban and territorial planning and accommodate investments in compact urban expansion.

It is increasingly important to develop systems of governance appropriate to different scales of government, be they national, regional or local. These systems need to extend to new and emerging definitions of the periphery in the city, as well as to neighbourhoods, and, in this context, third sector organizations have an increasingly important and effective role to play in promoting participation of the public and in monitoring the use of data for their benefit and on their behalf.

It is important that the systems of governance between national, regional and local levels and between individual actors at different levels are coordinated and made transparent to the public through vertical and horizontal coordination of the governance network in a mutually integrated framework to promote sustainable, economic and equitable development and a high quality of life in cities.

One cannot overstate the importance of legal reform as a basis for appropriate design of government structures, particularly decentralisation and multi-level governance that can advance sustainable human settlements and citizen empowerment. Ultimately, upholding fundamental human rights through effective legal protections, standards and effective public institutions as structured on the principle of subsidiarity (i.e., issues are dealt with at the most immediate (or local) level consistent with their solution), is the most robust political remedy to systemic power imbalances.

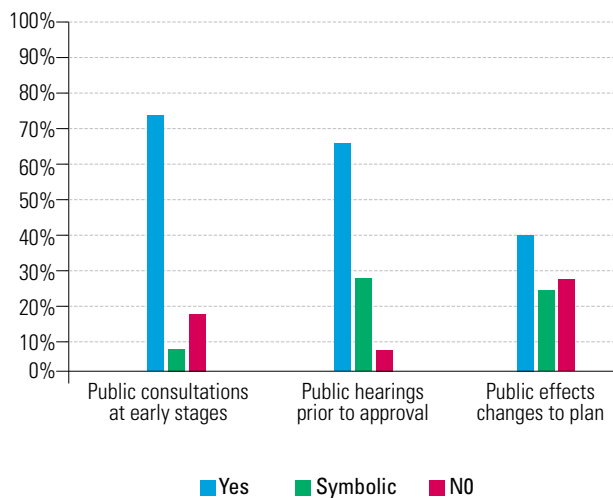


Figure 13: Public participation in plan making.

**+ “THE SUCCESS OF THE SDGS WILL BE DETERMINED TO A LARGE EXTENT IN THE WORLD’S CITIES.”<sup>21</sup> HOWEVER, THE FUNDAMENTAL PREREQUISITE FOR THIS IS RESPONSIVE AND ACCOUNTABLE URBAN GOVERNMENTS ENDOWED WITH APPROPRIATE LEGAL POWERS, ADEQUATE FINANCIAL ALLOCATIONS AND THE HUMAN CAPACITY TO DRIVE A TRANSFORMATION AGENDA**



## CHAPTER 2

# URBAN PLANNING AND DESIGN IS DECLINING ALL OVER THE WORLD

- + IT IS ESTIMATED THAT, IN ORDER TO ACCOMMODATE POPULATION INCREASE, WE ARE NOW BUILDING THE EQUIVALENT OF ONE NEW YORK CITY EVERY FOUR MONTHS.

# 1. URBAN EXPANSION IN THE WORLD'S CITIES

It is now common knowledge that the world's cities are growing in population. To briefly revisit some familiar statistics: the human population recently passed an interesting landmark and more than 50% of us now live in cities; we are truly an urban species, and some 3 billion or 4 billion of us will be moving to cities in the next eight decades.<sup>1</sup> It is estimated that, in order to accommodate this population increase, we are now building the equivalent of one New York City every four months.

Despite these marquee statistics, the quantity of urban expansion is quite often underestimated. It is frequently assumed that city area and city population grow in lockstep. In fact, newly gathered evidence from the UN-Habitat, New York University and Lincoln Institute of Land Policy study indicates that the growth in city area usually outstrips the growth in population, and this happens both in the developed and the developing world.

For instance, between 1990 and 2000, urban land consumption per person rose from 203m<sup>2</sup> to 239m<sup>2</sup>. From 2000 to 2015 the increase was from 239m<sup>2</sup> to 277m<sup>2</sup>. In other words, cities can expect that their urban extent will continue to increase at a much higher rate than their population and concomitant to this is the reduction of population densities in a majority of the world's cities, unless action is taken in coming years.

This increase in the area of cities can be quite rapid. The United Nations groups countries into two broad categories – More Developed Countries, including countries in Europe and North America; and Less Developed Countries, including countries in the global south. Between 1990 and 2015, the area occupied by cities in More Developed Countries increased 1.8-fold, while their population only increased by 1.2-fold. Meanwhile, the area occupied by cities in Less Developed Countries increased 3.5-fold and their populations doubled (Figure 1).

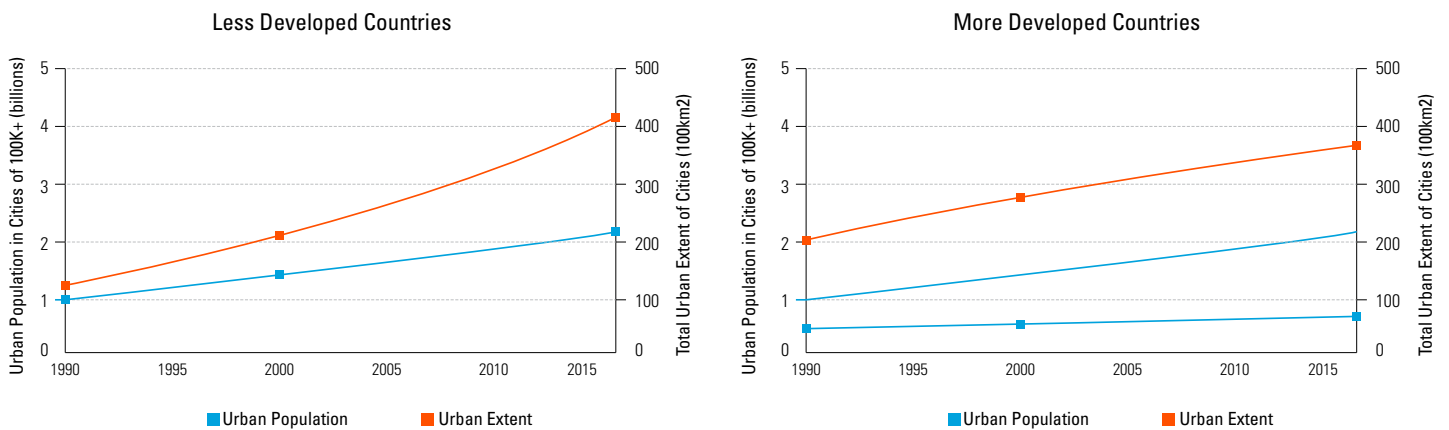


Figure 14: The total urban extent and total population of cities in Less Developed (left) and More Developed (right) countries, 1990 - 2015.

<sup>1</sup> U.N. Population Division, 2015. World Population Prospects--The 2015 Revision.

This extremely rapid increase in both population and area brings to mind the world's fifty or so megacities – Shanghai, Beijing, Mexico City, Lagos, London, and so on. These cities contain about a quarter of the world's urban population, and they continue to grow. However, cities in

all size categories are growing at a similar rate (Table 1), meaning that more than ¾ of the growth in cities between 2000 and 2014 happened outside megacities – in small, medium, and large cities.

Number of Cities per Population Capacity	Count of # of Cities Category	% of #cities in Universe	Sum of population 2010	% of Population of Universe	Growth rate 2000 - 2014
100,000 - 426,119	3,143	74%	624,264,830	25%	2.3%
427,650 - 1,568,640	811	19%	598,655,253	24%	2.2%
1,574,151 - 5,712,007	225	5%	638,540,801	26%	2.7%
>5,718,232	52	1%	627,087,350	25%	2.3%
	4,231		2,488,548,233		

Table 1: The 4,231 cities on earth having populations greater than 100,000 in 2010, arranged by city size, with annual population growth rates shown in the final column.

The growth is mainly taking place through infill, extension, and leapfrog development<sup>2</sup> – three types of expansion that involve adding on to the areas of existing cities. Many cities are also growing through inclusion, incorporating outlying communities into their fabric as they expand in a process known as 'reclassification'.

In general, population and income explain some 85% of the variation in the urban extent of cities. Cities tend to be larger when their population is greater and they are larger still when their income is greater.

The chart in Figure 2 shows that differences in urban density and in land consumption per capita can largely be explained by differences in population and income, although other important factors associated with land and housing speculation are also at play. One of the reasons that the expansion that is taking place in cities in the Less Developed Countries is occurring at a faster rate than population growth is that people are becoming wealthier. Still, residential preferences for a suburban lifestyle, housing affordability strategies, speculative behaviors and in some cases peri-urban poverty and marginalization are also important contributing factors.

On average, doubling GDP per capita increases land consumption by a factor of about 1.5.<sup>3</sup> We may also say that in some instances the exponential growth of unplanned expansion is driven by the lack of quality of the existing city which is locked in unplanned or inefficient patterns which make densification difficult and generate conception and other inefficiencies. This explains in many cases the preference for suburban settings and is part of a vicious cycle of lack of planning and urban sprawl.

Cities allow more people to live more closely, and in more productive arrangements. The movement of people to cities promotes the formation of large metropolitan labor markets, increasing the possibility of finding a best-fit job and creating greater opportunities for education and advancement. Indeed, cities are the crucibles of productivity. They can also be the crucibles for equity, and sustainability. But if cities are to realize the benefits of urban expansion, they will have to manage the challenges of orderly growth. Cities can be hampered by poor road layouts, high housing costs, segregation of functions, inadequate infrastructure, and a lack of effective transport networks, making it more challenging for people to move around the urban area, while increasing the need to move, and reducing the benefits of urbanization.

<sup>2</sup> Leapfrog development is often equated to urban sprawl. It implies the urbanization that is not done in a continuous manner to the urban fringe. It requires the extension of public facilities and services to the periphery, leaving fragmented areas in between.

<sup>3</sup> López Moreno Eduardo and Regina Orvañanos (2016) Steering Metropolises to Shared Prosperity Based on Policy Evidence: The City Prosperity Initiative, forthcoming publication, UN-Habitat.

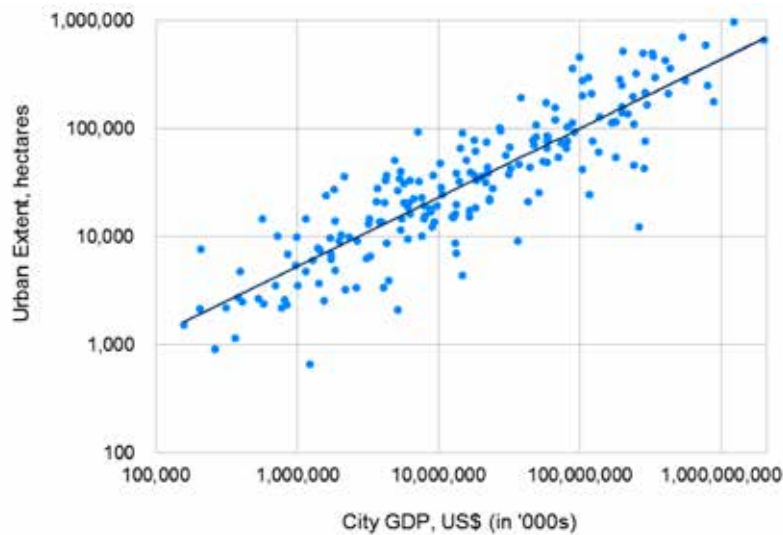


Figure 15: Urban extent in hectares compared to City GDP, demonstrating a strong linear relationship between city size and income.

**+ THE MOVEMENT OF PEOPLE TO CITIES PROMOTES THE FORMATION OF LARGE METROPOLITAN LABOR MARKETS, INCREASING THE POSSIBILITY OF FINDING A BEST-FIT JOB AND CREATING GREATER OPPORTUNITIES FOR EDUCATION AND ADVANCEMENT**

## 2. MONITORING GLOBAL URBAN EXPANSION

Many if not most of the problems in cities can be avoided through foresight and planning – the securing of road grids in advance of development, the preparation of adequate urban lands for estimated population growth, and the development of mechanisms that allow for progressive regularization or improvement of informal housing are all important tools.

But if mayors and policymakers are to invest resources in addressing these challenges, they must first be shown evidence that they have a problem. This evidence should show two things – information on the raw characteristics of urban growth (how much, and where) and information on the quality of that growth (which one and in which conditions).

With that goal in mind, UN Habitat, the NYU Urban Expansion Program, and the Lincoln Institute of Land Policy partnered to gather information on urban expansion in the world's cities. The study primarily focused on gathering information on how much cities are growing (some of which is highlighted in the preceding paragraphs) and then evolved into the gathering of more detailed information on the quality of that growth, with a specific focus on urban layouts.

Finally, additional modules were added to study the affordability of housing and the basic outline of the regulatory regime governing development on the urban fringe. These other studies are presented in separated chapters.

This study built on an earlier body of work that began with *The Dynamics of Global Urban Expansion*<sup>4</sup> and culminated in the production of the earlier edition of the *Atlas of Urban Expansion*<sup>5</sup>. The Atlas was focused on the study of a global sample of approximately 120 cities between 1990 and 2000.

The UN Sample of 200 cities, shown in Figure 16, was developed to improve the study and monitoring of cities on a global scale. The sample allows for the gathering of detailed information about a number of cities, which can then be generalized to provide statistically accurate information about all of the cities on earth having populations greater than 100,000 in 2010. The sample has been tested for statistical veracity and has been found to be representative of the universe as a whole at the 95% confidence interval.

Based on this global sample, an additional project focused on the study of a selected sample of 30 cities for which historical maps were available from 1800 to 2000.

<sup>4</sup> Angel, S., Sheppard, S.C., and Civco, D.L. 2005. *The World Bank*. Washington D.C.

<sup>5</sup> Angel, S., J. Parent, D. L. Civco and A. M. Blei, 2011. *Atlas of Urban Expansion*, Cambridge MA: Lincoln Institute of Land Policy.

This study, though not globally representative, provided valuable insights into historical tendencies around urbanization and urban growth. For example, it was discovered that between 1800 and 2014 the population of Paris increased 22-fold, from 500,000 to 11 million, while the area increased 250-fold, from 11km<sup>2</sup> to 2,800 km<sup>2</sup>. This and similar findings helped confirm that the decline in population density that is observed today is, in fact, part of a long-term trend that can be observed in many regions and cities of the world.

The new Atlas of Urban Expansion: 2016 Edition is being released at the Habitat III Conference in Quito, Ecuador in October 2016, based on the new UN Sample of 200 cities. Selected results will also be updated for the sample of 30 historical cities, 27 of which are included in the UN Sample.

### Box 1: The UN Sample of 200 Cities

To create the sample, the authors first gathered data from the UN Population Division, the Chinese Academy of Sciences, and [www.citypopulation.de](http://www.citypopulation.de) and used it to identify the universe of 4,231 cities having populations of 100,000 or more in 2010 (Figure 3). These cities were stratified into 8 world regions, 3 country size categories, and 4 city size categories, encompassing 171 countries. The sample includes cities in 78 countries, containing 5% of the cities and 29% of the population of the universe of cities in 2010.

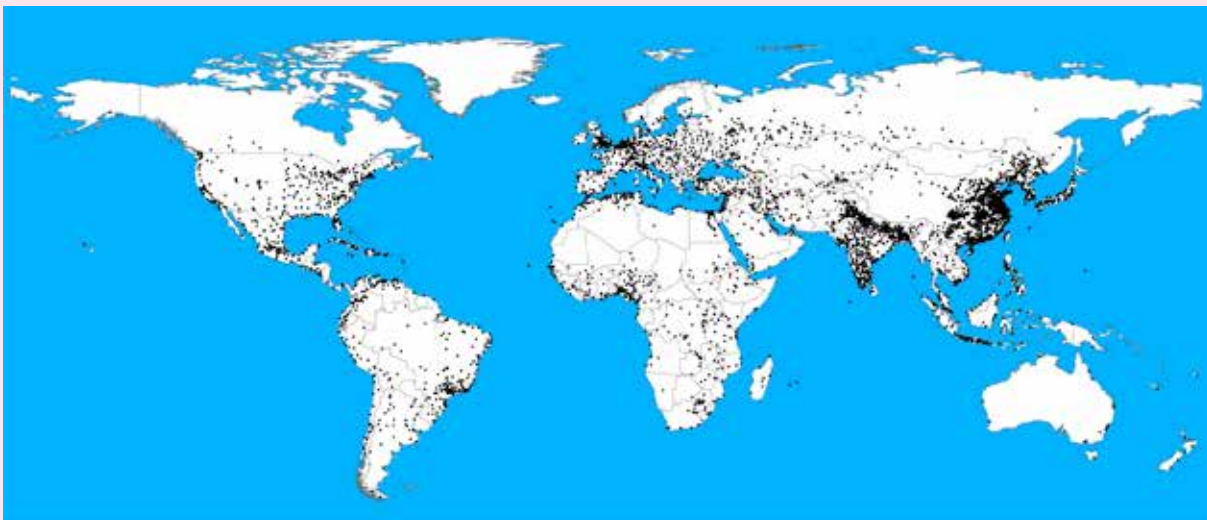


Figure 16: The universe of 4,231 cities having 100,000 people or more in 2010

The sample was modified to correspond to the 5 UN world regions: Asia and the Pacific, which includes the countries of east, Southeast, South and Central Asia, along with the countries of the South Pacific, including Australia and New Zealand; Western Asia and North Africa, which includes the Arab countries, but not Turkey and Israel; Europe and North America, which includes Turkey and Israel; Sub-Saharan Africa; and Latin America and the Caribbean. A map of the 5 UN Regions can be seen in Figure 4.





Figure 17: The five UN Regions: Europe and North America (green), Latin America and the Caribbean (blue), Sub-Saharan Africa (pink), Western Asia and North Africa (orange), and East Asia and Pacific (yellow).



Figure 18: The UN Sample of 200 Cities

The first and most critical step in measuring the characteristics of a city is to define the area of the city itself – in other words, how do we determine the unit that is being studied? National-level census data may provide the name of an urban area and a population figure, but such information rarely includes administrative boundaries. The boundaries that do exist frequently fail to include the entire built-up area of a city, and many cities include multiple municipal jurisdictions.

The governments of these municipalities are often organized as if each one is an island, but growth in cities often transcends or ignores jurisdictional boundaries, leading to a lack of clarity about what, exactly, should be considered “the city.” This fragmentation can make it difficult to say much about the quantity of growth that is taking place on a metropolitan level. And yet, cities usually function as metropolitan units. It is quite common for people to live in one municipality, work and shop in another, and visit a third for entertainment or leisure.

The proper definition of a city should encompass this phenomenon by including all of the appropriate municipal boundaries, based on built-up area. Since the unit of analysis is the urban agglomeration or the contiguous built-up area of a city (and not the traditional city core or single municipality) in many cases it corresponds to the metropolitan area or the urban extent of a city, which encompasses several municipalities. Tokyo in this sense appears as a single metropolitan area and not as 23 Wards or Municipalities; the Metropolitan Region of Sao Paulo appears as well as one city and not with its 39 municipalities; and the City of Johannesburg as a single Metropolitan Municipality and not as 18 cities or towns.

A review of the composition of cities from the UN Sample of 200 Cities shows that only 5 cities are made up of only one municipality and the vast majority (169) has two or more municipalities<sup>6</sup>; interestingly 9 cities have more than 50 municipalities.

As Figure 19 shows, a wide variety of jurisdictional schemes can be identified, ranging from that of Beijing, China (whose jurisdiction is 3 times larger than the urban extent) to that of Buenos Aires, Argentina (where the jurisdiction of the Federal Capital is approximately one-eighth of total urban extent). A more detailed analysis of the methodology is presented in Annex 1 of this chapter.

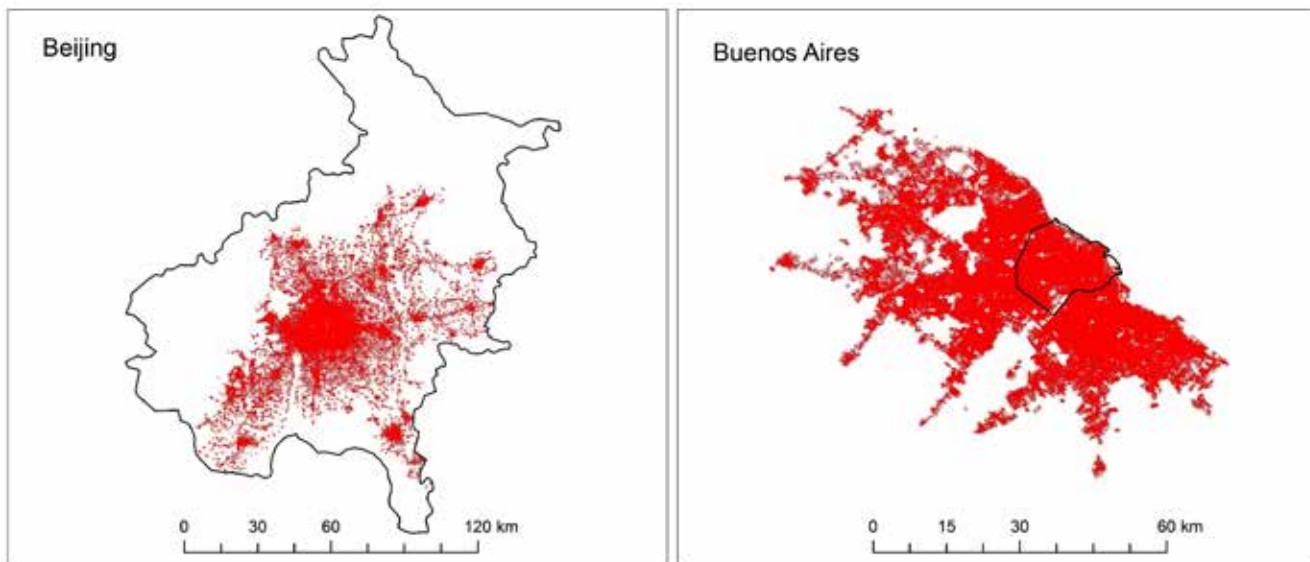


Figure 19: The municipal jurisdiction of the Beijing, China (left) and the Buenos Aires, Argentina, Federal Capital (right).

### 3. MAIN FINDINGS

**Urban growth is taking place in a disorderly and unplanned manner** – as cities grow in endless peripheries with discontinuous forms, high degree of fragmentation, and inefficient land use patterns, it is clear that urban planning is not able to steer and control city development and growth. Despite impressive technological advances, more mature and solid public institutions, better forms of urban management, and in some places more robust civil society, urban planning has not able to make good use of city assets and resources, including land, to harness

the potential of cities. Exclusionary mechanisms and different forms of hidden powers prevent urban planning from responding to the interest of the majority, creating enclaves of prosperity for specific areas of the city and particular interest groups.

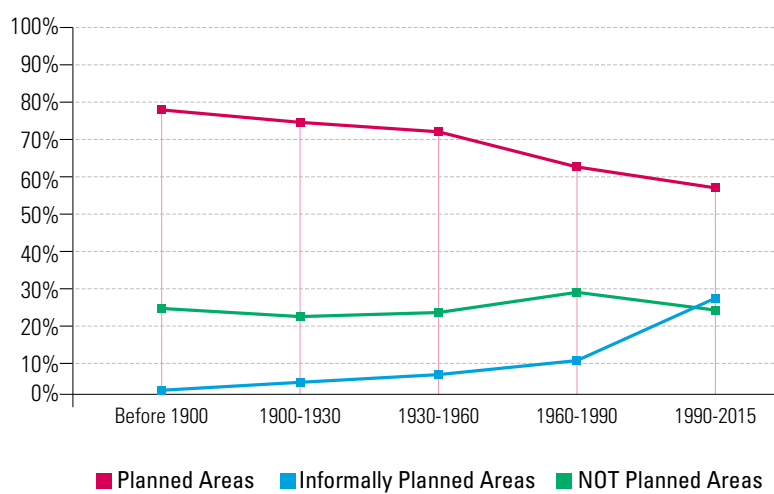
Spatial planning is declining all over the world; this is one of the major findings of UN-Habitat, NYU and Lincoln Institute study on urban expansion. Cities are growing without considering municipal plans and regulations and this creates multiple problems: deficiencies in proper physical planning for urban expansion; an absence of minimal controls over the urban development process; and an inability of cities to secure adequate lands for streets and arterial roads.

<sup>6</sup> 17 cities from the Global Sample have not sufficient information.

Random development, informal growth and inadequate urban layouts are becoming the norm and not the exception. As Figure 20 shows, while before 1900, nearly 80% of cities grew according to plans by 2015, nearly one-third of cities were informally planned and less than another third were not planned at all. Surprisingly, slightly less than half of cities were formally planned in their expansion areas from 1990 to 2015.

GDP less than \$3000 had only 7 per cent (ten times less) of their expansion areas planned. The relationship in Figure 8 implies that the higher the income of a city, the more resources will be available to support planning for the spatial growth of the city.

In other words, more-developed countries are more likely to plan their urban expansion and to make this process



+ NEARLY 80% OF CITIES GREW ACCORDING TO PLANS BY 2015, NEARLY ONE-THIRD OF CITIES WERE INFORMALLY PLANNED AND LESS THAN ANOTHER THIRD WERE NOT PLANNED AT ALL

Figure 20: The evolution of planning in the expansion areas of cities, a sub-sample of 30 cities from the UN Global Sample of cities, before 1900 to 2015.

Planning for the public good is lost or considerably reduced in many cities across the world, particularly in the developing world. Some of the major challenges that cities face such as rapid urbanization, poverty and inequality, pollution and climate change, among others, require a reinvigorated notion of urban planning and design. Well-planned cities can optimize economies of agglomeration, increase densities (where needed), generate mixed land uses, promote public spaces with vibrant streets, and encourage social diversity – all critical elements of sustainability.<sup>7</sup>

**Informality and lack of planning is strongly related to low GDP per capita** – The Share of planned residential land increases significantly with GDP per capita of cities. Cities with GDP per capita exceeding \$ 20000 had about 73 per cent of the expansion areas planned, whilst cities with

more sustainable. In advanced countries, for instance, the availability of fiscal resources and established formal planning process often facilitates the development of functional trunk infrastructure and services in defined expansion areas to ensure guided or planned land development ahead of informal settlements.

In many cases, this is the opposite of what occurs in developing regions where rapid urbanization is taking place in cities with lower levels of income (hence lacking adequate resources) as well as weak planning regimes. This in turn necessitates the spread of informality by not identifying and structuring planned expansion areas that are in proximity to the existing urban fabric so as to address the pressure of a growing urban population's need for affordable housing and accessible basic services.

<sup>7</sup> UN-Habitat (2016) World Cities Report: Urbanization and Development, Emerging Futures, Nairobi.

Urban planning in developing countries, especially in Africa and Asia, needs not only to respond to the rapid pace of urbanization, but the accompanying physical expansion of the city. Urban expansion in the absence of adequate planning has resulted in the proliferation of slums and informal settlements, spatial inequality and segregation, including the emergence of gated communities. Such urban expansion is not only wasteful in terms of land and energy consumption, but increases greenhouse gas emissions. It has also led to the alteration of ecological systems in many cities and to the increase of disaster risk. Addressing these requires delivery of urban land at scale, linked to networks of public infrastructure.

The provision of basic infrastructure and services will go a long way toward improving quality of life in these peripheral locations. Urban planning will also need to devise ways of adequately managing the urban development process as a whole, as unmanaged or chaotic urban growth is a significant obstacle to the sustainable development of towns and cities. Among other dynamics, lack of planning and sustainable layout of the existing city is also fuelling further expansion, as it hinders processes of densification and urban transformation.

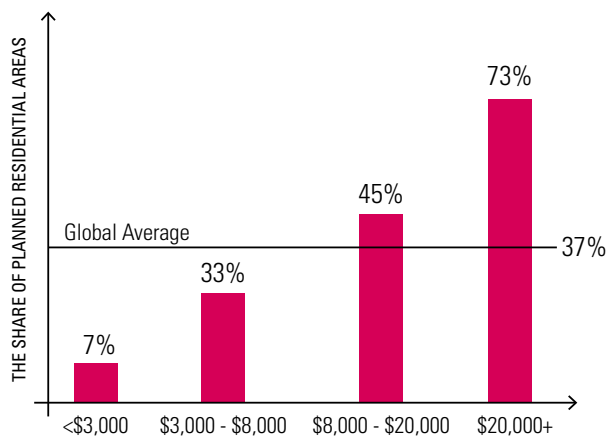


Figure 21: The shares of planned residential areas in the expansion areas of all 4,231 cities in the universe as a function of City GDP per Capita in 2012

It is quite possible that the high levels of informality in most regions are not due to any particular shock in the last two decades, but are rather symptomatic of a more generalized failure to keep up with urban expansion. Neither existing structures of governance nor current regulatory frameworks are able to control these new settlement forms. It is these sprawling urban peripheries, almost entirely unserved and unregulated, that make up the bulk of what is referred to as informal settlements. The attractiveness of these kinds of locations for poor households is that they can avoid the costs associated

with formal and regulated systems of urban land and service delivery. Because of this, however, it is in these areas that environmental issues are particularly critical, both in terms of the natural hazards to which these settlements are exposed and the environmental damage that they cause.

Poorly planned urbanization and inappropriate regulations (or the absence of formal planning and regulations) in most developing countries has priced many people out of formal land markets, forcing them to opt for housing in places which are deemed affordable. This creates a growth that occurs outside of the formal planning process. This informality in cities is compounded by limited planning and governance capacity in some developing countries.

The consequence has been an unplanned and disorderly residential fabric (with minimal utility services poorly integrated into the existing city) expanding in areas in defiance of municipal plans or regulations, thus courting the twin problems of a proliferation of slums and a rise in urban poverty. Often, this disorderly expansion is deemed undesirable and illegal, leading to ineffective responses from authorities such as elimination and neglect.

**+ URBAN PLANNING WILL ALSO NEED TO DEVISE WAYS OF ADEQUATELY MANAGING THE URBAN DEVELOPMENT PROCESS AS A WHOLE, AS UNMANAGED OR CHAOTIC URBAN GROWTH IS A SIGNIFICANT OBSTACLE TO THE SUSTAINABLE DEVELOPMENT OF TOWNS AND CITIES**

In some cities, efforts to formalize such areas have been unsuccessful with formalization processes resulting in destroyed shelters and livelihoods that further exacerbates exclusion, marginalization and poverty. In other instances, informally developed areas often transition over time to a formal status, with informal housing being built as needed, services being installed more gradually, and property titles coming later in some form. This regularization is, in fact, much more common than the demolition of non-compliant structures and zones. The companion study on regulatory regimes found in fact demolitions to be very rare (refer to the Chapter on the regulatory regime of urban expansion).

This can be seen to striking effect in the neighborhood of Comas, in Lima, Peru – a former squatter settlement that has, over time, been regularized and improved and is now a desirable middle-class neighborhood (Figure 9). A third approach, driven by strong efforts to integrate such informal settlements into the wider urban fabric, consist in regularization accompanied by structuring interventions which improve connectivity both inside the informal settlement that with the rest of the city (Medellin Social Urbanism approach being one example). Such approach introduces elements of more structuring planning, manages density and increases accessibility and connectivity without disrupting the social fabric of the informal neighbourhood.



Figure 22: The former squatter settlement of Comas, in Lima, Peru. Inset: A home in this neighborhood recently sold for \$180,000.

### The share of residential area laid out before development declined globally with contrasted differences per regions –

Housing projects, formally subdivided areas, and informally subdivided areas can be thought of as having been laid out, or planned for urban use before the land was occupied. Worldwide, 69% of residential areas were laid out before occupation of the land in the pre-1990 area, as shown in Figure 10.

However, in the expansion zones from 1990 to 2015, only, 57% of areas were laid out before the land was occupied. It is clear that regulatory regimes governing the growth of cities are less and less present and enforceable, and contemporary urban planning (where there is any) has proved unable to nurture socio-economic advancement and shared prosperity.

Cities have found themselves woefully unprepared in the face of the spatial and demographic challenges associated with urbanization, not to mention those of an environmental nature. Understood primarily as a technical tool often at the service of real estate developers, urban planning and design has been unable to address the power relations that have been at work to the detriment of the great majorities of urban populations. Planning has also proved unable to prevent environmental degradation or the formation of slums, and is notable for serious shortcomings in terms of transport, urban mobility and land uses.<sup>8</sup>

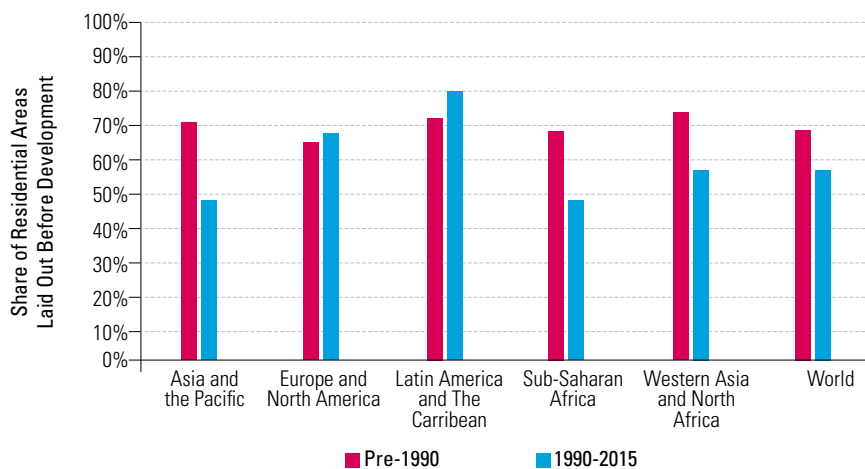


Figure 23: The share of residential area laid out before development fell in three of the five UN Regions and also declined globally.

<sup>8</sup> UN-Habitat (2012) State of the World's Cities Report: Prosperity of Cities, Earthscan, London.

Examining the data by region, declines were seen in Sub-Saharan Africa, Western Asia and North Africa, and Asia and the Pacific. Asia and the Pacific had the steepest decline, with the share of residential areas planned before occupation falling from 70% – slightly above the global average – to 49%, eight percentage points below the global average, followed by Western Asia and North Africa, which experienced a decline from 73% to 57% (Figure 23).

Planning in the expansion areas improved in Europe and North America as well as in Latin America and the Caribbean, where the share of residential areas planned before occupation is now approximately 80%, the highest in the world.

**Increase in the incidence of informal planning in city growth** - In many of the cities in the regions that showed declines, rapid urban expansion has combined with weak governance and inappropriate regulations to produce disorderly development and informally planned growth.

Indeed, in addition to a general decline in the amount of planning, there has been a specific increase in the incidence of spontaneous development. Informally subdivided housing is built on land that has been organized for urban development, but appears to lack the full complement of services. It is identified by recognizing that the development has a pattern, with regularly sized blocks and plots and orderly local roads, but lacks street paving, sidewalks, and street lighting.

Based on these attributes, the satellite analysis can detect that these areas were planned by informal developers and most likely are not in compliance with local land subdivision regulations. These areas are distinct from atomistic settlements (such as those seen in Figure 11 above images), in which no planning and design of the layout was undertaken and implemented in advance.

Worldwide, 17% of residential areas met this description in the pre-1990 zone, and 27% correspond to this informal growth in the expansion zone from 1990 to 2015 (Figure 12). Increases in informality were particularly high in Latin America and the Caribbean, Western Asia and North Africa, and in Sub-Saharan Africa.



*Figure 24: Clockwise from top left: Atomistic settlements; Informal Land Subdivisions; Formal Land Subdivisions; and Housing Projects.*

In Latin America, the share of residential areas that were informally subdivided rose from 14% in the pre-1990 area to 47% in the expansion zone from 1990 to 2015. In Western Asia and North Africa, the increase was similarly stunning – from 7% to 49%. Finally, informality in Sub-Saharan Africa increased from 21% to 51%. A decline was only seen in one region. In Europe and North America, the share fell from 24% to 21%, most likely reflecting improvements in governance in Eastern Europe.

It can also be observed that the share of land having informal layouts is significantly higher in areas that were built in the latest urban expansions. Figure 13 shows that around one-fifth of city growth in the expansion areas from 1990 to 2015 occurred with informal layouts and slightly less than half (48%) was developed following formal layouts. In contrast, at the beginning of 1900 around one-fourth of city growth (76%) was done according to formal layouts and the rest was not laid out at all, a proportion that has not changed since then, while informality has continued to grow.

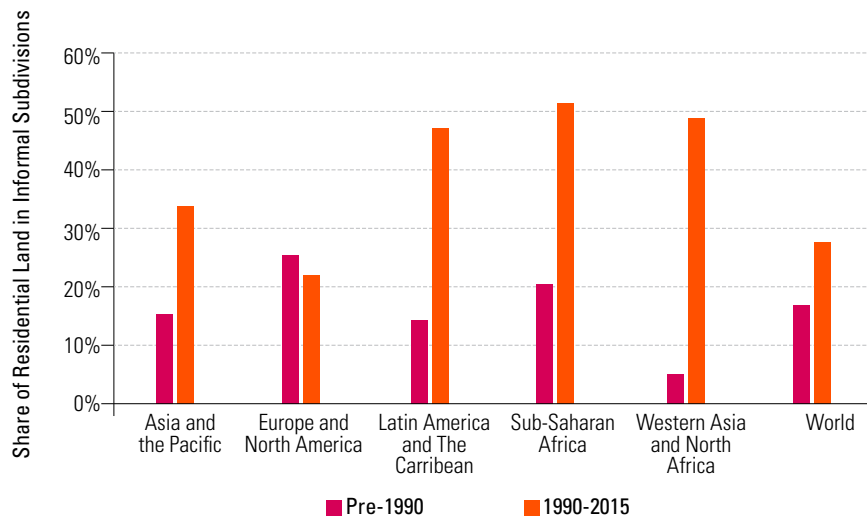


Figure 25: Informality increased in all of the regions except Europe and North America.

The rapidity of urban growth, the lack of regulatory mechanisms or the capacity to enforce them, and a pragmatic laissez-faire policy towards informal growth that can be regularized afterwards could be some of the reasons explaining the development of informality.

The gradual construction of housing in informally laid out neighborhoods does allow new urban residents to meet their immediate housing needs and, perhaps, to eventually gain legal status. However, the creation of informal neighborhoods may produce areas that are difficult to navigate, difficult to integrate into the city’s labor market, more expensive to serve with infrastructure, and prone to traffic bottlenecks.

Not enough land is allocated to streets - the results of this study show that the proportion of land allocated to streets in the expansion areas from 1990-2015 is rather low. A global average is 20.8% with nearly half of cities (48%) having less than 20%. Streets are a key factor in the quality of life, the most important and immediate type of public space. Streets connect people, goods, cities and parts of cities. They carry the public utilities that a city needs to function. UN-Habitat recommends an optimal value of around 30% of land should be allocated to streets.<sup>9</sup>

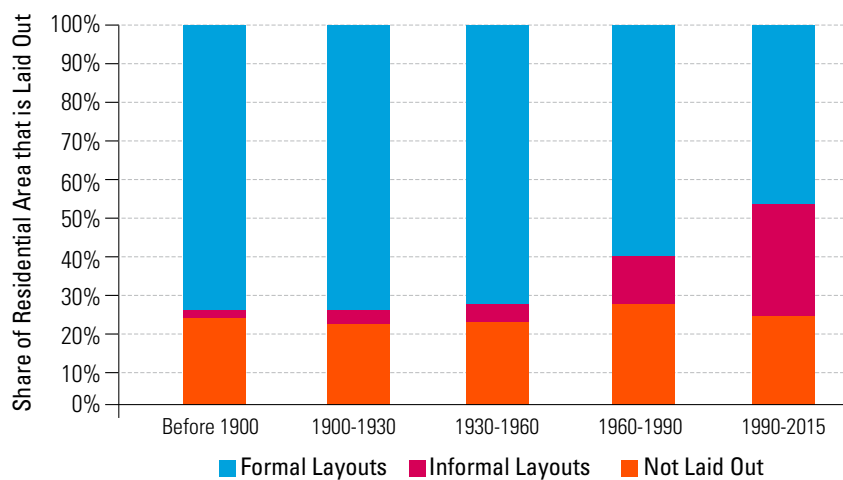


Figure 26: The share of land in formal and informal layouts, sample of 30 cities (a sub-sample of the UN Global Sample of cities) before 1900 to 2015.

<sup>9</sup> UN-Habitat (2013) A New Strategy of Sustainable Neighborhood Planning: Five Principles

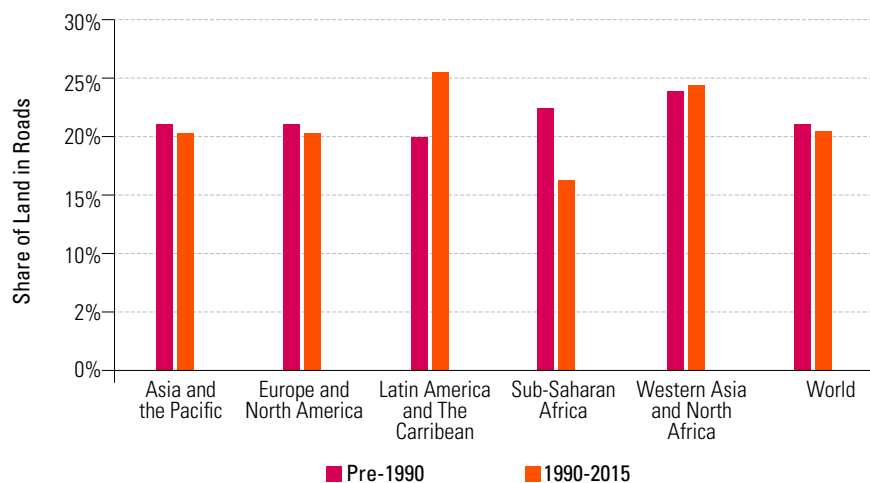
The more a city holds to this value, the more it has sufficient intersections available to facilitate shorter distances travel and reduce travel times, an adequate street network to cover all areas, optimal city infrastructure, connectivity and mobility, and better overall functionality.<sup>10</sup> As connectivity increases, travel distance decreases, and route options and travel modes increase.<sup>11</sup>

The share of land allocated to streets changes significantly among world regions. While it represents 16% in Sub-Saharan Africa and 18% in Southeast Asia, it reaches 23% in Latin America and the Caribbean and 26% in Western Asia and North Africa. Figure 14 shows that the global share of land in streets has declined slightly, from 21% in the pre-1990 area to 20.6% in the expansion zone.

Although the decline is not statistically significant, it exhibits a downward trend in the use of public space, as measured by the presence of streets. With the exception of two regions, Latin America and the Caribbean and Sub-Saharan Africa, the proportion of streets compared with

the total area of the city has remained stable in the other regions (around 20% in Asia and the Pacific and Europe and North America and 24% in Western Asia and North Africa).

While in Latin America the the share of land in roads increased from 20% in the pre-1990 area to 25% in the expansion zone, in Sub-Saharan Africa, by contrast, the share declined from 23% in the pre-1990 area to 16% in the expansion zone. The decline in Sub-Saharan Africa was the only significant decrease reported worldwide, but is particularly troubling as that region has been seeing notably rapid urbanization in the past two decades, and is expected to more than double the share of its population in cities in the next three decades.



**+** THE SHARE OF LAND ALLOCATED TO STREETS CHANGES SIGNIFICANTLY AMONG WORLD REGIONS. WHILE IT REPRESENTS 16% IN SUB-SAHARAN AFRICA AND 18% IN SOUTHEAST ASIA, IT REACHES 23% IN LATIN AMERICA AND THE CARIBBEAN AND 26% IN WESTERN ASIA AND NORTH AFRICA

Figure 27: Evolution of the share of land allocated to streets, sample of 30 cities (a sub-sample of the UN Global Sample of cities) before 1900 to 2015.

<sup>10</sup> López Moreno E. and Regina O (2015) Spatial Capital of Saudi Arabian Cities.

Street connectivity study for the City Prosperity Initiative, Riyadh and Nairobi

<sup>11</sup> UN-Habitat (2013) Streets as Public Spaces and Drivers of Urban Prosperity, Nairobi



Figure 28 shows that the share of the land allocated to streets in the expansion areas of all 4,230 cities in the universe is a function of City GDP per Capita (estimated with values of 2012). Not only are all regional values and the worldwide share below the normative recommendation of UN Habitat (that is, one-third of land to be dedicated to roads), but also below all cities in the different GDP brackets (Figure 15). Cities with higher incomes (+20,000 USD) that would be considered historically well-planned cities, and cities with low incomes (<3,000 USD) that in general are poorly planned, are all below UN-Habitat's threshold. Whereas cities in the highest GDP bracket allocate 22% of land to streets, cities in the lowest bracket apportion only 18%.

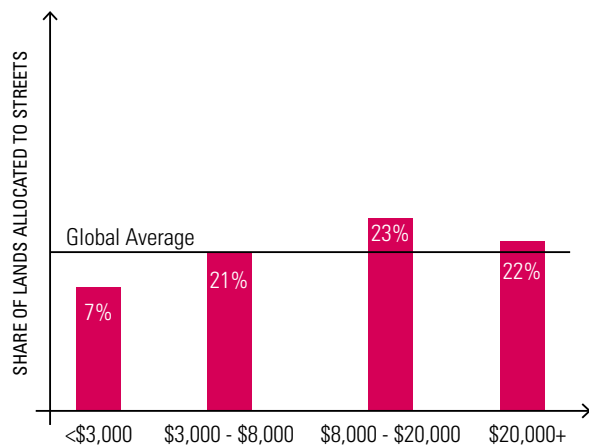


Figure 28: The share of the land allocated to streets in the expansion areas of all 4,230 cities in the universe as a function of City GDP per Capita

A street network will rank amongst any city's most prized assets. Besides facilitating mobility, streets provide a pathway for laying down networks of the physical infrastructure necessary for cities such as water supply, sewerage networks, storm water drainage, and power lines.

A low proportion of street space, by contrast, leads to traffic gridlock and congestion, poor integration of the expansion areas with the broader city, and is a barrier to the reproduction of new infrastructure. The urban

road network in many developing countries has barely kept pace with urban growth: in Douala, Cameroon, for instance, it has remained unchanged for the past 20 years despite a doubling of the population, increased numbers of vehicles, and urban sprawl. The dysfunctional nature of road infrastructure in developing cities poses a major challenge to mobility, prosperity, and sustainable development.

UN-Habitat research indicates that the provision of basic infrastructure in slums is significantly inhibited by few or even no streets to facilitate the laying out of networks for water, sanitation and electricity. Creating space for an adequate street network after development has taken place has huge financial and social costs and this hinders efforts to unlock badly laid out area or densify them.

Access to arterial roads have fallen overtime - the results of this study indicate that spatial planning has become strikingly deficient in recent years. Expansion zones in most cities are less planned and less connected to arterial roads than the pre-1990 areas. Indisputably, planners and officials are failing to prepare for urban expansion in a way that produces orderly and adequate land for housing with strong connections providing good access between newly built areas and older areas.

The mapping of arterial roads provides perhaps the greatest opportunity to assess the quality of urban planning in a given city. These are the roads that ensure connectivity between different areas of the city, and they are the backbone of the transportation networks that lead to the creation of large labor markets and their ensuing economies of agglomeration. Equally important, the proper deployment of these roads can reduce the cost of providing infrastructure services. Finally, as discussed earlier, these roads are a classic public good and must be laid out by the public sector in advance of the occupation of the land by development.

### Box 2: The work of measuring arterial roads

The methodological work of measuring arterial roads is comprehensive and city-wide, with the task organized through the division of the city into a series of one-kilometer-by-one-kilometer grid squares. A one-kilometer buffer is added to the periphery of the city when creating the grid squares, so that roads that are adjacent to the urban area are also included (Figure 29). Each square is methodically checked for the presence of arterial roads and the roads that are found are classified as either wide—meaning greater than 18 meters in width—or narrow. Wide arterial roads are those that are best equipped to carry trunk infrastructure and public transportation.

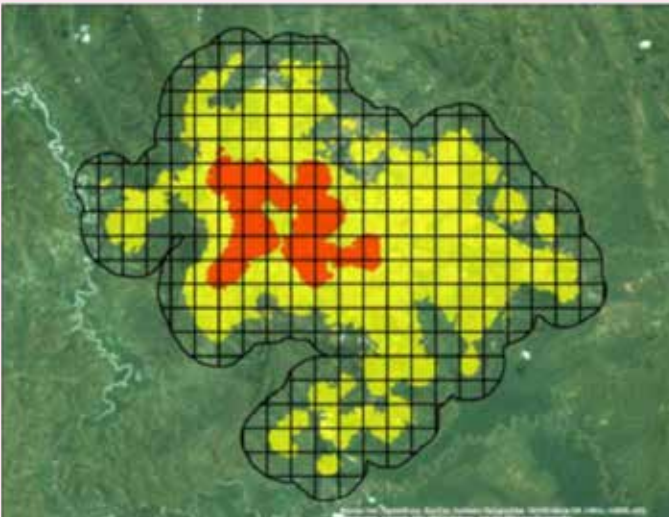


Figure 29: The grid used to identify arterial roads in Kigali, Rwanda, with the pre-1990 area in red and the expansion zone in yellow.

In a small number of very large cities, a sampling methodology was developed that relied on Halton Points, with a one-kilometer square around each Halton Point, buffered to an additional distance of one kilometer on each side of the square. This produced an area of three square kilometers. A random sample of these areas was studied and the results were generalized to describe the arterial road network in the sampled cities. The application of this method in Hangzhou, China, can be seen in Figure 30.

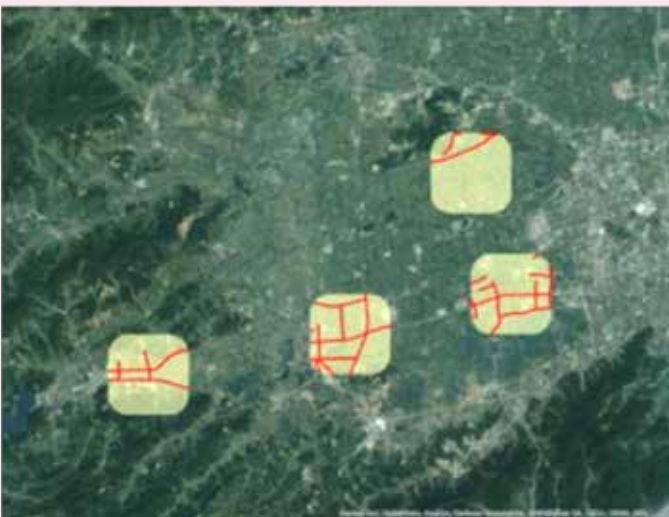


Figure 30: Representative arterial road samples in Hangzhou, China

**+ WHEREAS CITIES IN THE HIGHEST GDP BRACKET ALLOCATE 22% OF LAND TO STREETS, CITIES IN THE LOWEST BRACKET APPORTION ONLY 18%**

**+ A LOW PROPORTION OF STREET SPACE, BY CONTRAST, LEADS TO TRAFFIC GRIDLOCK AND CONGESTION, POOR INTEGRATION OF THE EXPANSION AREAS WITH THE BROADER CITY, AND IS A BARRIER TO THE REPRODUCTION OF NEW INFRASTRUCTURE**

The analysis of these arterial road maps shows that the share of land within walking distance (estimated at 625m) of any arterial road has fallen from 92% in the pre-1990 area to 82% in the expansion zone. Figure 31 shows that

access to wide arterial roads has fallen from 83% to 69% in the same period. In other words, about one-third of the expansion area in a typical city does not have easy access to an arterial road that can carry public transportation.

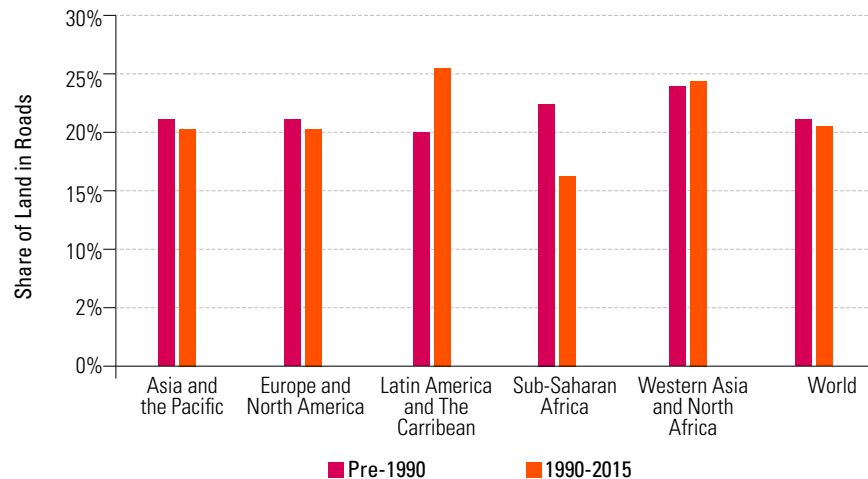


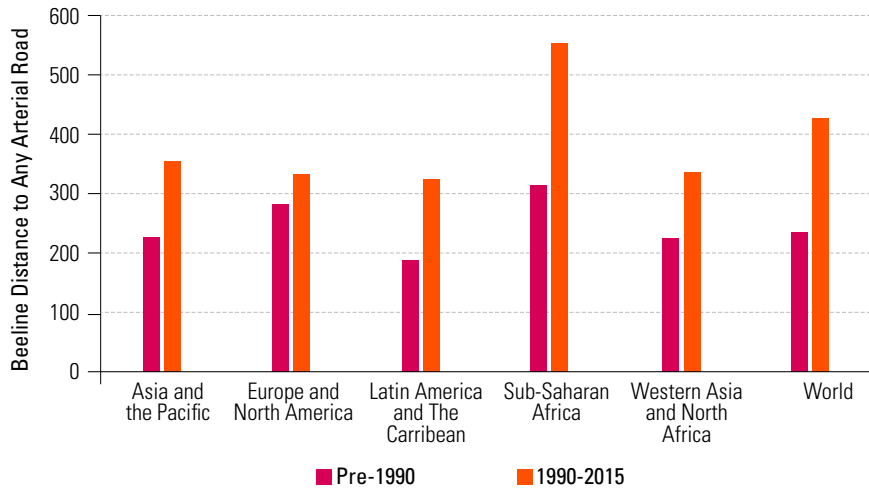
Figure 31: The share of the area within walking distance (625m) of a wide (18m+) arterial road, UN Global Sample of Cities, 1990 to 2015.

Remarkably, the share of area within walking distance of a wide arterial road has fallen in all regions. The average decline was on the order of 10%. In Sub-Saharan Africa, for instance, the share fell from 72% to 62%, meaning approximately 40% of newly developed areas are not within walking distance of an arterial road. In this region the decline is paralleled by a larger than average increase in the beeline distance to an arterial road (Figure 19).

The beeline distance to an arterial road nearly doubled, from 305-meters in the pre-1990 area to 530-meters in the expansion zone, compared with a global average increase from 220-meters to 410-meters. This beeline distance does not take into account the need to navigate neighborhood streets in intricate urban layouts, which

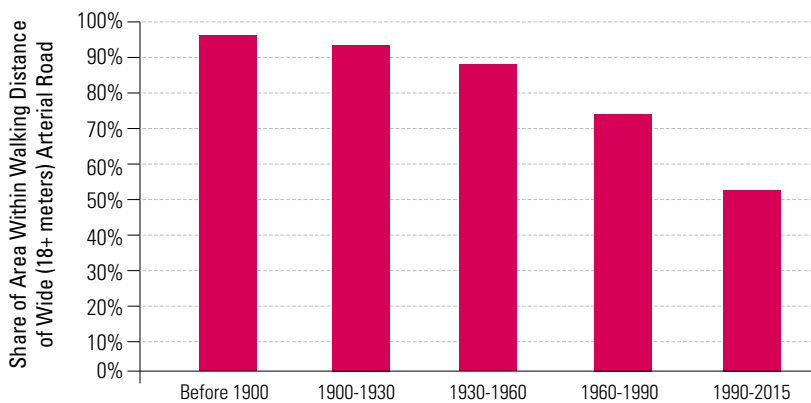
could greatly increase the walking time. Neighborhoods at such a remove from arterial roads are most likely quite isolated from the urban labor market, and residents may face difficulties in finding employment and in commuting.

The share of area within walking distance of wide arterial roads has also declined over time in the selected sample of 30 historical cities (Figure 20). In general, the selected sample reports lower access to arterial roads than the UN Sample of 200 cities. In the expansion areas from 1990 to 2015 for example, 50% of areas were within walking distance of a wide arterial road, compared to 69% in the UN Sample. This historic trend analysis serves to illustrate the general tendency of worsening access to arterial roads.



**+** IN SUB-SAHARAN AFRICA, THE SHARE FELL FROM 72% TO 62%, MEANING APPROXIMATELY 40% OF NEWLY DEVELOPED AREAS ARE NOT WITHIN WALKING DISTANCE OF AN ARTERIAL ROAD

Figure 32: The beeline distance to an arterial road, UN Global Sample of Cities, 1990-2015.



**+** UN-HABITAT EMPIRICALLY DEMONSTRATES THAT INTERSECTION DENSITY IS NOT ONLY A FUNDAMENTAL ELEMENT OF WALKABILITY, BUT IS MORE CONDUCTIVE TO THE USE OF NON-MOTORIZED TRANSPORT, WITH STREET INTERSECTION DENSITIES HIGHER THAN 100 A MARK OF SUFFICIENT LEVEL OF STREET CONNECTIVITY

Figure 33: The share of area within walking distance (625m) of a wide (18m+) arterial road in the historical sample of 30 cities.

As already mentioned, these roads are a critical component of a well-functioning urban area, allowing for the creation of an integrated metropolitan labor market, among other things. Arterial roads connect different areas of the city, creating a network that can carry trunk infrastructure and public transportation, reducing the cost of servicing new neighborhoods and increasing the likelihood that residents will choose greenhouse gas-reducing transportation options.

Arterial roads are a classic public good, in that users cannot be effectively excluded from them. This can lead to a market failure, in which these roads are undersupplied. Unlike local roads, which are often planned by developers or quickly laid out as development occurs, the land for the rights-of-way of arterial roads must be projected, planned, and protected by public officials in advance of

development. The presence or absence of these roads is an important indicator of the degree of planning that is taking place on the urban fringe.

The share of 4-ways intersections has fallen over time - If the road networks are to provide connectivity as well as capacity, they must not merely be built, but must also be properly laid out and adequately maintained. UN-Habitat research shows that a good street pattern boosts infrastructure development, enhances environmental sustainability, supports higher productivity, enriches quality of life, and promotes equity and social inclusion. Street intersection density –the number of intersections per one square kilometer of land– is a good indicator of the ease with which a person can shorten travel distances, increasing the likelihood of walking or cycling. The more intersections there are in a street network, the more walkable the streets are deemed to be.

UN-Habitat empirically demonstrates that intersection density is not only a fundamental element of walkability, but is more conducive to the use of non-motorized transport, with street intersection densities higher than 100 a mark of sufficient level of street connectivity. One measure of this layout, the density of 4-way intersections, is an important indicator of both walkability and drivability. A higher density of 4-way intersections means that multiple routes are available between two points, making it easier to avoid traffic bottlenecks and congestion and reduce overall travel times. Unfortunately, the density of these intersections (the number of intersections per square kilometer) has fallen worldwide from 34 intersections per square kilometer in the pre-1990 area to 28 intersections per square kilometer in the expansion zone (Figure 34).

This means that the road networks in more recently developed areas offer fewer opportunities to avoid congestion, fewer route options, and reduced walkability. Newly developed areas of cities are therefore harder to navigate, impeding their integration with the older parts of the city.

The problem is particularly acute in Europe and North America, where the density of 4-way intersections fell from 26 per km<sup>2</sup> to 14 per km<sup>2</sup>. UN-Habitat attributes this to the predominance of cul-de-sacs in the expansion areas of cities in these regions. This often reflects the stylistic choices of large suburban developers, more than any other factor. However, cul-de-sacs have been seen to have a negative impact on street connectivity.

More traffic congestion has been associated with this type of urban design in new settlements where people from the same neighbourhood use the same arterial streets to connect to a highway. Additionally this has increased the isolation of neighborhoods at the expense of walkability, as can be seen in a representative locale showing Phoenix, Arizona, Figure 35.

Problems can also be seen in Sub-Saharan Africa, where the density of 4-way intersections has fallen from 28 per km<sup>2</sup> in the pre-1990 area to 16 per km<sup>2</sup> in the expansion zone, a pointer to fragmented streetscapes with irregular street patterns and multiple unplanned dead-end roads. Also, some of the intersections that exist (mostly 3-way intersections) indicate a disorderly or poorly connected layout and do not promote connectivity.

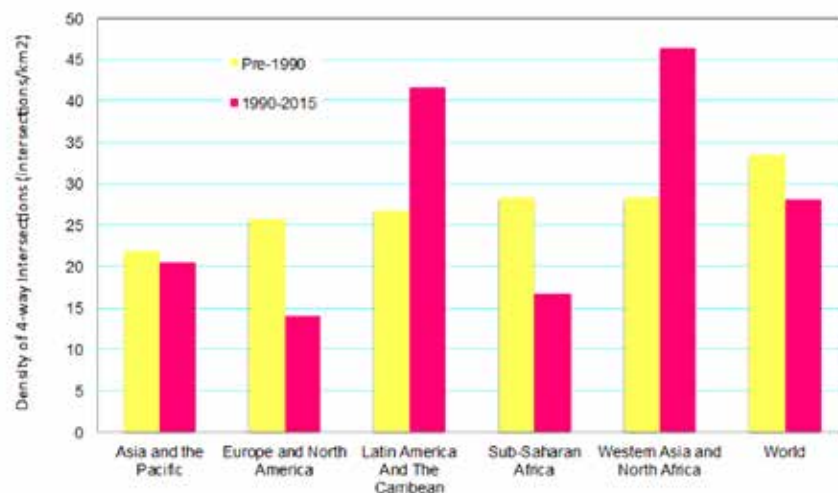


Figure 34: The density of 4-way intersections in the UN Global Sample of Cities, 1990-2015.



Figure 35: In this neighbourhood in Phoenix, Arizona, 4-way intersections are uncommon, harming walkability and increasing travel distances.

**+ NEIGHBORHOODS HAVING SMALL BLOCKS TEND TO BE MORE SOCIALLY VIBRANT; THEY GENERATE MORE ECONOMIC ACTIVITIES AND ARE MORE WALKABLE FOR THE SIMPLE REASON THAT PEOPLE ARE GENERALLY ABLE TO FIND A MORE DIRECT ROUTE TO THEIR DESTINATION**

UN-Habitat points out that connectivity in some of these expansion areas is similar in quantity (share of allocated space and number of intersections) to those in slum areas. Two considerations ensue: on one side badly or inadequately planned. Areas, designed with poor connectivity within and with the wider city are widespread in new expansions; on the other side, in many contexts, urban growth is synonymous with slum growth in some regions as reported in UN-Habitat's State of the World Cities Report 2006/07.<sup>12</sup>

Urban block size has been increasing dramatically across most world regions - The low 4-way intersection density is implicitly related to another disturbing phenomenon - the increase in the size of a typical residential block. Larger blocks reduce walkability and connectivity and tend to increase traffic congestion. UN-Habitat advocates for the creation of smaller block sizes (preferably with mixed-use) to complement an adequate street pattern with sufficient intersections.

Neighborhoods having small blocks tend to be more socially vibrant; they generate more economic activities and are more walkable for the simple reason that people are generally able to find a more direct route to their

destination. On the contrary, the need to circumnavigate large blocks often incentivizes motorized travel, affecting the notion of proximity that is important to promote social interactions. UN-Habitat's Planning for Sustainable Cities Report highlights that in Ahmedabad, India, only 13 per cent of trips were made on foot by those living in neighbourhoods with an average block size of 4 hectares compared to 36 per cent in a similar neighbourhood where the average block sizes were 1.2 hectares.<sup>13</sup>

According to Figure 35, the size of a typical block rose worldwide from 3.8 hectares in the pre-1990 area of cities to 5.2 hectares in the expansion zone (1990-2015). Particularly sharp changes were observed in Asia and the Pacific and in Europe and North America - two regions that have embraced curvilinear suburban design - where the increases were from 3.5 hectares to 6.1 hectares and from 3.4 hectares to 6 hectares, respectively (Figure 23). With the exception of Western Asia and North Africa, which experienced a reduction in the block size from 4.2 hectares to 3 hectares, the global trend toward large blocks with limited intersections significantly compromises walking and biking, making cities less pedestrian friendly and less bicycle friendly. In New York, for comparison, a typical block is 2.2 hectares and is very walkable and conducive to proximity business (Figure 36).

<sup>12</sup> UN-Habitat (2006) State of the World's Cities Report, Earthscan, London.

<sup>13</sup> UN-Habitat (2009) Planning Sustainable Cities: Global Report on Human Settlements, Earthscan, London.

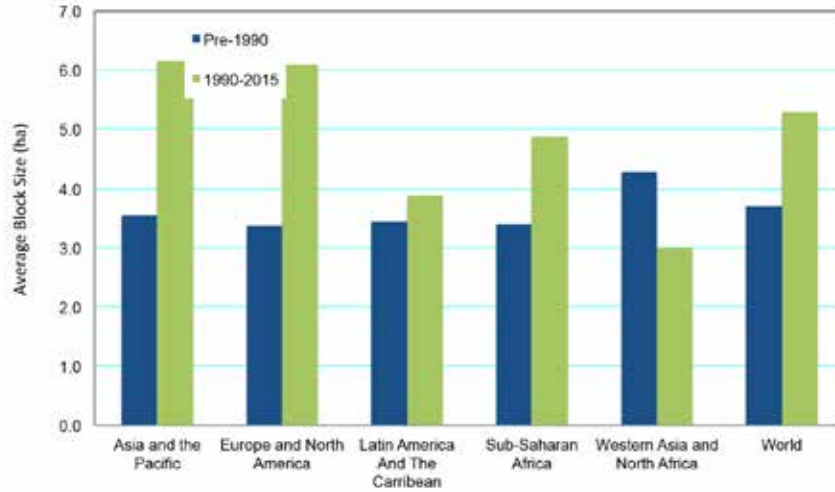


Figure 36: Average block size in the world cities, UN Global Sample of Cities, 1990-2015

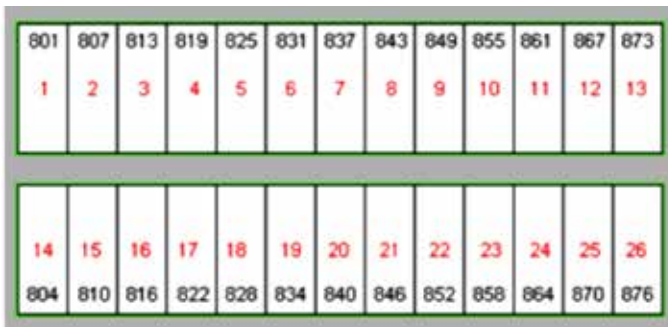


Figure 37: A typical Manhattan block is 2.2 hectares

A simple way to achieve consistently low block-size and high density of 4-way intersections is to lay out the expansion areas of cities using a grid plan – both local roads and larger arterial roads can be laid out in this way, ensuring the most equitable spatial layout—rich and poor have the same access to the street network spatial layout (as pointed out most notably by Adrian Gorelik in his landmark book *La Grilla y el Parque*).

UN-Habitat recommends that the distance between two arterial routes should be between 800 and 1,000 m since a planned grid with such roads spaced no more than one kilometer apart enhances both walkability and public

transport catchment—it gives access to public transport within a 10 minute walk. In addition to this, it further recommends a smaller grid of streets to ensure that block sizes are human-scale with intersections every 100 metres to make them more pedestrian-friendly.

This method of urban planning has been successfully used for thousands of years, perhaps beginning with the city of Hat-hetep Senusret in ancient Egypt some 4,000 years ago. It is common in both developed and developing countries in present-day cities. In Figure 25, the results can be seen in Bamako, Mali, and in Chicago, Illinois, for example.



Figure 38: Gridded layouts in the expansion areas of Chicago, Illinois (left) and Bamako, Mali (right).

Regrettably, this age-old system of planning has fallen out of favor. Only 3.4% of locales in the expansion zones of the cities in the global sample were found to contain road networks that were gridded or partially gridded, compared to 7.7% in the pre-1990 area (Figure 26). In the historical sample of 30 cities, 28% of areas built before 1900 were found to be gridded, falling to just 9% in the area developed between 1960 and 1990 (Figure 27).

### Box 2: Defining representative 'locales' in cities

Using satellite imagery, the study identifies the areas of cities that were built-up in different periods. It then studies the characteristics of a set of forty randomly located ten-hectare areas that are called 'locales'. The analysis of these locales allows for the detailed observation of the characteristics of the urban fabric, including land uses, street space, and intersection density. Locales are drawn from the pre-1990 area (left) and from the expansion zone, as shown in Figure 26 from the expansion area of the City of Addis Ababa.



Figure 39: A representative locale in the expansion zone of Addis Ababa, Ethiopia.

The level of detail available through the locale analysis can provide detailed information about roads, land uses, block size, various walkability measures, and plot size. Roads and blocks are measured within each locale, and plots within each block are tagged with one of six land uses. Two of these land types are open space and non-residential. The remaining four land uses are residential sub-types – 1. Atomistic settlements; 2. Informal land subdivisions; 3. Formal land subdivisions; and 4. Housing projects. This classification serves to identify housing plans that were planned or laid out before the occupation of the land and those that were not planned at all.



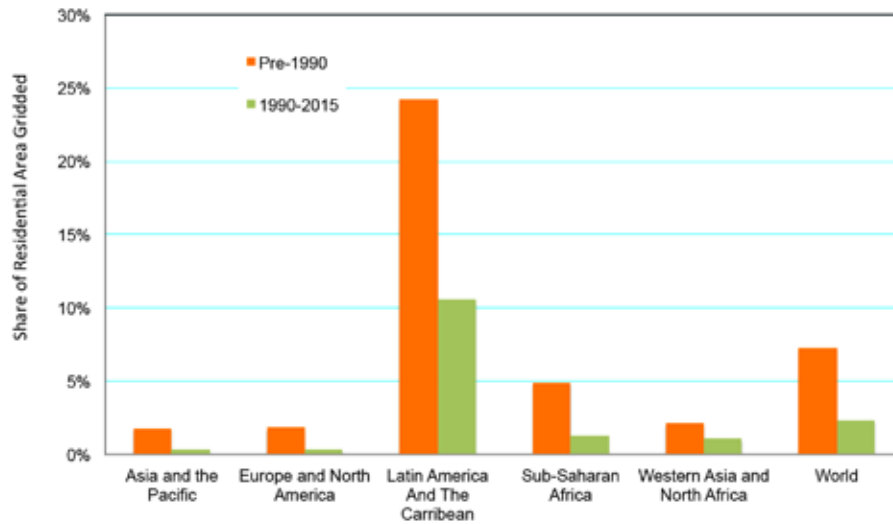


Figure 40: The share of locales containing gridded layouts, UN Global Sample of Cities, 1990 to 2015

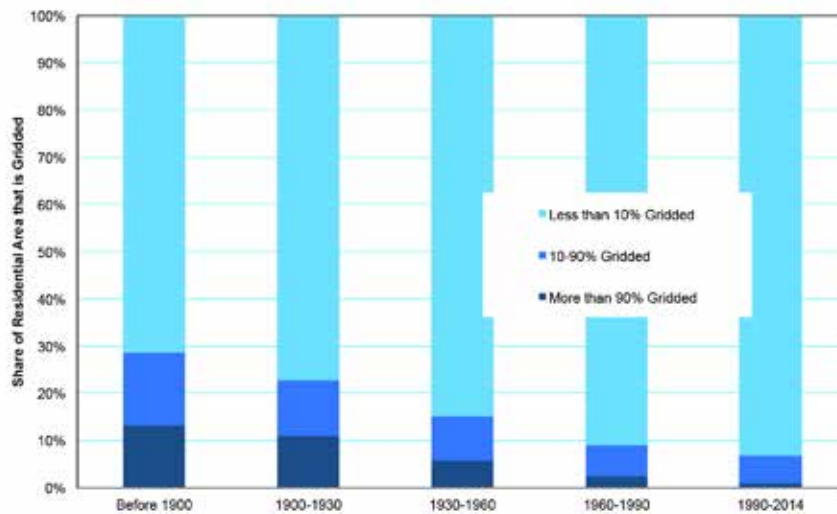


Figure 41: The share of locales that are either partially or totally gridded, 30 cities, sub-sample of the UN Global Sample of Cities 1900-2015

A notable exception to this trend away from grids can be found in Latin America and the Caribbean, where the historic Leyes de Indias legislation enacted by Carlos II in 1680 required that cities be laid out in plain, rectilinear grids<sup>14</sup> (Figure 41). The form has persisted, such that

almost one-quarter of locales in the pre-1990 area had clear grid plans, and 10% of those in the expansion area had such plans. This share, though still quite low, is five times greater than the next highest region.

<sup>14</sup> Brillenbourg, Carlos M., 2016. "Latin American Architecture." Encyclopedia Britannica Online, 2016 Edition. Online at: <https://www.britannica.com/art/Latin-American-architecture#ref996087>.

## Conclusion

As the evidence shows, the quality of urban planning in the world's cities and its effect on the ground has been worsening over time. As cities expanded between 1990 and 2015, informality increased, orderly residential planning decreased, neighborhoods became less walkable, less land was allocated to streets and roads, roads became narrower on average, and access to arterial roads worsened. Planners and developers moved away from time-tested methods such as the laying out of road grids, perhaps gravitating toward large-block curvilinear suburban development plans and cul-de-sacs designs that increase isolation and segregation.

If these results are representative of the trajectory of future growth, then it is clear that the cities of the future are at risk of being less productive, less inclusive, and less sustainable than the cities of the past. It is easy to envision cities of enclaves, with the wealthy and middle class living in privately planned communities, surrounded by walls, and the poor and working class living in underserved and chaotic informal developments, with few connections between them. The benefits of urbanization would be squandered as cities failed to develop integrated labor markets and prosperity failed to spread.

To put it another way, the evidence presented in this chapter is a call for the reinvigorating of basic spatial planning and design, at a massive scale, appropriate to the challenge we face. We have an obligation to plan our habitats in a manner that ensures that they will function well for generations to come. In practice, this means doing three things at a minimum:

1. Creating realistic projections of future urban growth based on available demographic information and now based on information about historical spatial expansion, as this study provides.
2. Identifying the expansion area in direct proximity with existing fabric and in relation to natural features and risks.
3. Planning the routes for wide arterial roads, spaced no more than one-kilometer apart, in the entire projected area of urban expansion in the coming 30 years.
4. Protecting the rights-of-way of these routes, as well as protecting sensitive environmental areas and future public open spaces from urban development.
5. Laying out adequate sized blocks and street network to support connectivity and productivity across the city as well as mixed use.

Additionally, national or state governments should take steps to identify functional metropolitan areas and to create planning mechanisms that operate at a metropolitan scale.

In the past, many cities have benefitted from preparing and implementing such simple, commonsense plans. Barcelona, Spain, implemented the famous Ensanche Plan of Ildefons Cerdá in 1859, which provided for a 9-fold expansion in the area of that city (Figure 28. It imposed no immediate burdens, requiring only that the necessary rights-of-way for roads be preserved, and the areas of expansion converted to urban use at the appropriate time.



Figure 42: The Ensanche Plan of Barcelona, 1859

In New York, the Commissioner's Plan of 1811 expanded the area of the city 7-fold, laying out blocks, streets, and wide roads (Figure 42). Faced with massive population growth at the end of the 19th century, New York again expanded its area, annexing four additional boroughs and creating the 1900 Board of Public Improvement Plan, which expanded the area of the city 9-fold, won a gold medal at the Paris Exposition, sparked a generation-long building boom, and—together with the extension of the subway system and its 'nickel fare' at the time—contributed to the decongestion of lower Manhattan, at that point one of the world's most crowded urban areas.



Figure 43: The 1811 Plan of New York City expanded the urban area 7-fold.

More contemporary urban plans can be found in cities such as Hawassa, Ethiopia, where the municipality is currently preparing land for an 11-fold expansion of its existing urban extent in order to accommodate an ongoing population boom (Figure 30). Similar efforts are underway in many more Ethiopian cities, where the country has embarked on a national Ethiopia Urban Expansion Initiative, in collaboration with the NYU Urban Expansion Program. Across the ocean, the Colombia Urban Expansion Initiative is helping cities in that country prepare for their inevitable spatial expansion as well.

What unites the great planners of today with the planners of the past and the city leaders they have been working for or with is, first, the realization that urban expansion is inevitable – it cannot be prevented. Second, the understanding that it is not technically difficult to plan for the expansion of cities; as the Ouagadougou, Hassawa or Vila el Salvador demonstrates, it is within the means of even the poorest cities to undertake this task. Finally, they understand the need to make big plans and see them through.

These new plans, and the ones that came before them, impose a relatively small immediate cost on governments. However, justifying that cost requires both political will and a great deal of vision. Let us hope that more of the urban leaders of today can embrace the same spirit that is guiding the people of Ethiopia and Colombia – the same spirit that guided Ildefons Cerda, or the Commissioners of New York City. It is the same spirit that motivated the great architect Daniel Burnham when he said, “Make no little plans; they have no magic to stir men’s blood.”<sup>15</sup>

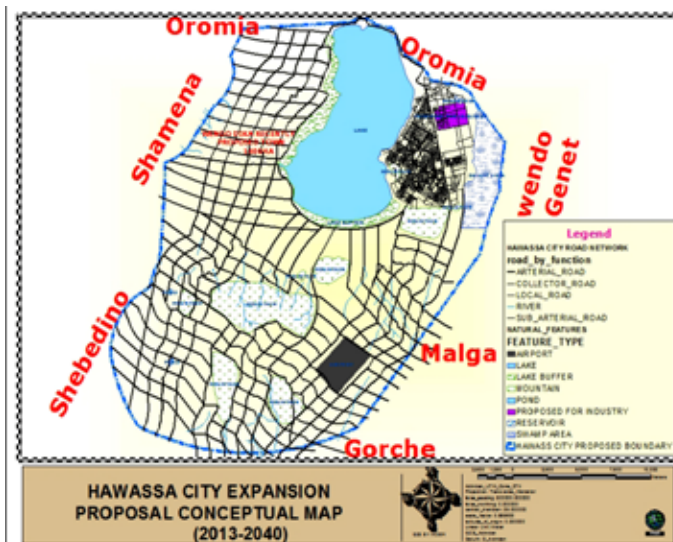


Figure 44: The arterial grid plan and expansion plan of Hawassa, Ethiopia.

**+** THE QUALITY OF URBAN PLANNING IN THE WORLD'S CITIES AND ITS EFFECT ON THE GROUND HAS BEEN WORSENING OVER TIME

<sup>15</sup> Burnham (1907) quoted in: Charles Moore (1921) Daniel H. Burnham, Architect, Planner of Cities. Volume 2. Chapter XXV “Closing in 1911-1912;”

### Box 5: Ouagadougou, Burkina Faso

Located on a plateau with little geographic resistance to urban sprawl, Ouagadougou had started expanding informally. In 1984 a programme of large scale planning of the city extension (11,800 ha) was initiated, which over 6 years carefully planned parcels and grid and resulted by the end of the decade in a reduction of informal housing from 70 to 7 percent. The urban fabric consists of a very clear hierarchy of streets, despite the absence of much road infrastructure. Centrifugal parcellization of the various urban blocks and packets arranged around the centre was developed as a strategy to ensure equal distribution of resources and opportunities. The plan also reserved open public spaces. In large part of the extension the challenge remains the provision of services and infrastructure.



Figure 45: *The parcellization of Ouagadougou, Burkina Faso (© Olga Stavrakis)*

In 1984 through the RAF reform (Reforme Agraire et Fonciere) carried out by Captain Sankara, all land was nationalized. The plan was implanted soon afterwards, and led to the establishment of a hierarchy of streets, neighbourhood block modules as well as the equal provision of open spaces and facilities created the basis of an urban fabric equitable for all residents despite socio-economic status.

The clarity of the urban fabric allows for better urban legibility by the residents, including that provided by a relevant street addressing system. This shows that a metropolitan area that is conceived as a whole with a network of grids can provide opportunities of equal access for all.

## Annex 1: Methodology of the urban expansion programme

The methodology used by the NYU Urban Expansion Program addresses this issue by using the Roman concept of the *extrema tectorum* to define the area of the city – the furthest edge of the built-up area is used to define the boundary of the city. This allows researchers to focus on a consistent unit of analysis across different countries and regions – the city as a whole. Also, by focusing on the contiguous built-up area that makes up cities and metropolitan regions, this process highlights a great and growing need for effective metropolitan-scale collaboration among municipalities that can guide urban expansion.

The identification of the area of a city begins by associating its name and population (gathered from heterogeneous data sources including the UN Population Division, the Chinese Academy of Sciences, and [www.citypopulation.de](http://www.citypopulation.de)) with a specific coordinate centroid,

typically the location of City Hall. The next step is identifying a set of population enumeration zones that most likely encompasses the entire area of the city (often done by checking Google Maps or a similar service).

Freely available Landsat imagery is then classified to determine what is built-up within that study area. Built-up pixels that are found to be contiguous or, based on a clustering rule, nearly contiguous, are included in the urban extent of the city. If the original set of enumeration zones is found to be too small (with contiguous built-up pixels spilling past their boundaries) it is expanded and additional imagery is classified until the entire city fits within the set of enumeration zones comprising its study area. The delineation of the urban extent of the cities in the sample is mapped for three periods – ~1990, ~2000, and ~2015 (Figure 46).

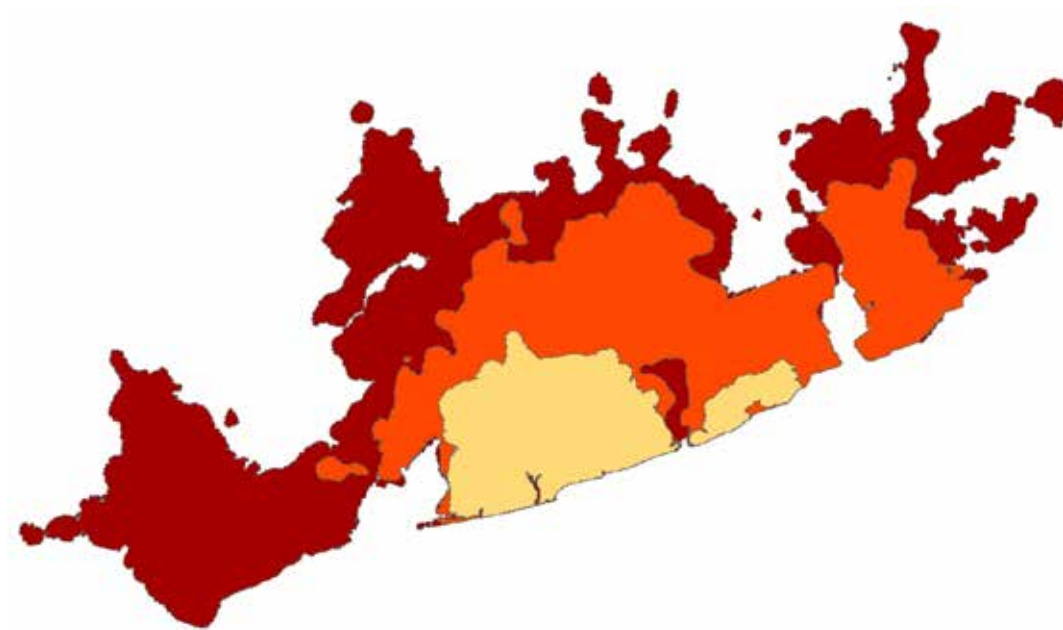


Figure 46: The urban extent of Accra, Ghana in ~1990 (tan), ~2000 (orange), and ~2015 (red).

The extents of all 200 cities have been measured in each of the three periods, making it possible to study the change over time in the urban extent of cities. Combined with the population data associated with the enumeration zones that encompass the urban extent of cities, it is also now possible to create comparable estimates of urban density for cities around the world (Figure 47).

In addition to this basic measurement, it is also possible to calculate metrics relating to fragmentation and compactness – qualitative attributes that can indicate the efficiency of the urban development that is taking place.

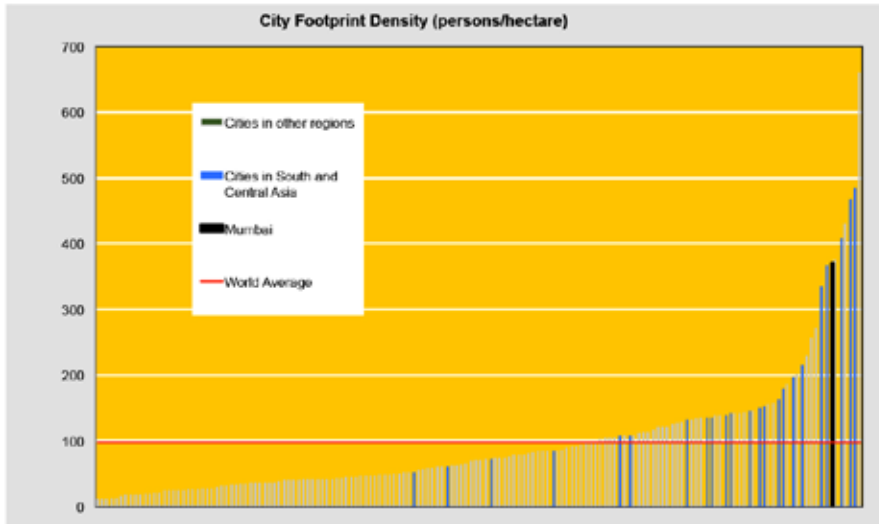


Figure 47: Global urban extent densities for the 200 cities of the global sample. Mumbai, India, for example, had a density of 370 person per hectare in 2015, against a world average of 106 persons per hectare.

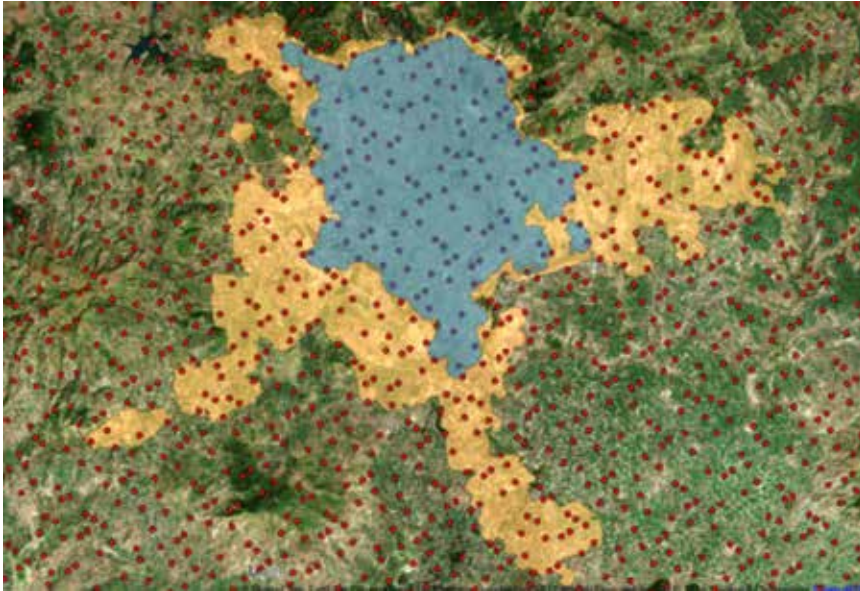
The urban extents that are identified through the Landsat imagery analysis delineate the areas that were built up in ~1990, ~2000, and ~2015.

Another way of understanding this is to think of them as zones of development – the 1990 edge contains all of the development that occurred before 1990, the 2000 edge contains all of the development that occurred between ~1990 and ~2000, and so on. For the purposes of analysis, we combine the 2000 and 2015 edges into one zone, 1990 - 2015, which is known as the expansion zone. The expansion zone contains all development that has taken place in the past 25 years.

This zone and the pre-1990 zone are used to study the qualitative characteristics of the city. By studying the characteristics of the pre-1990 zone and comparing them

to the same characteristics in the expansion zone, it is possible to answer an important general question – how do the more recently built areas of cities compare to the older areas?

To answer this question in more detail, we developed a procedure for analyzing freely available Bing high-resolution satellite imagery of the pre-1990 zone and the expansion zone of each of the 200 cities. This procedure is partly based on the identification and sampling of small, 10-hectare areas known as locales. A bounding box is defined that encompasses the entire built-up area of the city and the XY coordinates of the bounding box. These coordinates are combined with a Halton Sequence of numbers, creating a set of points that are distributed quasi-randomly throughout the expansion zone. (Figure 48).



*Figure 48: A grid of Halton Points covering the bounding box of Addis Ababa. Pre-1990 area is shown in blue and expansion zone is shown in orange.*

The points that fall within the 2015 urban extent are then buffered into 10-hectare locales and are sampled sequentially based on the order prescribed in the Halton Sequence, allowing us to study a large number of randomly distributed areas through the city.

Each city in the sample was assigned at least 80 locales, though some cities were small enough that they were completely covered by using far fewer locales. Other cities were given additional locales in order to accommodate their large size and complexity.



## CHAPTER 3

# MAKING HOUSING AFFORDABLE IN THE POST-HABITAT III ERA

- + STRATEGIES THAT BRING AFFORDABLE HOUSING PROVISION CLOSER TO URBAN PLANNING AND THE DELIVERY OF SERVICED LAND ARE PART AND PARCEL OF THE TRANSFORMATIVE AGENDA THAT HELPS CITIES TO EMBARK ONTO A PATH OF PLANNED AND SUSTAINABLE URBANIZATION



# 1. HOUSING AT THE CENTER OF THE NEW URBAN AGENDA

Housing policies and the delivery of a range of affordable housing options at scale are at the center of the New Urban Agenda. Strategies that bring affordable housing provision closer to urban planning and the delivery of serviced land are part and parcel of the transformative agenda that helps cities to embark onto a path of planned and sustainable urbanization. The provision of affordable housing is also critical for achieving Sustainable Development Goal 11 (SDG11) as outlined in the 2030 Agenda for Sustainable Development (UN-Habitat, 2016). Thus housing and sustainable urban development are intrinsically associated with each other.

Enabling broader access to affordable housing is part of a global paradigm shift to tackle pervasive informal land and housing development processes that produces slums and informal settlements which jeopardizes the quality of life and the sustainability of cities. A development path that has housing at the center moves away from informal and unplanned urbanization models – that still prevail in many parts of the world – by offering housing alternatives that are accessible, planned in the proximity of jobs and sources of income, are financially affordable and served by basic infrastructure and public services. Thus, location is critical for affordable housing and underscores the importance of land supply for urban development and housing provision.

Housing policies closely associated with urban planning also serve to reverse the predatory models of mass housing production on cheap land located in peripheries of cities producing enclaves that are spatially and socially segregated from the rest of the city. Thus housing at the center of the new urban agenda has a dual strategy of producing housing that is affordable and easily accessible within the boundaries of the city core and repositioning itself into the heart of a new generation of urban policies that opposes urban fragmentation and urban sprawl and stimulates efficient use and consumption of land.

The adoption of these policies supports the progressive realization of the right to adequate housing for the rapidly growing urban population, as formulated in international

instruments, and therefore encourages the planning and building of cities that are just, socially inclusive, environmentally and spatially sustainable, and financially sound.

The nexus between housing and the sustainable city can no longer be ignored by urban policies as housing touches every single aspect of the urban economy. Housing and building legislation impact directly on land parceling and the size and cost of housing stock while the housing finance industry with its institutions and bylaws establishes a capillarity with both the supply and the demand side of the housing market. The finance of public and private investment in housing is essential for the urban economy, for infrastructure development and revenue generation of local governments. Ultimately, the availability of housing finance is crucial for making housing affordable which is one of the imperatives for the realization of the New Urban Agenda.

Therefore, there is an urgent need to understand housing affordability within a broader urban context so that housing policies not only deliver solutions that are affordable and financially accessible by the different social and economic segments of society but also promote urbanization processes and spatial configurations that are sustainable and produces optimal use of land while safeguarding the provision of land for public spaces, streets and amenities for the urban population.

The financial global turmoil that emerged in 2008 had its origin in the housing market and particularly the housing finance and affordability models that were employed to finance and refinance housing. Never before has the linkage between housing and the economy become so clear. It revealed the intrinsic relationship between the housing sector performance and employment generation and poverty reduction. The multiplication of foreclosures, evictions and homelessness coupled with the contraction of the housing sector that took place in the aftermath of the financial crisis in most parts of the world unveiled the backward and forward linkages of the housing sector with other sectors of the economy and clearly indicated the spectrum of the ability to pay for housing of individuals and households and the housing affordability challenges globally.

In order to understand housing affordability and its relation with the new and evidence-based urban agenda, UN-Habitat, New York University, and the Lincoln Institute of Land Policy sponsored the Land and Housing Survey in the UN Sample of Cities which was carried out during 2015-2016 covering a stratified global sample of 200 cities out of an universe of 4,231 cities that had more than 100,000 inhabitants in 2010.

The survey employed questionnaires and captured responses from more than 150 City-Based Researchers. In each city, a local housing and urban planning expert provided responses to the survey questionnaire followed by a set of interviews and contributions of a variety of local housing experts ranging from academics and researchers to government officials, municipality staff, developers, building companies, NGOs, etc. The research makes use of participants' observations and used key-informant based research techniques to study housing affordability and the state of regulatory regimes. The outcome is a baseline dataset that presents evidence for global comparison on housing affordability, housing conditions, and the regulations governing housing in different cities in the world. The research produces a wealth of information about the housing sector in the cities, a knowledge that proved to be valuable for understanding the policy implications of the evidence and findings produced by the research. This practical orientation of the research provides the necessary evidence to support key policy recommendations.<sup>1</sup>

The housing sector was divided into four categories in order to disclose the housing shares in the housing stock in the cities researched. These are general enough to encompass different types of housing stock found in the 200 cities of the UN Sample of Cities. These categories are:

- informal housing(1) and formal housing;
- the formal housing sector is further divided into public(2) and private housing;
- The private housing sector is further divided into multi-family(3) and single-family housing (4). See box 2.

This practical and methodological division is important for acquiring essential knowledge about the typology of housing that prevails in the housing stock of a given city as well as about the size and share of the different types of housing. This helps to unveil differences in housing types as well as the quality and quantity of the housing stock. This research also reveals housing prices and housing rents relative to household incomes which are closely associated with these categories. Understanding the constituents of the housing stock will lead to a better understanding of how housing finance works and whether it is available or not but also the institutional and regulatory regime governing land and housing. The modality of construction will have a direct relation to accessibility to housing and therefore directly related to housing affordability. Altogether, the research develops knowledge, information and evidence that are sine qua non for starting to improve the provision of affordable housing options and shape housing policies that are well informed and evidence-based.

## 2. HOUSING AND URBANIZATION

Within cities, the efficient production and delivery of housing are key elements of an inclusive, equitable and sustainable urbanization process. Housing is the single most important asset for households, providing essential shelter and the locus of a series of household activities, most significantly that of raising a family (Brueckner, 2011). Housing is also characterized by its important socioeconomic external costs and benefits, affecting the health, wellbeing, and productivity of cities.<sup>2</sup> Beyond its obvious importance for households and its commonly associated externalities, improvements in the housing conditions can equally provide a source for greater financial stability and economic resilience once we consider that housing and land account for a significant share of investment, wealth, and finance of countries (Buckley and Kalarickal, 2006).

<sup>1</sup> For details about the research methodology, see Annex 1.

<sup>2</sup> Malpezzi (2012) notes that housing typically comprises something on the order of half a country's tangible capital stock, a fifth to a third of gross fixed capital formation, and 10 to 30 percent of consumption. It often leads the business cycle, and is often one of the main channels of monetary policy. From a social perspective, housing is the most widely held form of wealth in most societies; and through this channel and through the operation of rental markets, housing is an important determinant of the distribution of welfare as well as its average level.



*Public Housing Complex Kolaba Mumbai @Thomas Galvez*

For the above reasons, housing has been a central preoccupation for governments and policymakers, with a variety of policies such as land use, zoning, building regulations, various tax, subsidy, and housing delivery programs, directly affecting housing provision. While countries and cities differ tremendously in their circumstances, and the comparison of housing conditions and policies between cities and countries is an undeniably complicated task, the questions around housing are universal. How can cities accommodate the housing needs of current and future urbanites? How can we improve housing conditions? What are the best ways to provide housing, particularly for the poorest and most disadvantaged? What is the right balance of regulation to deliver enough affordable housing while limiting potential distortions in the housing market?

The questions above have been, and continue to be, widely debated among policymakers and housing specialists.

And while in the late 1990s housing may have “lost its voice,”<sup>3</sup> more recently, we have witnessed a renewed interest in housing policy, through the extraordinary and simultaneous expansion of large-scale housing programs in many emerging economies (see Buckley, Kallergis, Wainer, 2016). This major shift in housing policy orientation comes at a moment where humanity is entering a critical phase in its most ambitious project, the Urbanization Project, the gradual movement of people away from being closer to the land to being closer to each other.

This project—which entails accommodating more and more people in cities—started in earnest at the beginning of the eighteenth century, and will be largely complete by the end of the twenty-first one, when three-quarters or more of humanity will live in cities. By 2015, the share of the world’s population living in cities was 54%, and is now expected to increase to 66% by 2050.

<sup>3</sup> Angel (2000:3).

The Urbanization Project provides a tremendous opportunity for raising living standards globally, but it equally raises the scope of challenges ahead, particularly when it comes to the question of housing. Even if the links between urbanization and economic growth are well established (Duranton, 2009), one should remain cognizant of the fact that urbanization, if not appropriately managed, can be a disruptive process, one that is often accompanied by rising land values, deteriorating housing conditions, and, as seen throughout its history, the formation of slums and squatter settlements (Henderson et al., 2009).

Today, beyond the progress made in housing billions of urbanites, a global housing affordability challenge persists. While housing affordability has been more often researched and discussed in the context of the rising real estate prices of larger metropolitan areas such as Beijing, Hong Kong, London, New York, Paris and Tokyo, many cities in rapidly urbanizing developing countries face similar, if not more critical concerns in terms of housing affordability.

As the future urban growth will predominantly take place in rapidly urbanizing less developed countries, particularly in regions where current housing needs are more acute, housing affordability will continue to occupy a central role in the urban agenda. During the 2015 to 2050 period, cities in more developed countries will add only 130 million people to their populations. During the same period, cities in less developed countries will need to absorb 18 times that number, or close to 2.3 billion people, thereby increasing their total urban population of 3.0 billion in 2015 by 75% (United Nations Population Division 2014, files 2 and 3).

The United Nations Population Division projections suggest that in many developing countries, the proportion of the urban poor will increase at approximately the same rate as the urban population growth. Low-income households have higher rates of natural increase and the majority of rural to urban migrants tends to be poor. Consequently, the future relative contribution of the low-income households to urban growth is expected to be significant, and in some cases, higher than their present share of the urban population.

The demographic trends associated with the Urbanization Project underline the increasing importance of housing for cities. But even if researchers, policy makers, and city

officials are naturally concerned about the question of housing, their efforts to improve conditions often stumble upon a major shortcoming: the lack of sufficient data to inform our understanding of the housing sector across cities and to guide policy decisions to address housing challenges.

## 3. AFFORDABLE HOUSING: AN INTERNATIONAL PERSPECTIVE

### 3.1 Global housing policy: A brief historical review

Housing conditions and housing affordability have been major preoccupations for cities throughout their history. In recent years there has been an abundance of studies looking at housing affordability and the complex conundrum associated with housing provision. The focus of these studies has been kaleidoscopic, linking the concept of housing affordability with a variety of aspects of the housing sector and beyond. Housing supply and land availability have been central concerns though researchers have recognized the difficulties associated with efficient policy implementation (Bramley, 2007; Meen, 2008; Mulliner and Maliene, 2013). From another perspective, a growing number of studies have concentrated on the analysis of the spatial parameters and geographical dimensions of housing affordability stress (Knaap, 1998; Ryan and Enderle, 2012). In the USA, Glaeser and Gyourko (2002) explored the impact of zoning on housing affordability, and demonstrated that it did not contribute to the housing affordability problem. Zabel et al. (2009) introduced the concept of area affordability based on the impact of town-specific amenities on low to moderate income households, and found that the price/rent of a dwelling is affected by locational factors such as job accessibility, school quality and safety. In the UK, the work of Morrison and Monk, (2006) revealed how higher housing costs and increasing housing shortages were associated with planning and physical constraints.

**+ THE UNITED NATIONS POPULATION DIVISION PROJECTIONS SUGGEST THAT IN MANY DEVELOPING COUNTRIES, THE PROPORTION OF THE URBAN POOR WILL INCREASE AT APPROXIMATELY THE SAME RATE AS THE URBAN POPULATION GROWTH**

While the majority of studies on housing markets predominantly looked at developed countries, in the past three decades the literature has expanded considerably to include many developing countries. A benchmark study in the field has been the Housing Indicators Program, which was initiated in 1989 by the World Bank and the United Nations Human Settlements Programme (UN Habitat). This research effort consisted of collecting more empirically based, cross-country data on housing sector performance. Data on housing indicators were collected for a sample of 53 cities in both developed and developing countries. The program provided for the first time an empirical basis for the analysis of cross-country effects of policies on housing market supply conditions, documented more extensively in Malpezzi and Mayo (1997), and Angel (2000).

A more recent global research effort in housing affordability is the McKinsey Global Institute (MGI)'s 2014 study, 'A blueprint for addressing the global affordable housing challenge'. The McKinsey analysis compares income available for housing and home prices for standard units in more than 2,400 cities. The analysis is based on MGI's Cityscope database, which covers all urban centers with more than 150,000 inhabitants in developed countries and cities with more than 200,000 inhabitants in developing economies. For property prices, the study collated data from multiple sources. It defined a standard unit of affordable housing as the typical unit that had a minimum floor-area that was socially and politically acceptable in the local context. This definition was based on the income of the country (nominal gross national income per capita in 2012 as defined by the World Bank). Equally, the study defined set sizes of standard units for the purposes of estimating the affordability gap. The size of affordable units are usually well below median home sizes and varied according to city income.

### 3.2 Housing affordability: Concepts and measurement

According to Quigley and Raphael (2004) concerns over the affordability of housing is related to two main factors. First, based on the fact that housing is the single largest expenditure item in the budgets of most families and individuals, with the average household devoting approximately one-quarter of its income to housing expenditures, while in the case of poor and near-poor households this share rises to almost half of the household's income. These high proportions suggest that small percentage changes in housing prices and rents will have large impacts on non-housing consumption and household wellbeing. Second, many metropolitan areas have experienced recent and well-publicized increases in housing prices and rents (Quigley and Raphael, 2004).

Yet as they note later on, the concept of affordability unveils disparate issues that affect affordability and range from the distribution of housing prices, the distribution of housing quality, the distribution of income, the ability of households to borrow, public policies affecting housing markets, conditions affecting the supply of new or refurbished housing, and the choices that people make.



*Public Housing*

### Box 1: Definition of affordability

Despite increasing concerns about affordability, no consensus has been reached on how the concept is defined and measured. The literature has documented three conceptual frameworks for measuring housing affordability, namely normative, behavioral, and subjective (Li, 2014). A normative approach defines a certain threshold value for the limit or norm of housing affordability. A behavioral approach evaluates housing affordability by investigating housing decisions of different households. A subjective approach rests on large sample surveys, summarizing the subjective evaluations of respondents' feelings about their affordability situations. The normative approach has received much more research attention so far.

**Ratio income approach:** A typical normative approach, known as ratio income approach, assigns a threshold value of housing price-to-income ratio to assess a household's capability of housing consumption (Li, 2014). However, conventional price-to-income ratio approaches have often been criticized for difficulties in measuring the ability to pay and setting a normative standard for comparison (Thalmann, 2003), and non-differential criteria for households at all income levels (Chaplin and Freeman, 1999).

**Residual income approach:** Advocates of another typical normative approach, or the residual income approach, claim to rectify the shortcoming of the ratio income approach through comparing housing cost deducted income with poverty lines (Hancock, 1993; Thalmann, 2003). Associated with the residual income approach are the concepts of shelter poverty (Stone, 1993) and housing induced poverty (Kutty, 2005), which treat housing costs differently based on distinct levels of income, house size and type.

**Composite methods:** More recently, the literature has seen the creation of more sophisticated composite methods for the calculation of affordability (Tiwari and Parikh, 1998; Nepal et al., 2010). New concepts of affordability have also arisen, with development in new methodologies and reliance on new data. However, such methods require data availability and consistency that is difficult to obtain, particularly in less developed countries.

The Land and Housing Survey in a Global Sample of Cities adopts the mainstream normative ratio income approach for two reasons: First, beyond its obvious shortcomings it is widely used and understood by policy makers; second, for feasibility based on the scope and extent of the study. Many of the cities in the sample, especially smaller ones in low-income countries have very limited data availability. Consequently, the methodology of the study relied on innovative strategies for data collection in order to best respond to the research constraints imposed by the scope of a global analysis.

## 4. SELECTED FINDINGS OF THE GLOBAL HOUSING AFFORDABILITY SURVEY

### Box 2: The Housing Sector

For the purposes of the survey, the housing affordability questionnaire divided the housing sector into separate sub-sectors including:

- (1) Informal housing;
- (2) Public housing;
- (3) Formal private multi-family housing; and
- (4) Formal private single-family housing.

Equally, the questionnaire divided residential plots into:

- (1) Fully serviced formal plots;
- (2) Minimally serviced plots; and
- (3) Plots in new squatter settlements;

**+ CONSEQUENTLY, THE METHODOLOGY OF THE STUDY RELIED ON INNOVATIVE STRATEGIES FOR DATA COLLECTION IN ORDER TO BEST RESPOND TO THE RESEARCH CONSTRAINTS IMPOSED BY THE SCOPE OF A GLOBAL ANALYSIS**

## 4.1 The Housing Stock

There is a wide variation in the housing stock between cities reflecting differences in housing types, in the quantity and quality of housing, in residential amenities and densities, in prices and rents relative to household incomes, in the availability of housing finance, and in the regulatory regimes governing land and housing. The images in Figure 1 of Hong Kong (left), and Kabul, Afghanistan (right) provide an example of this variation, showcasing how different factors (cultural, spatial, economic, legal and financial) influence the organization and performance of the housing sector.

There is also a wide variation in housing typologies and characteristics observable within cities. The aerial image of Cape Town (Figure 2) offers three contrasting types of housing in close proximity, reflecting differences in household incomes and household land consumption. On the left side of the picture, we see high-income single-family residential units. In the middle and upper right side we can distinguish low-income informal housing development, and on the far right of the picture single-family public housing units.



Figure 49: Housing in Hong Kong and Kabul, two cities of the UN Global Sample of Cities



Figure 50: Cape Town, aerial view of Hout Bay and Imizamo Yethu

## 4.2 Housing Shares:

The housing sector in each city is much more granular and diverse, yet, for the sake of comparability, the survey adopted four broad categories. These categories are: informal housing and formal housing; the formal housing sector is further divided into public and private housing; the private housing sector is further divided into multi-family and single-family housing. Identifying estimates of these shares has been a challenging task, particularly in cities where data on the housing stock is lacking, particularly when it comes to informal housing.

In terms of the global estimated shares, the survey results indicate that in the formal private sector, approximately 38 percent of the total housing stock is in multi-family buildings and approximately 34 percent in single-family housing. Public and informal housing in our global sample represents approximately equal shares of 14 percent.



Figure 51: Shares of Housing Type in the Housing Sector by Geographic Region

## 4.3 Housing Shares: regional differences

Disaggregating the estimated shares of the housing sector per geographic region (Figure 4) reveals more variability in terms of the shares that each housing type occupies in the overall housing sector. Informal housing is the dominant housing type in Sub-Saharan Africa, occupying 42 percent of the housing sector.

Public Housing is more common in Asia and the Pacific and in Western Asia and North Africa accounting for 16 percent and 15 percent respectively. Private multi-family housing is the dominant housing type in Europe and North America (51 percent), and in East Asia and the Pacific (40 percent), while in Latin America the shares of the private multi-family and private single-family units occupy 38 and 36 percent of the housing sector.



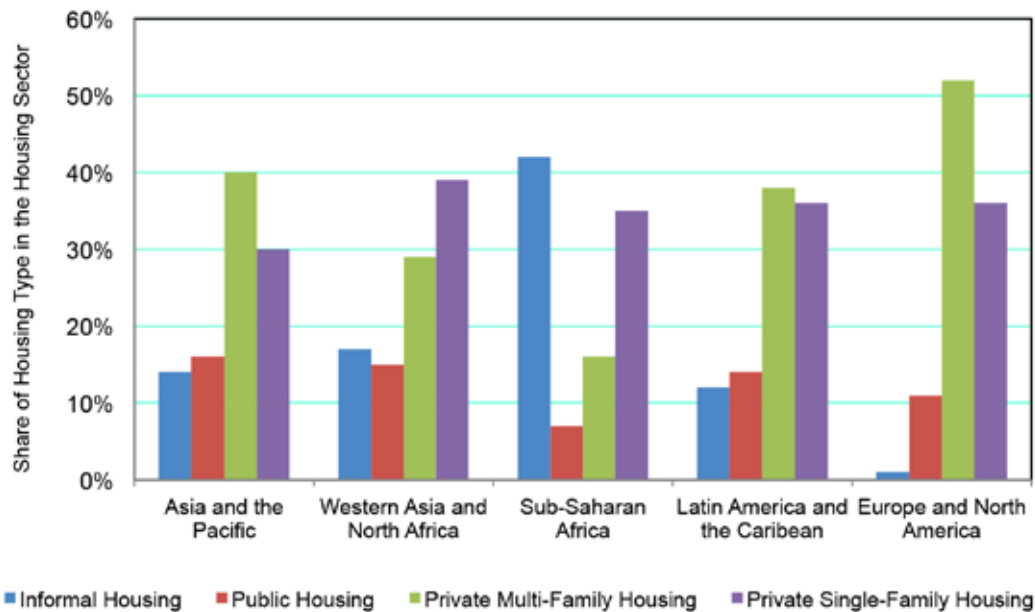


Figure 52: Shares of Housing Type in the Housing Sector by Geographic Region

Disaggregating the estimated shares of the housing sector, the survey results indicate that informal housing in less developed countries (26 percent) is significantly higher than in more developed countries (7 percent). Public housing in both country categories occupies similar shares of the overall market with developing cities having a little more than 10 percent and developed cities 15 percent of their share of the housing sector in public housing (Figure 53).

The low share of public housing is worrisome and suggests the absence of public policies to enable broader access to affordable housing opportunities which partly explains that nearly one out of five housing units is produced in the informal housing segment. This is notorious in Sub-Saharan Africa. Contrary to a place like Singapore where sustained public policies resulted in more than 80% of its population living in public housing which helped that city-nation to reduce its population living in informal housing to nearly zero within a range of 50 years (CLC, 2013).

**+ PUBLIC HOUSING IS MORE COMMON IN ASIA AND THE PACIFIC AND IN WESTERN ASIA AND NORTH AFRICA ACCOUNTING FOR 16% AND 15 % RESPECTIVELY**

#### 4.4 Housing Shares: differences in GDP per capita

Another interesting aspect from the survey data concerns the estimated shares of the different housing types, as they exist in cities of the sample arranged by income category. According to this analysis, there is an important variation within the housing sector for different city income groups: low-income cities (GDP per capita less than USD3,000) have a large share (26%) of the housing sector that is informal while 40% of the housing sector consists of Private Multi-Family Housing; in Middle-Income (GDP per capita between USD3,000 and USD8,000) and Middle-Upper-Income (GDP per capita between USD8,000 and USD20,000) cities the majority of the housing sector consists of Private-Multi-Family Housing. In High-Income cities (GDP per capita above USD20,000) the housing sector is dominated by formal private housing, composed equally of multi-family and single-family units. What is particularly noticeable is the decrease of informal housing throughout income categories (Figure 54).

The different shares and segments of the overall housing sector play an important role in determining housing options and housing affordability. The availability of a small quantity of public housing in addition to a sizeable informal housing supply provides a cushion for low-income residents who cannot afford a dwelling in the formal

**DIFFERENT HOUSING TYPES CHANGE ACCORDING TO WORLD REGIONS**

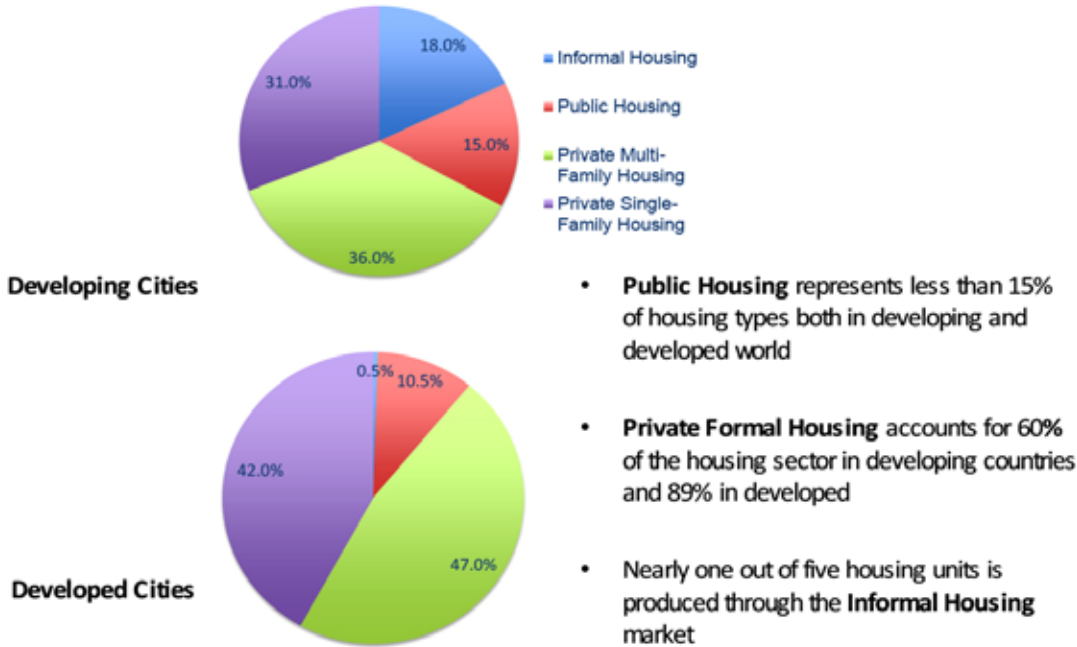


Figure S3: Shares of housing type in the housing sector by development regions.

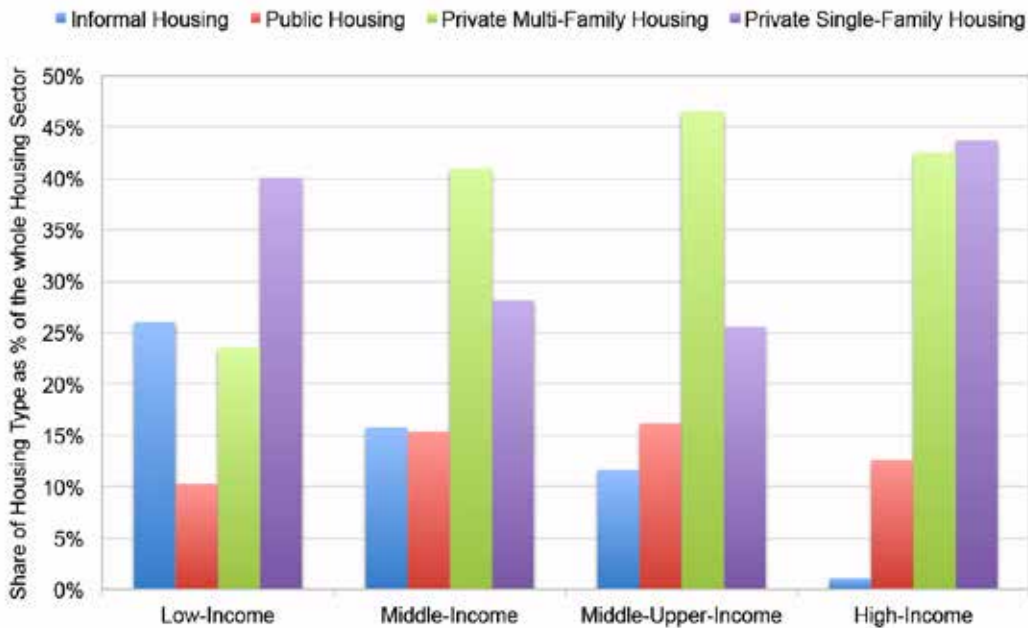


Figure S4: Share of Housing Type by GDP Category

private sector. To give an idea, excluding informal and public housing, the global median house-price-to-income ratio increases from 4.8 to 6.1, and the median rent-to-income ratio increases from 30 percent to 35 percent. Private single-family housing is largely unaffordable (as much as 2 times the affordability threshold) in cities in low and high-income countries.

Now, there seems to be an interesting interplay between the formal and informal housing market which, based on survey data, would be worth exploring further. For instance, Brueckner and Selod (2011) offer an interesting theory based on the idea that informal and formal residents compete for land within a city and that the informal market “squeezes” the formal market, and therefore affects affordability in the formal sector. From a policy perspective, this type of interplay is important, as it implies that formalizing squatter settlements could have beneficial effects for both informal and formal residents.

## 4.5 Housing Affordability

In order to determine housing affordability we established that housing is considered affordable when the house-price-to-annual household income ratio (HPIR) is 3.0 or less and rent-to-monthly household income ratio (RIR) is 25% or less. For the purpose of analysis we have adopted two different affordability measures. See box 3.

**Occupant Affordability:** Based on preliminary results from an analysis of 170 cities from the 200-city sample, the survey’s main finding is that cities across regions do face serious affordability challenges when it comes to housing. The median house-price-to-income ratio in the sample was 4.8, above what is generally considered affordable (house-price-to-annual household income ratio of 3.0). Figure 55 shows Occupant Household Affordability of each individual city in the global sample of cities. The blue bars represent the rank of house-to-income-ratio for each city. For cities on the left side of the graph and under the red horizontal line which depicts the accepted standard for housing affordability, the purchase of a residential unit is considered affordable as it represents less than three times the occupant households’ annual income. For cities above the line, housing is unaffordable. The yellow horizontal line represents the median affordability value of the sample. This figure depicts the survey results showing that housing is largely unaffordable across the sample of cities. Only a small number of cities of the UN Global Sample of Cities (13%) have house price-to-income ratio below 3.0, reinforcing the argument that housing affordability is one of the greatest challenges of the New Urban Agenda and the Agenda 2030.

### Box 3: Affordability Measures

1. **Occupant Household Affordability:** this measure shows how affordable is a dwelling for the household that occupies the specific dwelling whether in the formal, informal, private or public housing sectors. Occupant Household Affordability is the weighted average of the house-price-to-annual household income ratio (HPIR) or the rent-to-monthly household income ratio (RIR) in each of the four housing types, where the income is the reported income of the actual occupants of a particular housing type.
2. **Median Household Affordability:** this measure shows how affordable a dwelling is in the formal private sector for the typical household living in the city, whether the household currently occupies a dwelling in the formal, informal, private or public housing sector. Median Household Affordability is the ratio of the price or rent of a Formal Private Housing unit to the reported Median Annual Household Income in the city.

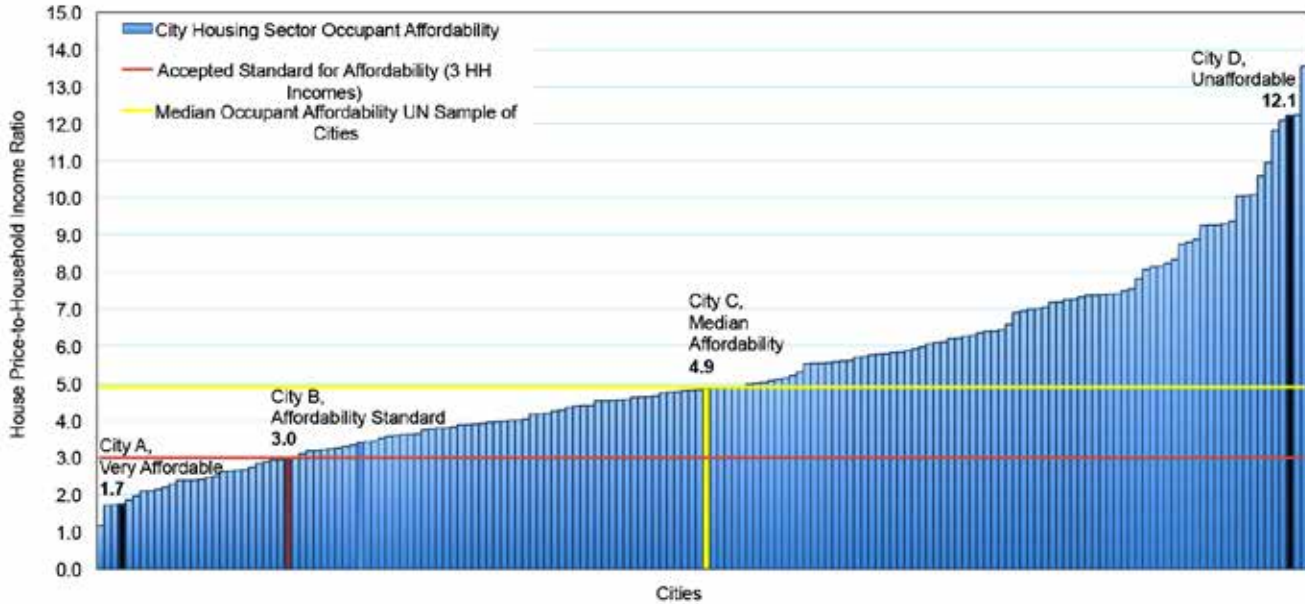


Figure 55: Occupant Household Affordability of Housing in the Global Sample of Cities

Affordability per Segment of the Housing Market: Data from the survey provides the possibility of distinguishing affordability for each segment of the housing market. According to this disaggregation, the most affordable sectors across the sample were that of informal and public housing, while the private sector, whether multi-family or single-family units, were the least affordable. The stacked yellow bars in Figure 56 show the median house value for each segment of the market expressed as a number of annual household incomes.

A typical dwelling unit in the informal sector with a value of \$12,000, for example, required 3.3 annual incomes of its occupant household. A typical dwelling unit in the public sector costing \$30,000 required 4.2 annual household incomes of its occupants. In the formal private sector, an apartment in a multi-family unit required 5.2 annual household incomes of its occupants, and single-family units required 5.4 annual household incomes of its occupants.

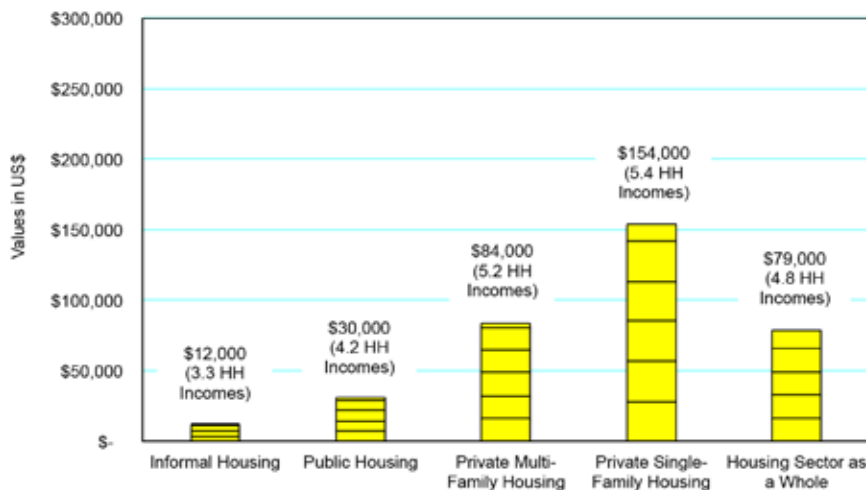


Figure 56: Occupant Household Affordability Breakdown by Housing Type

Whether located in a city in developed or developing countries households are facing a serious affordability challenge. While housing prices and incomes are lower in the less developed countries, the house-price-to-income

ratios in both country categories are very similar, and the overall Occupant Affordability in the Housing Sector as a whole has a house price-to-income ratio of 4.9, see Figure 57.

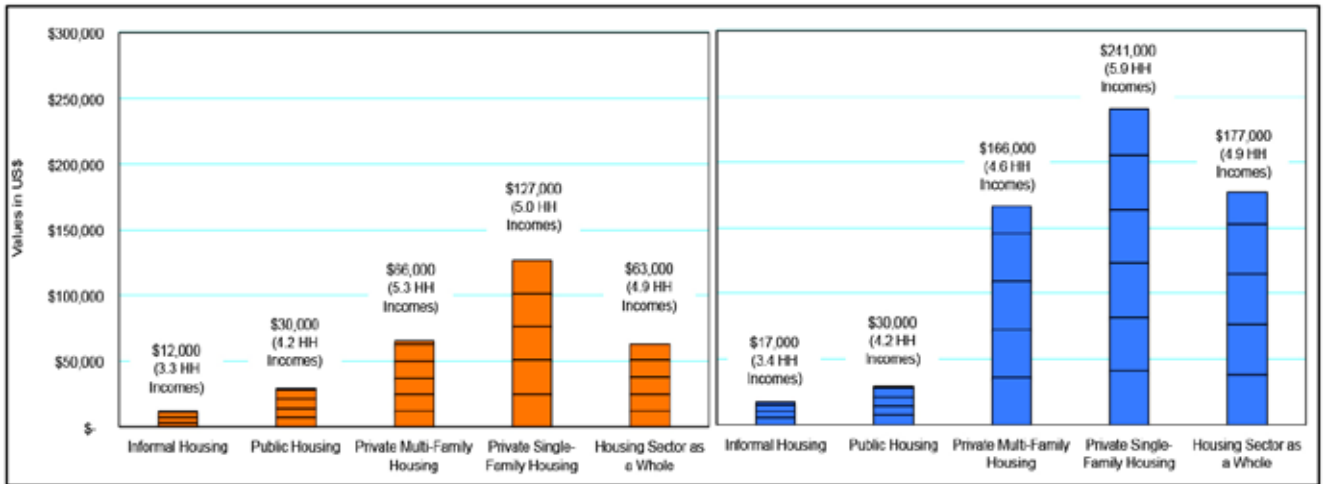


Figure 57: Affordability shown as Multiples of Annual Household Incomes in Less and More Developed Countries

When it comes to the rental market, affordability is slightly improved yet challenges do persist. In the majority of cities in the global sample, regardless of being in developed or developing countries, households contributed 30% or more of their monthly income towards rent (Figure 10). According to the results of the survey, Informal Housing and Public Housing were the most affordable sectors with occupants contributing 25% of their income towards rent. Occupants in Private Multi-Family and Private Single-Family Housing contribute 33% of their income towards rent.

Disaggregating the sample of cities, we find that rent affordability concerns are present within the rental markets of both Less Developed Countries and More Developed Countries. As with rental prices, within the UN Sample of Cities there is a wide variation in terms of the share of the monthly income that households contribute towards monthly rent. In the majority of cities rent is unaffordable for occupant households, with most households contributing 30% or more of their monthly income towards rent.

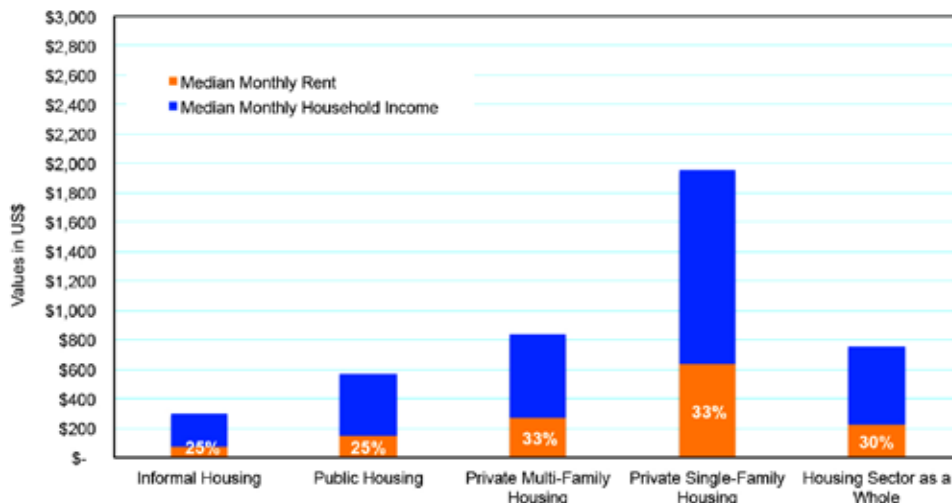


Figure 58: Median Monthly Rent as Share of Monthly Household Income of Occupants in the UN Sample of Cities

Median Household Affordability in the Formal Private Housing Sector: Up until now, our analysis focused on housing affordability expressed as the household income of an occupant household which resides in different segments of the market, including the informal housing sector. As we saw, the informal is the most affordable segment of the housing market followed by the public sector, yet in many cases and particularly for the informal sector, the quality of housing and services is often inadequate if not lacking. In many ways, the informal sector represents the only available housing option particularly for low-income households who cannot afford the housing options provided through the formal market.

Another way to measure housing affordability, described previously, is through the concept of Median Household Affordability. This metric reveals the ability of the median household in a given city to acquire or rent a housing unit in the formal private housing sector. By this standard, housing in the global sample of cities is considerably less affordable, with the global median house-price-to-income

ratio increasing from 4.8 to 6.1 and the median rent-to-income ratio increasing from 30% to 35%.

A comparison between Median Household Affordability (in the Figure 11, area in orange) and Occupant Household Affordability (in the figure, area in blue) shows how the relationship of house price-to-income ratio increases, on average by 20%. This is to be expected because Median Household Affordability is reminiscent of more traditional affordability measurements based on median house price to median household income ratio.

But it helps us determine how affordable for the typical household is a newly built formal housing unit offered by the private sector. This topic has particular interest in places where the informal and public housing segments of the housing sector occupy a significant share and offer housing options for lower-income households. As shown in Figure 11, under this standard, affordability is exacerbated in a majority of cities.

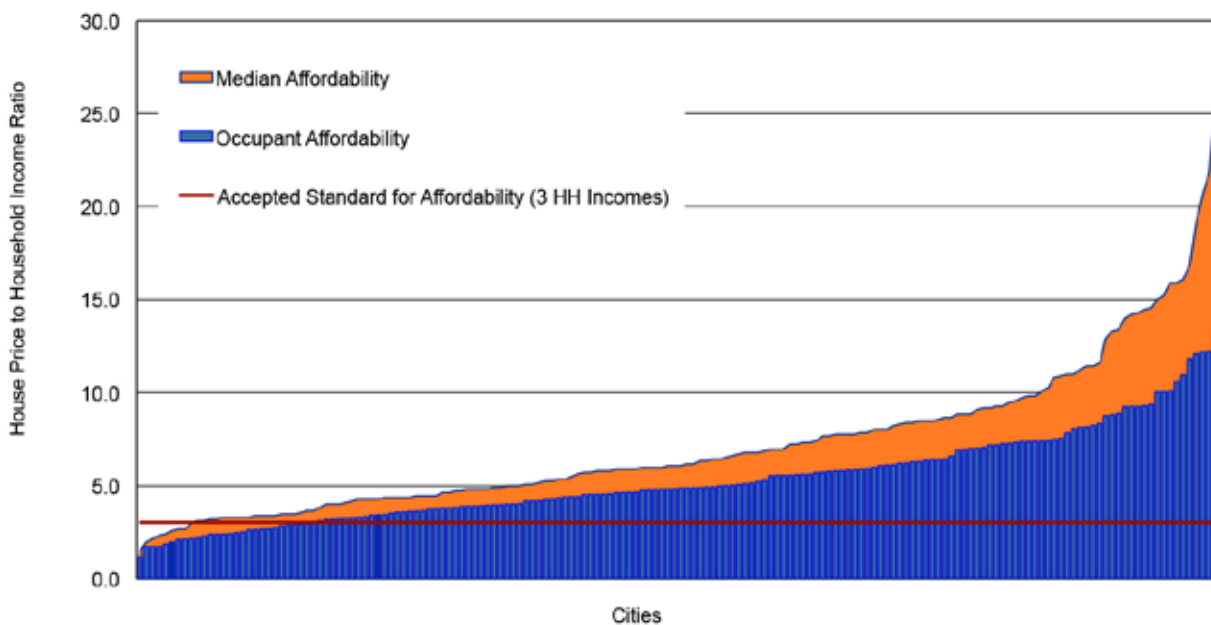


Figure S9: Median Household (orange) and Occupant Household (blue) Affordability in the UN Sample of Cities

## Housing Affordability per Region and GDP per Capita

In all geographic regions the House Price-to-Income Ratio by Median Household Affordability standards is higher than the House Price-to-Income by Occupant Household Affordability standards (Figure 12). The differences are exacerbated in areas where the informal sector and public housing sector constitute a significant share of the housing stock. In Sub-Saharan Africa, for example, the House Price-to-Income Ratio measured by Median Affordability more than doubles. Similarly, the differences between Median and Occupant affordability naturally appear more pronounced in low-income cities where a significant share of housing is provided through the informal sector (Figure 60).

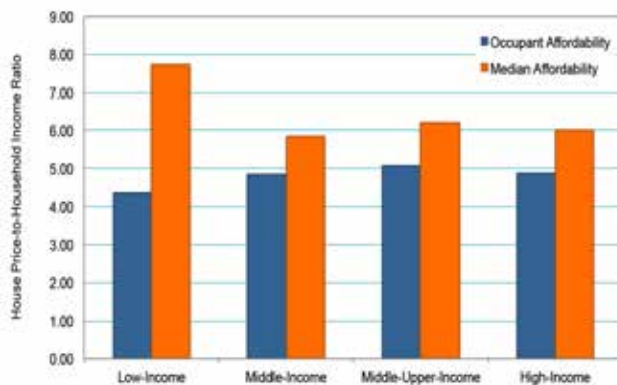


Figure 60: Median House Price-to-Income Ratio Differences under Occupant Affordability and Median Affordability per Geographic Regions

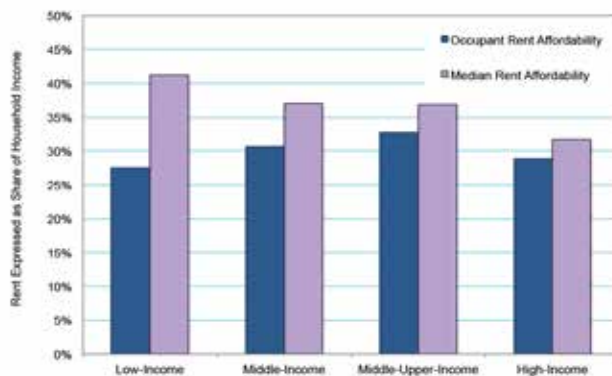


Figure 61: Median House Price-to-Income Ratio Differences under Occupant Affordability and Median Affordability per GDP

A practical application of the Median Affordability metric: a new town development called Nova Cidade de Kilamba (picture on the left of Figure 14) was recently built on the periphery of Luanda, Angola. There is clearly an effort to create affordable housing for the growing urban population. A typical housing unit there costs US\$120,000, or 17 times the median household income. Looking at the income distribution in Luanda (graph on the right of Figure 14), we can see that housing units are affordable (requiring less more than 3 annual household incomes) only by the richest 20% of Luanda's households. The numbers on top of each bar represent annual incomes required for the purchase of an US\$120,000 3-bedroom apartment in Kilamba, Angola, for each population decile (from low-income to high income).

## Affordability hinders access to rental housing and home ownership

The findings of the survey in the 170 cities of the UN Sample of 200 cities reveals unequivocally that housing is largely unaffordable for the occupant household or the typical household seeking to access a newly built housing unit supplied in the formal housing market (using the Median Household Affordability Method). The survey revealed that rental housing provided through the informal and public housing sectors remains under 25% of median household income (Figure 10) while home ownership remains beyond the affordability threshold of 3 (Figures 60 and 61). Furthermore, public housing is not affordable in any city regardless of GDP per capita (Figure 13). These findings unequivocally unveil a critical field for public policy intervention which calls for policies that place housing at the center of the strategy to promote housing opportunities at scale and diversity in size, location, price, standard and tenure.

If home ownership is significantly hindered by affordability, is rental housing providing an outlet for accessing adequate housing in the cities surveyed? Figure 62 reinforces that rental housing is affordable in only 31% of the cities in the UN Global Sample (monthly rent below the 25% of household income) and even considering the Median Affordability Rent (30% of household income committed to rent, yellow line in Figure 15) households face considerable pressure by the cost of rent over their income in great number of cities of the UN Sample of Cities.

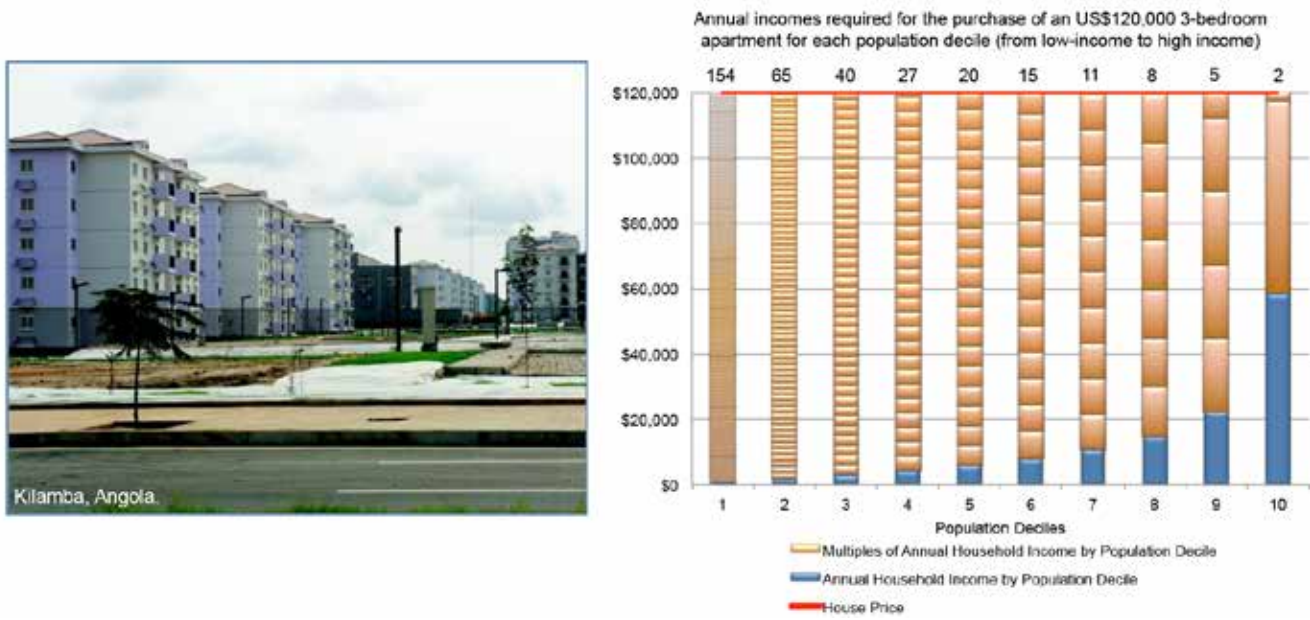


Figure 62: Median Income, the Household Income Distribution and Housing Price in Luanda, Angola

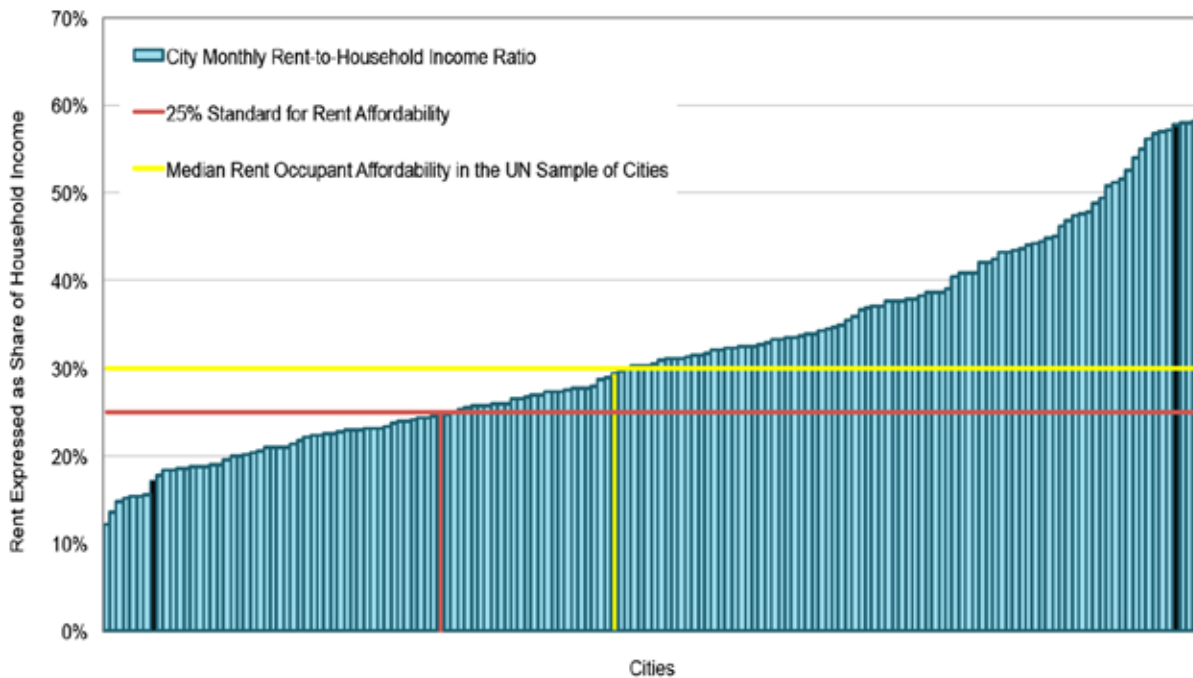


Figure 63: Monthly Rent-to-Income Ratio



Looking at GDP per capita, Figure 16 reveals that informal rental housing is only affordable in low and high-income cities, and rent of private multi-family housing is largely unaffordable in all cities. This shows a critical situation given that the existence of an affordable rental housing sector produces positive impacts on labor markets and enables residential mobility which is positive for the urban economy. The rental sector offers alternatives and flexibility for those whose income or preference do not lead them to home ownership (Blanco et al., 2014; Habitat, 2003; 2011).

Rental housing is also an important cushion enabling the emancipation of young adults entering the housing market and engaging in the economy, particularly when housing finance is not sufficiently developed to offer affordable products and services for starters in the housing market (young adults, newly married couples, first home buyers).

Housing Finance: Over the past 20 years, there has been a widening of market-based mortgage finance systems across many developing countries. This expansion of housing finance has had important results, especially to lower middle-income countries. However, the development of such systems in many low-income countries is still lacking or under-developed (CAHF, 2015).

At the same time, the absence of longer-term funding sources coupled with a limited understanding of the requirements of nascent housing finance systems and of market needs and opportunities causes financial institutions to restrict mortgage lending. Besides, financial institutions often do not have the capacity and tools to assess creditworthiness of individuals, particularly those who are self-employed, which serves to reinforce conservative and risk-averse lending practices that are currently notable in many markets throughout the developing world.

Given a large informal labor market in low-income countries, mortgages remain inaccessible to the majority of the population. This reality is evident through the serious shortages of adequate housing. Yet the survey revealed that mortgage interest rates the world over are low enough to make it attractive for borrowers and for the private sector to expand housing production down market and serve households that previously had little or no access to finance. The world median interest rate on mortgage loans was 8%, but median rates were significantly higher in Less Developed Countries (10.5%) than in More Developed Countries (3.8%), see Figure 65.

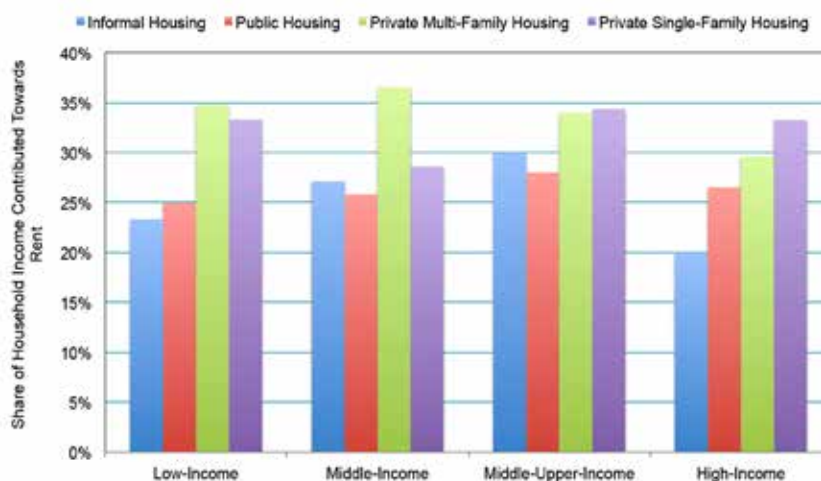


Figure 64: Rental Housing in Different Shares of the Housing Stock per GDP per Capita

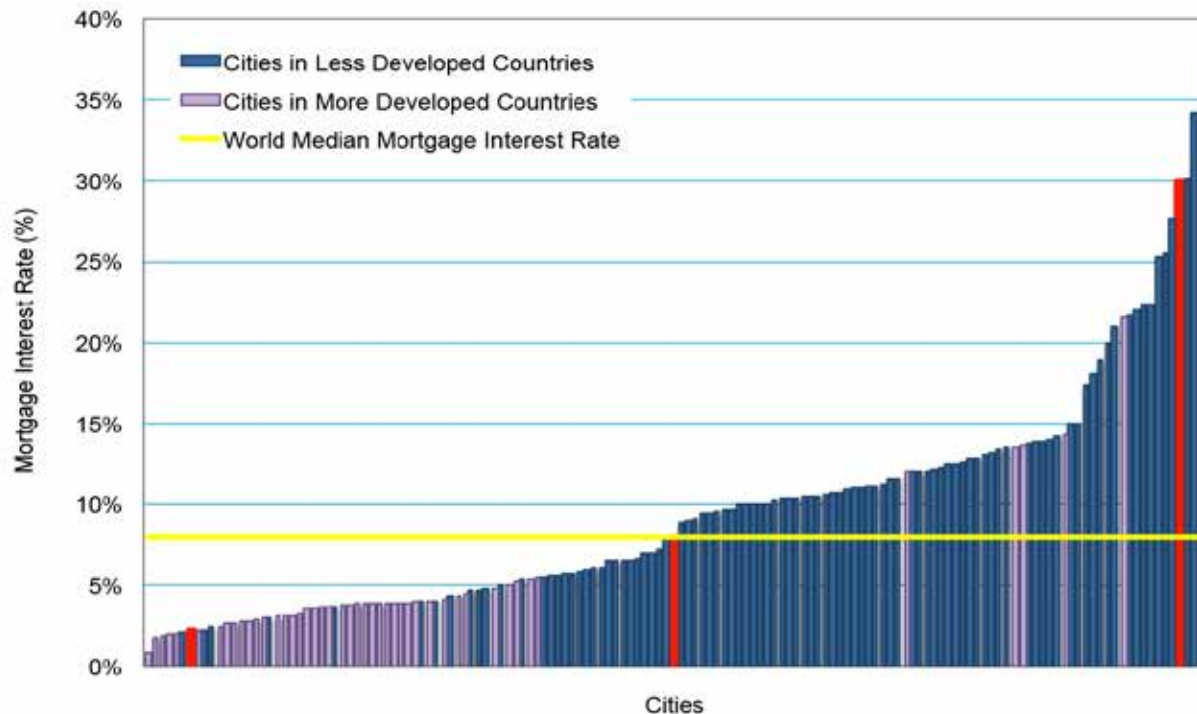


Figure 65: Mortgage Interest Rates in the Global Sample of Cities disaggregated by Less and More Developed Countries

## 5. CONCLUSIONS AND RECOMMENDATIONS DRAWN FROM THE UN SAMPLE OF CITIES

### 5.1 Housing is Largely Unaffordable and calls for comprehensive policies:

Figures 66 and 67 reveal the results of the cities grouped per GDP per capita. It shows unequivocally that regardless of GDP per capita both home ownership and rental housing are unaffordable. House Price-to-Income Ratio of Occupant Households and Median House Price-to-Income Ratio are beyond the affordability threshold of 3. In low income countries, it is hardest for households to afford purchasing a typical housing unit in the formal market, since a purchase can cost the equivalent of nearly 8 times the median annual household income.

The same applies for rental housing which is also unaffordable across all the cities of the UN Global

Sample of Cities grouped per GDP per capita, with median households and occupant households committing more than 25% of their monthly income to rent. These findings have serious policy implications. It calls for a comprehensive housing policy that deals with all the challenges hindering access to both homeownership and rental housing within the framework of planning and managing sustainable urbanization as articulated in the New Urban Agenda and SDG11. It goes without saying that this finding reinforces the notion that housing solutions should not be left to the market and that strong government and innovative policies must be put in place.

In this respect, it is not a coincidence that housing policies in developed countries commonly encompasses inclusionary housing strategies, different forms of rent subsidy and various types of demand-targeted subsidy to increase the ability to pay of households living in rented accommodation, particularly low-income households.

It is worth noting that the wealthiest countries in the world and those situated in Europe and North America have a significant part of their housing stock in the rental sector while the poorest countries have become nations of homeowners (UN-Habitat, 2011a) due to single

tenure policies adopted to promote homeownership. Paradoxically it is where households are facing the hardest challenges of housing affordability. Ownership models that stressed speculation and commodification of housing over the notion of housing as social welfare were also at the epicenter of one of the worst global economic crises of last decades.

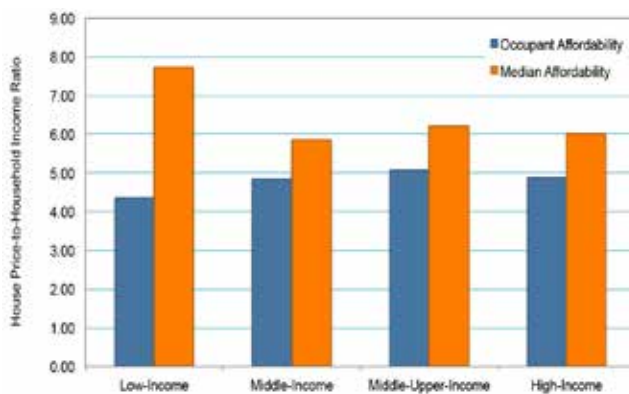


Figure 66: Occupant Affordability and Median Affordability of Housing per GDP per Capita in the UN Global Sample of Cities

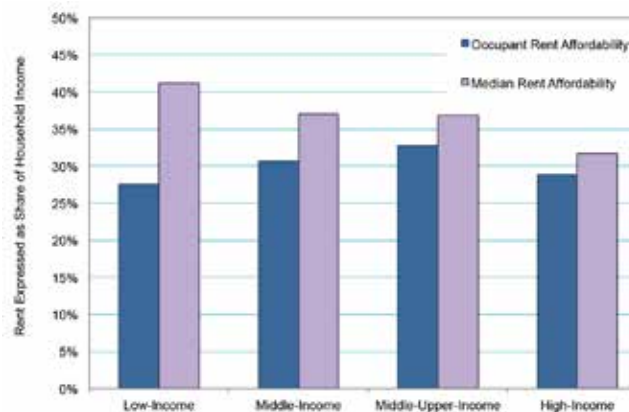


Figure 67: Occupant Rent and Median Rent Affordability per GDP per Capita in the UN Sample of Cities

## 5.2 Scaled-up policies for the delivery of multiple housing types:

The central message from the preliminary survey results indicates a global housing affordability crisis that the formal private housing market alone is failing to confront. This affordability crisis cannot be addressed unless strong policies are in place and consider all segments of the housing stock and various tenure options as well as different types of housing solutions that are scaled-up and affordable to large segments of the urban population.

This includes creating conditions for the private housing sector to reach further down-market and other actors to engage in housing production and delivery. But beyond the changes in housing policies, and given the challenges ahead, there is a need to consider housing policy within a broader urban perspective.

Housing is a key driver of urbanization as it determines infrastructure development, land occupation and the spatial arrangements that regulate cities' productive structures and their ability to generate inclusive growth, aside from the enormous volume of capital and employment it generates.

For housing to be adequate, ample, affordable, and accessible to urban labor markets, land on the urban periphery must remain in plentiful supply, integrated into the urban structure of cities and well connected by arterial roads; land and housing regulations must be made more realistic and responsive, encouraging the use of vacant land in the urban core of cities; property rights in housing must be better organized; and housing finance services must be diversified and expand their reach.

## 5.3 A shift in the housing provision strategy:

Investments in housing should be demand-driven, reflecting needs and location preferences of individuals and households, rather than the production capacity and decisions of house suppliers. The current spatial organization of the city should determine the location of new housing developments rather than the opposite.

An important part of the housing challenge requires balancing new developments with the existing urban fabric, which in practice means bringing housing closer to urban planning and city management and vice-versa. When housing policy is not seen within a broader urban perspective, being part and parcel of urban policies, it can result in outcomes such as inefficient allocations of resources and subsidies and, as in some cases, costly urban expansions and empty housing units in large-scale expensive projects faraway from job opportunities. Such shift in housing provision must be implemented simultaneously with strategies to improve the existing stock of slums that are consolidated where it is technically, financially, environmentally and legally feasible.

It means combining the supply of new housing with the creation of housing opportunities through slum upgrading. This twin-track approach is likely to help cities to meet housing needs and to curb if not decrease substantively the rate of informality and slum formation which is a pathway to planned and sustainable urbanization.

#### 5.4 A review of regulations:

Regulations affect housing affordability and produce externalities that affect the size, quality and value of the housing stock. In order to effectively address housing affordability concerns, the first step must be to reflect on the role of regulations in the use of, and access to housing services.

The majority of cities have both housing regulations such as building standards, land use ordinances and rules governing population and building density. Regulations can and do generate standardization, making properties easier to value and finance, and can determine how spread-out a city will be—due to floor area ratio (FAR) and building height limitations.

Regulations also impact on land and housing markets that affect property prices and if too restrictive and costly it can become a stimulus to informality in building and land occupation. A careful review and ensuing changes to some of these regulations is in principle costless since such regulations are meant to control behaviour and regulate practices but do not mandate public expenditures.

However, even if the reforms are in one sense costless, they do entail winners and losers. Lower standards that make housing more affordable and easier to produce also reduce the value of existing housing whose owners will oppose such measures. Higher FAR may increase profitability of developers and land owners while potentially increasing tax revenues for local governments but it may also produce negative externalities such as traffic congestion, saturation of infrastructure networks and high-end housing developments that may exclude poorer households. Hence, while identifying such reforms is not difficult, implementing them often is.

#### 5.5 Encourage innovative and more inclusive housing finance systems:

Financial regulations are essential for the functioning of housing markets. Among the most fundamental of regulations are those that standardize the hard-to-observe qualities of a property, or those that protect consumers from exchanges they do not fully understand. Such details allow housing markets to function more effectively. For instance, decisions with respect to borrowing in order to finance a house purchase typically entail fairly unsophisticated, undiversified borrowers in exchanges with more sophisticated, diversified financial institutions.

**+ HOUSING IS A KEY DRIVER OF URBANIZATION AS IT DETERMINES INFRASTRUCTURE DEVELOPMENT, LAND OCCUPATION AND THE SPATIAL ARRANGEMENTS THAT REGULATE CITIES' PRODUCTIVE STRUCTURES AND THEIR ABILITY TO GENERATE INCLUSIVE GROWTH, ASIDE FROM THE ENORMOUS VOLUME OF CAPITAL AND EMPLOYMENT IT GENERATES**

Deploying rules and regulations that protect both borrowers and lenders is a rule of thumb but in developing countries where housing finance is often underdeveloped and property rights are not always well documented and protected, there is a need to establish mechanisms to regulate and protect these exchanges in the market and provide diversified loan products, incentives for savings and housing finance, for instance that is compatible with the prevailing practices of incremental home building (CAFH, 2015).

The ability to enforce these regulations is also important and it is a question of institutional capacity and the availability of human resources capable of understanding and enabling institutions and markets to work while protecting the public interest.

## 5.6 The existing housing stock is a capital good:

Greater reliance on the existing urban capital stock can help address housing affordability. When the long-term nature of housing stock is considered, it is clear that new production never accounts for more than a very small percentage of the existing stock.

There are many ways to make the existing urban capital stock more responsive to demand: reduce height restrictions on buildings, lower minimum plot sizes, allow smaller units or the subdivision of larger units into small ones, or permit the addition of a unit in single family homes and building densification.

When expensive land is covered with low-rise units or squatter settlements, one of the key incentives offered by city living—the ability to substitute structure for land—is lost. Small improvements in the use of the existing stock can have the same impact as large-scale increases in new housing production. For instance, according to Bertaud (2010) the Indonesian kampongs constitute a parallel housing market maintaining affordable low cost housing standards. In that, they represent an invaluable stock of housing which remains affordable to those who are ready to trade-off the convenience of a car for the centrality of a kampongs' location. As he notes:

“The housing stock in kampongs has improved over the years because of the investments made by their inhabitants and because of the constant upgrading provided by the government. The investments made by the government in infrastructure and the continuity of policy over many years have also convinced households living in kampongs that the government had no intention to use eminent domain to displace them to redevelop the land under different use.

This exceptional stability in government policy over many decades has resulted in creating a housing stock that is constantly evolving while being entirely demand driven. The infrastructure provided in the kampongs insure that no matter how small and simple a dwelling is, people living in it have access to safe water supply, sanitation and storm drainage, social services and a housing stock that is constantly evolving while being entirely demand driven.

The infrastructure provided in the kampongs insures that no matter how small and simple a dwelling is, people living in it have access to safe water supply, sanitation and storm

drainage and social services.” This demonstrates how slum improvement strategies can create and multiply housing opportunities using the existing stock capital without necessarily building new housing.

## 5.7 Attention to rapidly urbanizing low income countries:

The rapid population growth witnessed in certain regions, particularly at the low-income levels that characterize many low income cities, contributes to an urbanization process that has been associated with rising poverty (Ravallion et al. 2007).

Rapidly urbanizing cities in low income countries often do not have the capacity to respond adequately to demographic pressure and the demand for housing and infrastructure, resulting in urbanization processes that are informal, unplanned and generate more liability than the intrinsic benefits associated with the economy of agglomeration.

Urban poverty and inequality characterize many cities in developing countries and urban growth has become virtually synonymous with slum formation in some parts of the world, meaning that cities are expanding based on informal land development processes (UN-Habitat, 2006).

Living conditions associated with extensive urban poverty and slum living not only have implications for inclusiveness, they also have important implications for productivity (Buckley and Kallergis, 2014; Fay et al., 1999). For example, recent studies have shown that even if health conditions are on average better in urban areas, once we disaggregate the urban totals into distinct socioeconomic categories, important differences arise. That is, in squatter settlements the so-called urban health premium—the healthier conditions of the world's cities that have occurred since the end of the Second World War—does not occur.

In such a context, high density, rather than enhancing the positive effects associated with urban living, becomes deadly. The lack of affordable housing opportunities is closely associated with pervasive and persistent slum formation, and informal and unplanned urbanization found in many cities of the developing world, more prominently in Sub-Saharan Africa and parts of Asia.

Cities in these regions are not able to absorb population growth within a planned urbanization strategy. Capacities are weak and plans are not fully implemented, development control regulations are not enforced and cities are often left to their own fate. In order to reverse this trend, there is a need to adopt housing policies that are accompanied by a robust strategy to strengthen the capacity of institutions and individuals, and that enable cities to take control of development and urban expansion.

Here is where evidence-based housing policies must find their place and be closely interlinked with planning urban extensions, and approaches to improve conditions in the existing stock capital and land management that releases land for urban development. But without capacity building, knowledge and know-how these shifts will be difficult to take place.

The seriousness of the housing affordability situation requires a plan of action that should rely on evidence and on the creation of better data and monitoring research on urbanization. The results from the survey represent a baseline for further monitoring housing affordability and provide the data and evidence for policy action. It is important to continue this nascent monitoring exercise in order to get better insights on housing conditions across the world.

Furthermore, using the 200-city sample as a research platform, a sample that is representative of the universe of cities we can all further explore critical aspects of the development of cities by adding layers of data as it pertains to housing and living conditions, to basic infrastructure provision, to transport and commuting. All of these aspects are critical to understanding cities and all need to be monitored in the context of monitoring the urban Sustainable Development Goals in the coming years.

## 6. BIBLIOGRAPHIC REFERENCES

- Angel, S. 2000. *Housing policy matters: A global analysis*. Oxford University Press.
- Blanco, A.G. Fretes Cibils, V. Muñoz, A.F. 2014. *Rental Housing Wanted: policy options for Latin America and the Caribbean*. Washington: Inter-American Development Bank.
- Bramley, 2007. The sudden rediscovery of housing supply as a key policy challenge. *Housing Studies* 22(2), 221-241
- Bertaud, A. (2010). Land markets, government interventions, and housing affordability. In 17. Wolfensohn center for development working papers. The Brookings Institution. <http://www.brookings.edu/research/papers/2010/05/urban-development-bertaud>.
- Breckner, J. 2011. *Lecture in Urban Economics*. MIT Press, Cambridge, Massachusetts.
- Breckner, J. and Selod, H. 2009. A Theory of Urban Squatting and Land-Tenure Formalization in Developing Countries. *American Economic Journal: Economic Policy* 2009, 1:1, 28–51
- Buckley, Robert, and Jerry Kalarickal. 2006. Thirty Years of World Bank Shelter Lending. *Directions in Development—Infrastructure*. The World Bank. <http://elibrary.world-bank.org/doi/book/10.1596/978-0-8213-6577-9>.
- Buckley, R., & Kallergis, A. 2014. Does African urban policy provide a platform for sustained economic growth? In S. Parnell, & S. Oldfield (Eds.), *The Routledge handbook on cities of the global south*. London and New York: Routledge, Taylor Francis Group.
- Buckley, R. M. Kallergis, A. Wainer, L. 2016. Addressing the housing challenge: avoiding the Ozymandias syndrome. *Environment & Urbanization International Institute for Environment and Development (IIED)*. 11–20. DOI: 10.1177/0956247815627523.
- CAFH-Center for Affordable Housing Finance in Africa. 2015. *Housing Finance in Africa Yearbook*. Johannesburg: CAFH.
- CLC-Centre for Liveable Cities Singapore (2013). *Housing. Turning Squatters into Stakeholders*. Singapore: Centre for Liveable Cities, Ministry of National Development.
- Duranton, G. 2009. Are Cities Engines of Growth and Prosperity for Developing Countries? In Spence, M. Buckley, R. Annez, P. (Eds) *Urbanization and Growth. Commission on Growth and Development, The International Bank for Reconstruction and Development / The World Bank*.
- Fay, M., & Opal, C. (1999). Urbanization without growth: A not-so-uncommon phenomenon. *World Bank Policy Research Working Paper* 2412. The World Bank
- Glaeser, E. and Gyourko, J. (2002). The Impact of Zoning in Housing Affordability. *NBER working paper* No. 8835.
- Henderson, J. Vernon, and Anthony J. Venables. 2009. "The Dynamics of City Formation." *Review of Economic Dynamics* 12 (2): 233–54. doi:10.1016/j.red.2008.06.003.
- Knaap, G. 1998. The determinants of residential property values Implications for metropolitan planning. *Journal of Planning Literature* 12(3), 267-282
- Kotkin, J. 2005. *The city: A global history*. New York: Modern Library.
- Kutty, N.K. 2005. A new measure of housing affordability Estimates and analytical results. *Housing Policy Debate* 16(1), 113-142
- Li, J. 2014. Recent trends on housing affordability research: where are we up to?
- City University of Hong Kong, Urban Research Group – CityU on Cities Working Paper Series, WP No.5/2014
- Malpezzi, S (2014), "Global Perspectives on Housing Markets and Policy", Working Paper 3, Marron Institute of Urban Management, New York University.
- Malpezzi, S. and Mayo, S. Housing and Urban Development Indicators: A Good Idea Whose Time Has Returned. *Real Estate Economics*. DOI: 10.1111/1540-6229.00705
- McKinsey Global Institute. (2014). *A blueprint for addressing the global affordable housing challenge*.
- Meen. 2008. Ten new propositions in UK housing macroeconomics An overview of the first years of the century. *Urban Studies* 45(13), 2759-2781.
- Morrison, N. and Monk, S. 2006. Job-housing mismatch Affordability crisis in Surrey, South East England. *Environment and Planning A* 38, 1115-1130.
- Mulliner and Maliene (2013) Austerity and reform to affordable housing policy. *Journal of Housing and the Built Environment* 28(2), 397-407.
- Nepal, B. Tanton, R. and Harding, A. 2010 Measuring housing stress: How much do definitions matter. *Urban Policy and Research* 28(2), 211-224
- Quigley, John M. and Steven Raphael. 2004. "Is Housing Unaffordable? Why Isn't It More Affordable?" *Journal of Economic Perspectives*, 18(1): 191-214.
- Ravallion, M., Chen, S., & Sangraula, P. (2007). New evidence on the urbanization of global poverty. *Population and Development Review*, 33(4), 667e701. <http://dx.doi.org/10.1111/j.1728-4457.2007.00193.x>.
- Ryan, S. and Enderle, B.E. 2012. Examining spatial patterns in affordable housing the case of California density bonus implementation. *Journal of Housing and Built Environment* 27(4), 413-425.
- Stone, M.E. (1993). *Shelter Poverty: New Ideas on Housing Affordability*. Philadelphia: Temple University Press.
- Thalmann. 1999. Identifying households which need housing assistance. *Urban Studies* 36(11), 1933- 1947
- Tiwari and Parikh. 1998. Affordability, housing demand and housing policy in urban India. *Urban Studies* 35(11), 2111-2129.
- UN-Habitat. 2003. *Rental Housing: an essential option for urban poor in developing countries*. Nairobi: United Nations Human Settlements Program (UN-Habitat).
- UN-Habitat. 2006. *State of the World Cities Report 2006/7*. London: Earthscan.
- UN-Habitat. 2011. *A Policy Guide to Rental Housing in Developing Countries*. Nairobi: United Nations Human Settlements Program (UN-Habitat).
- UN-Habitat. 2011a. *Affordable Land and Housing in Europe and North America*. Nairobi: United Nations Human Settlements Program (UN-Habitat).
- UN-Habitat (2016). *World Cities Report 2016*. Nairobi: United Nations Human Settlement Program.
- Zabel, J. Fisher, L. and Pollakowski, H. 2009. Amenity-Based Housing Affordability Indexes. *Real Estate Economics* 37(4):705-746.

### Photo Credits

Hong Kong: Abdul Rahman,  
Kabul: Alain Bertaud  
Cape Town: Johny Miller

## Annex 2: Methodology of the Land and Housing Survey in a Global Sample of Cities

The Land and Housing Survey in a Global Sample of Cities was undertaken in a carefully selected sample of 200 cities, a sample that represents the universe of all 4,231 cities and metropolitan areas that had 100,000 people or more in 2010. This global survey was conducted in ten different languages and it involved the participation of more than 150 city-based researchers who completed the survey through research, interviews and contributions of local housing experts (academics, municipal government, private developers, NGOs).

The objective of the study was to produce global comparative evidence regarding housing affordability, housing conditions, and the regulations governing housing in different cities, and thus allow cities to measure their housing sector performance against global, regional, and national norms so as to facilitate and enable housing that is more adequate, more affordable, and more accessible to jobs. The survey consists of the third phase of a larger research effort to gather scientific evidence on urbanization in order to better understand cities, the Monitoring Global Urban Expansion initiative, a multi-phase program that monitors different aspects of city growth through a stratified global sample of 200 cities. Phase III—The Land and Housing Survey in a Global Sample of Cities—includes two separate surveys.

The first, a Survey of the Regulatory Regime Governing Land and Housing, seeks to capture land ownership patterns, land-use planning practices, and the development of new subdivisions in expansion areas of cities. The second, the Housing Affordability Survey, seeks to measure the prices as well as the key attributes of different types of residential plots, houses, and apartments available for sale or rent in the 200 cities in the global sample, and to compare them with household incomes in these cities.

Together with Phase I—The Mapping & Measurement of Global Urban Expansion—which focuses on the mapping and measurement of key attributes of global urban expansion—and Phase II—The Mapping and Measurement of Urban Layouts—which focuses on the quality of urban layouts recently-built in urban peripheries (areas built between 1990 and 2014), The Land and Housing Survey in a Global Sample of Cities contributes to the collection and analysis of evidence on the quantity and quality of urban

expansion, along with data on housing conditions and the rules and regulations pertaining to land use.

### The 200-City Sample

The focus of the global monitoring effort is on cities of 100,000 people or more. Different countries have adopted different thresholds for a human settlement to be considered a ‘city’, but there is near universal agreement that a settlement of 100,000 people or more constitutes a city. The 2010 universe of cities contains a total of 4,231 free standing cities in 172 Countries or territories that had 100,000 people or more in that year. The universe of cities (Figure 1) provides us with a new and powerful tool for analyzing urbanization patterns, attributes, and trends on a global scale.

It makes it possible for us to assign individual values to cities in the universe—such as their populations or their population growth rates, for example—and then to study variations in these values among regions, among income groups, or among city population size categories. However, the greatest and most promising value of having a universe of cities is in taking a stratified sample of cities from this universe, obtaining rigorous results for this sample and then generalizing these results to the universe of cities as a whole.

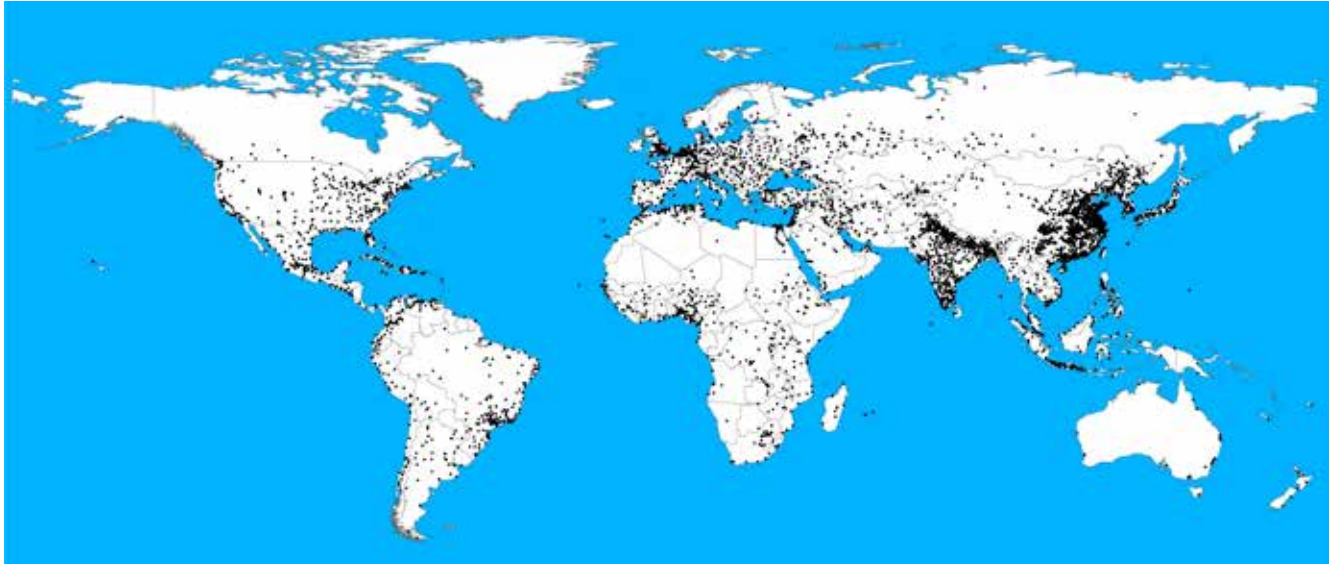
The global sample of 200 cities, drawn from the 2010 universe of cities, is the focus of the Land and Housing Survey (figure 2). The sample was not drawn at random. Instead, to be more representative of the universe of cities, it was constructed with three strata in mind:

World Regions: Cities were selected at random from 8 world regions, in proportion to the urban population in each region. The eight regions were:

- (1) East Asia and the Pacific;
- (2) Southeast Asia;
- (3) South and Central Asia;
- (4) Western Asia and North Africa;
- (5) Sub-Saharan Africa;
- (6) Latin America and the Caribbean;
- (7) Europe and Japan; and
- (8) Land-Rich Developed Countries.<sup>4</sup>

<sup>4</sup> In this chapter, the sample of cities was divided into five regions, corresponding to the assignment of countries to United Nations regional commissions, while eliminating the assignment of countries to more than one region.





*The 2010 Universe of Cities, comprising a total of 4,231 cities that had 100,000 people or more in 2010.*

**City Population Size:** An equal number of cities were selected at random from 4 city population-size ranges, each range containing one-quarter of the total population of the cities in the universe. The four city population size ranges were:

- (1) 100,000-425,677;
- (2) 425,678-1,560,000;
- (3) 1,560,001-5,600,000; and
- (4) 5,600,001 and above.

**Number of Cities in the Country:** Cities were selected at random from 3 country groups, identified by the number of cities in the country, in proportion to the urban population in each group. The three number-of-cities-in-the-country groups were:

- (1) 1-9 cities;
- (2) 10-19 cities; and
- (3) 20 or more cities.

## Survey Methodology

**The Survey instrument:** In order to analyze the multidimensional nature of housing in different urban contexts, data collection at the city-level was performed through an in-depth expert survey questionnaire. The design of the housing affordability questionnaire evolved through an iterative process that integrated changes based on feedback on the questionnaire in its early stages.

In order to account for the idiosyncratic characteristics of the housing stock in cities of different population, size and per capita incomes, and to minimize cross-cultural differences in responses, the expert survey questionnaire was developed and tested by experts through a pilot phase, which involved testing of the questionnaire in a representative group of 15 cities that accounted for city variability based on geographic region, city size and city per capita income.

Following the pilot test, the survey instrument focused on urban metropolitan areas defined as agglomerations of contiguous built-up areas (and the open spaces in and around them) that may contain a large number of municipalities but, more often than not, constitute a single labor market. The questionnaire contained 117 questions divided into 9 sections, distributed across different dimensions and aspects of housing units and residential plots of land.

For the purposes of the survey, the housing affordability questionnaire divided the housing sector into separate sub-sectors including:

- (1) Informal housing;
- (2) Public housing;
- (3) Formal private multi-family housing; and
- (4) Formal private single-family housing.



*The Global Sample of Cities.*

Equally, the questionnaire divided residential plots into:

- (1) Fully serviced formal plots;
- (2) Minimally serviced plots; and
- (3) Plots in new squatter settlements;

A final section inquired about the mobility of households from selected points within the periphery of cities to the CBD, approximated in most cases by the location of the city hall in a given urban area.

In order to address the idiosyncratic nature of the housing stock in each of the cities, open questions and ‘Notes’ areas were used at the end of sections in order to ensure that the respondents have the opportunity to include additional relevant information so that the survey provides a more granular understanding of the housing sector and its segments.



*A Yurt home in Ulaanbataar, Mogolia (left) and Public Housing in Suva, Fiji*

Additionally, CBRs were encouraged to provide further documentation and material of interest, including photographic material from each city. The photos focused on typical residential units within each subsector of the housing market in order to provide a better idea of the housing typologies existing within a city's housing stock.

**Identification of City-Based Researchers and Survey Administration:** City-based researchers (CBRs) were identified through an extensive knowledge network of experts provided by New York University, UN Habitat and the Lincoln Institute of Land Policy. A database of experts in housing and land use planning in academic institutions in the cities of the sample was developed to facilitate the identification of potential researchers who would respond to the survey. Equally, regional planning associations such as the Association of European Schools of Planning (AESOP) and the American Planning Association (APA) were contacted in order to identify potential (CBRs).

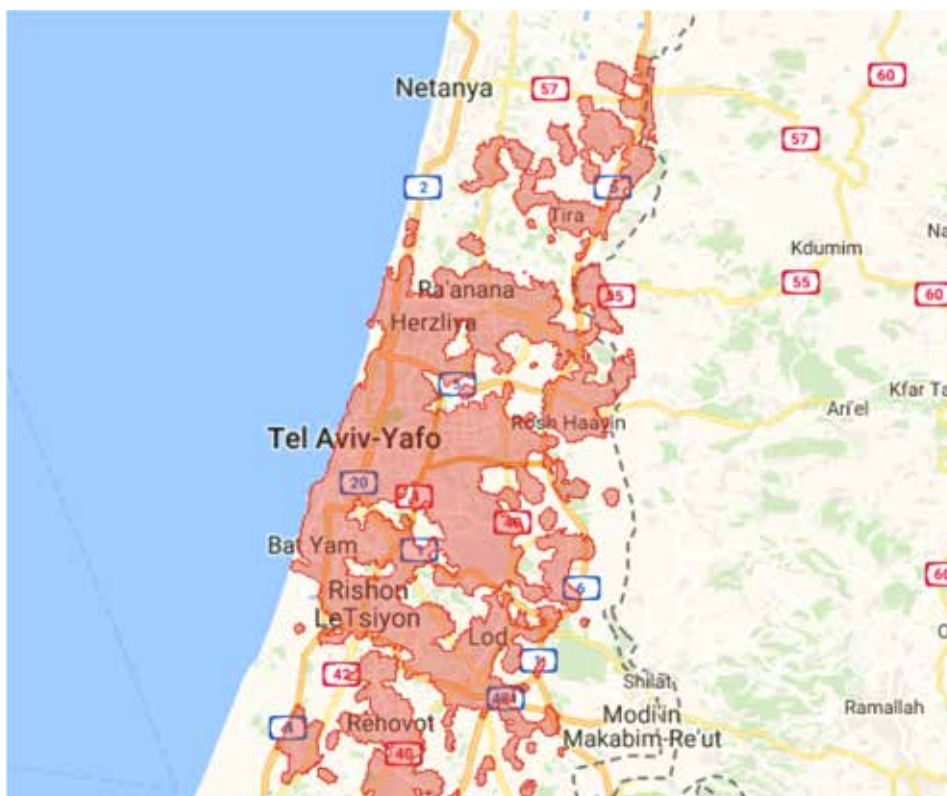
Once identified, the CBRs received a survey package translated in ten different languages which included: the general scope and description of the project; a contract including terms of reference; dummy versions of the survey questionnaires; instructions for the survey; and a glossary explaining different terms found in the survey.

Particular attention was given in clarifying terms such as squatter settlements that although widely used, are often vague in their ability to describe local housing conditions.

Upon review of the survey material, potential CBRs submitted their resumé and were interviewed by telephone and Skype in order to assess their capacity to undertake the survey for a given city, and to clarify potential issues and respond to initial questions.

The role of the CBRs was to complete the surveys based on a review of existing knowledge on the housing market in a given city; and on interviews and data collection from local experts from their city network of municipal agents, private developers, civil society organizations working in housing issues, and other experts.

The questionnaire was administered both through an online platform—which generated password protected unique surveys for each city—and conventional paper surveys based on the preference of the city-based researcher. Each survey was accompanied by urban extent maps that showed the study area of the study as the extent of a city's build-up area circa 2014 (see, for example in the figure below).



*The Urban Extent of Tel Aviv, Israel circa 2014*

Research Support and Revision of Survey Results: A network of New York-based Regional Coordinators, fluent in the CBRs languages, supported the work of the CBRs in each city. Regional coordinators along with survey supervisors from NYU were responsible for facilitating the work on the ground, providing technical support and responding to questions and challenges that the CBRs potentially faced.

The results from survey responses were reviewed during several stages. The review process looked both at internal consistency and external validity of the responses. A first review took place midway through completion of the survey. A second review took place upon completion

of the survey. Based on data availability, a final review compared results from the survey with existing data such as census data, specific web databases, such as Numbeo, Data US, and an extensive literature of case studies describing the housing sector of specific cities in the sample.





## CHAPTER 4

# LOCAL GOVERNMENT FINANCING IN DEVELOPING COUNTRIES: KEY CHALLENGES AND SOLUTIONS

- + ADEQUACY OF REVENUES IS THE KEY TO A CITY'S ABILITY TO DELIVER NECESSARY PUBLIC GOODS AND SERVICES AS WELL AS TO PROMOTE ACCOUNTABILITY OF LOCAL OFFICIALS TO THEIR CITIZENS.

## I. INTRODUCTION

A serious challenge confronting most urban authorities in developing countries is the widening gap between the availability of financial resources and municipal spending needs. One of the main reasons for this increasing fiscal gap is the rapid growth of urban populations that creates an ever-increasing demand for public services, new public infrastructure, and its maintenance. Most cities and towns in developing countries depend largely on central government transfers, with smaller amounts of revenues generated from property taxation and service charges.

More lucrative sources of revenue, such as income taxes, sales taxes, and business taxes, are controlled by the central governments. Where local authorities are able to generate revenues from local sources, meaningful tax increases are sometimes refused or delayed by central governments mainly for fear of losing political support from the urban population. In many cases, local authorities themselves refuse such increases for similar reasons. Moreover, there are huge vertical imbalances at the local level in terms of sharing responsibilities and available fiscal resources. Addressing vertical fiscal imbalances and introducing more responsive and accountable governance practices are crucial for providing more efficient and equitable public services in cities in developing countries.

It is also important to understand key elements and processes necessary for local authorities to effectively use various financing mechanisms to implement city extension plans and urban development projects. While these plans and projects are urgently needed to accommodate growing urban populations, they cannot succeed without the backing of financial and regulatory strategies.

This paper highlights key challenges local governments in developing countries are facing in the use of various mechanisms for mobilizing financial resources and solutions to these challenges, some political economy challenges facing urban authorities in generating revenues from local sources and solutions to these challenges, some innovative governance mechanisms and institutions to support the efficient and equitable provision of public services in metropolitan areas, and how to finance efficient provision of public services in peri-urban areas and small towns in developing countries.

## 2. MOBILIZING FINANCIAL RESOURCES FROM LOCAL AND NON-LOCAL SOURCES

In order to be financially viable in the long-run, cities and towns in developing countries should make use of both tax and non-tax revenues through user charges and fees. Adequacy of revenues is the key to a city's ability to deliver necessary public goods and services as well as to promote accountability of local officials to their citizens. In addition to generating as much revenue as possible from local sources, that are supplemented by intergovernmental transfers, urban authorities in developing countries should also consider using other financial tools such as municipal bonds, bank loans, municipal development funds, funds from institutional investors (such as pension funds), corporate bonds, equity markets and public-private partnerships.

### 2.1 Local sources of revenue

Local revenue sources, including tax and non-tax instruments such as fees and charges, are key to adequate financing. Local revenues also contribute to promoting horizontal accountability of public officials to their constituents, on the revenue side of municipal budgets. This accountability is fundamental to promoting a culture of expenditure efficiency. It is important to understand the rationale and to justify the considerable effort that accompanies any revenue-side reform. If local authorities are to achieve the benefits of increased accountability, spending efficiency and fiscal responsibility, then they must focus on unique aspects of revenue reforms. This is the discretion that local governments should have in collecting revenue from local sources.

**+ MOST CITIES AND TOWNS IN DEVELOPING COUNTRIES DEPEND LARGELY ON CENTRAL GOVERNMENT TRANSFERS, WITH SMALLER AMOUNTS OF REVENUES GENERATED FROM PROPERTY TAXATION AND SERVICE CHARGES**



*Council estates in London @Shutterstock*

In mobilizing revenue from local sources, two key questions arise. First, how much revenue autonomy should be granted to local authorities by the central governments? Second, which taxes should be allocated at local levels? With respect to revenue autonomy, a well-accepted solution is that local governments with the largest tax bases are allowed to finance most of their expenditure responsibilities with their own revenues. This allows relatively poorer local governments to receive adequate central government transfers. The answer as to which taxes should be allocated to local governments is more complex.

Four dimensions are usually taken into account when deciding on the allocation of various types of taxes to subnational governments: (1) who selects the taxes to be used by local governments? (2) should tax bases be exclusive to each level of government or could they be cohabitated by several levels? (3) which level of government should legislate on tax base and tax rate? and (4) what level of government should administer the tax?

### ***What are the good characteristics local taxes should have?***

There are several properties for all taxes that are also desirable at the local level. These are (a) being buoyant - with revenues roughly changing in proportion to the changes in the economic base, (b) being horizontally equitable - providing equal treatment to tax payers in similar circumstances, (c) being relatively efficient - causing low distortions in economic activity, (d) being relatively low in administration and compliance costs, and (e) being politically acceptable. Several examples of better local taxes are briefly described below.

### **Charges and Fees**

There is a general agreement that user charges and fees are the most appropriate source of revenue for local governments. A wide range of services can be financed with user charges and fees. These include water and sewerage, electricity, parking, garbage collection, urban transportation and road use, kindergartens and residential care for the elderly, museums, parks, and sport facilities. Other services, such as healthcare and education, can be partially financed with user fees. User fees can also



be charged to cover the public costs of registration and monitoring of a wide range of activities including business establishment, real estate titling and registration, and driving permits. Apart from the economic efficiency associated with benefit charges, from a political economy perspective they do not directly compete with central governments for any tax base.

### Property taxes

There is general consensus that property taxes and betterment levies are the closest to being a benefit tax and that they are entirely appropriate for local government financing. In almost all cases, revenues from property taxes are assigned to local governments as opposed to higher-level governments. The degree of freedom given to local governments in manipulating this tax may vary but there is a general agreement that this tax belongs to local governments. Several features make property taxes particularly attractive at the local level.

Most importantly, property tax is a visible tax and is therefore open to political accountability. In addition, it has an unmovable base. The more homogeneous the property and population is, the closer the property tax comes to being a benefit tax. Other advantages of property taxes include their high revenue potential and stability.

### Betterment levies

This is another form of property taxation that takes the form of lump-sum payments exacted upfront by local governments from land and housing developers and also from homeowners as a charge for public service improvements, such as road paving, drain infrastructure, sidewalks, and street lights, all of which offer apparent benefits to property values. Betterment levies can be useful in providing local authorities with liquidity to invest in infrastructure.

### Vehicle and transportation taxes

These are generally an attractive form of local taxation because of the strong link between vehicle ownership and the use of local services and infrastructure (particularly roads). In addition, vehicle and transportation taxes offer the advantage of being green taxes with the double dividend of reducing negative externalities associated with traffic congestion and air pollution in the local area.

These are also revenue elastic, relatively stable, and non-exportable taxes. On the negative side, owners will tend to register their cars where it is cheapest, and it will generally be difficult to prevent this through ordinary enforcement measures. Motor vehicle taxes remain underutilized relative to the potential and the advantage of a tax handle that they represent, especially in developing countries.

The reasons for this are not clear, but are probably a combination of political opposition by automobile owners combined with an interest of central governments to keep this tax source central.

### Local business taxes

As a rule, resident taxes should pay for services to residents and business taxes should pay for services to businesses. Business taxes and business license fees are levies at the subnational level as an indirect but administratively easier way to tax income of business owners. But they act as a benefit tax for the services and infrastructure provided by subnational governments. These levies range from several forms of broad-based taxes to operation licenses and charges.

### Excises and sales taxes

Subject to the constraints imposed by the size of the jurisdiction and cross-border trade and smuggling, excise taxes have potential as piggyback or special taxes at the subnational level. The extent to which excise piggyback surtaxes can be used at the local level depends on the size of the jurisdiction, the technology of product distribution, and points of sales.

Excises tend to be more politically acceptable, can be easily administered in coordination with national wholesalers as withholding agents, and allow for rates differentiated by jurisdiction. Another attractive form of excise at the subnational level is the taxation of public utility services. There is significant revenue potential in some of these services, as in the case of electricity and phone services.

In addition to their revenue potential, excises on public utility services can fit the benefit principle well because electricity and phone service consumption tend to be good proxies for local public service use by households and businesses. Compared to other commodities, taxation

of public utilities would be associated with relatively low distortions because of low price elasticity of demand. Their relatively high-income elasticity tends to yield revenue buoyancy and some elements of progressivity.

Finally, retail sales taxes can also provide an elastic and high yield source of revenue for local governments. However, final retail taxes, as opposed to the distorting general turnover sales taxes, which are not recommendable, can be difficult to implement. More generally, local retail sales taxes can conflict and complicate the operation of the central VAT, which most countries in the world have adopted.

### Bad choices for local taxes

The theory and practice of tax assignments also help us identify those taxes that are not good choices to be used at the local level. A progressive individual income tax is not recommendable at the subnational level. Another tax that is not suitable for application at the subnational level is the corporate income tax or profit tax.

Some of the reasons are identical to the case of the progressive individual income tax. In addition, it is unlikely that incorporated businesses benefit more from public services than unincorporated ones or that the benefits received vary with profits. At an operational level, it is extremely difficult to apportion the profits of enterprises across subnational jurisdictions where they operate.

The VAT is also generally considered a poor choice for assignment to the local level. There are also other directly outright bad choices of taxes. These include local border taxes, and general subnational turnover sales taxes.

## 2.2 Non-local financial sources

### *Intergovernmental transfers*

There is no decentralized system of finance that can guarantee a perfect balance between expenditures and revenues. Horizontal imbalances among local authorities can be caused by differences in local economic activity, wealth or resource endowments, or by differences in expenditure needs.

These latter differences may arise from either different prices or costs of service provision due to geographical or climatic conditions, or from adverse demographic profiles such as population groups with special needs. Horizontal imbalances can worsen due to physical and institutional impediments to population migration, the mobility of capital across provinces, or government policies that implicitly or explicitly favor some areas of the country over others. The typical measure of horizontal fiscal imbalance involves the comparison between fiscal capacity measures and expenditure need measures.

Vertical fiscal imbalances are also an issue for most decentralized countries. Vertical imbalances arise when the revenue sources assigned to each level of government do not broadly correspond to their assigned expenditure responsibilities. These include not only central–provincial relations but also provincial–local relations. In most cases, vertical imbalances are against subnational governments with expenditure responsibilities and needs exceeding their revenue sources. However, measuring the lack of correspondence between expenditure responsibilities and available sources of revenue is made difficult by the ambiguity surrounding measures of expenditure needs.

Intergovernmental transfer systems generally use several types of grants to address the vertical and horizontal imbalances: tax sharing, unconditional equalization grants, conditional grants and capital grants.

**+ THE TYPICAL MEASURE OF HORIZONTAL FISCAL IMBALANCE INVOLVES THE COMPARISON BETWEEN FISCAL CAPACITY MEASURES AND EXPENDITURE NEED MEASURES**

### Tax sharing

Central governments typically allow subnational governments to participate in the collection of certain central-government-assigned taxes. This is typically done on a derivation or origin basis. There are some taxes, such as the personal income tax, that are easy to share, while some others, such as the corporate income tax and the VAT, are much more problematic due to the difficulty of determining the tax base in any particular region. The share retained by the subnational government is a percent of the tax revenues collected in the jurisdiction. Tax sharing is very commonly used to close the first stage of the vertical gaps left by the insufficiency of revenue assignments. Although this is seen as a form similar to revenue assignments, there is a fundamental difference between the two in that tax sharing does not involve any form of autonomy and therefore it does not create any direct link to accountability.

### Unconditional equalization grants

The essence of an equalization transfer system is to compensate for horizontal fiscal disparities across local governments arising from differences in fiscal capacity and/or expenditure needs. The higher the importance of revenue autonomy, the more important equalization grants become as part of subnational governments' financing systems. Usually, equalization grants are unconditional, meaning the subnational governments can use the funds in an unrestricted manner, as if they were their own funds.

### Conditional grants

Central governments also play a supporting role for subnational governments through the implementation of conditional grants, which are funds transferred with conditions attached. Subnational governments can only use the funds according to rules imposed by the central government.

Tied or Specific Grants, as they are also called, are used to ensure the provision of minimum standards of service for delegated functions, for example in education and health, throughout the national territory. They are also used for other specific needs, in some ways reflecting national interests (such as reducing poverty) or addressing significant spillover effects across jurisdictions (such as clean air and water), inducing subnational governments to increase spending in those areas.

### Capital grants

Most countries use some form of capital transfers in support of subnational governments for specific infrastructure expenditure areas such as roads, water and sewerage treatment plants, transportation, housing, education, and health. Country experiences vary regarding the allocation mechanisms, which range from ad hoc allocation decisions to formalized approaches using pre-established formulae. Similarly, country experiences vary regarding the flexibility in the use of funds from the least flexible project-based grants to unconstrained funds provided as part of a general revenue transfer. Often the sum of a capital grant has to be matched with locally raised resources and the matching rate is sometimes inversely related to the local income. The range of objectives for capital transfers includes closing disparities in local infrastructure stocks, subsidizing capital projects with cross-jurisdictional spillovers of benefits, addressing vertical imbalance in the assignment of revenue sources, addressing lack of credit availability, and others.

### *Borrowing*

Disciplined access to credit is an appropriate source for financing subnational government capital investment responsibilities. The use of borrowing to finance this type of activity is justified because of the bulkiness of some projects and the lack of liquidity of subnational governments; and because the repayment of credit over time represents a fairer distribution of infrastructure costs among the different generations of users during the useful life of the infrastructure.

However, borrowing at the subnational level is risky because local officials can be easily tempted to overspend and shift the repayment of debts to future governments and taxpayers. Therefore, there is a need for balance between access to borrowing by subnational governments and institutional mechanisms that impose fiscal discipline. A good rule for assessing the need for long-term financing is that today's services should be financed by today's taxes and user fees, and future services should be financed by future taxes and user fees facilitated through the issuance of public debt (Inman, 2010).

### ***Innovative approaches to financing urban infrastructure***

Land value capture is a method of public financing where increases in private land values generated by public investments, rather than private land owners actions, are captured all or in part by the public sector for the use of public purposes (Nguyen Thien Phu, 2007). It is a way of internalizing the positive externalities of public investments. Value capture is a tax imposed by the government on the direct beneficiaries of public investments. It benefits the public, which funds the investments but does not enjoy any benefits directly.

The increases in private land values (capital gains) because of public investments are unearned profits to the private landowners who do not have to bear any costs. These unearned profits can be captured indirectly by means of real estate taxes, impact fees, or other forms of taxes or directly by converting them to land-related benefits such as on-site improvements. According to Walder (2003), value capture funding is based on the principle that transport infrastructure increases private land values and that even a small share of this rise in value can help pay for building much of the transport infrastructure. Some tools used to capture land value are briefly described below.

#### **Tax increment financing**

Tax Increment Financing (TIF) is a method used in the USA to fund infrastructure improvements (Doherty). In Australia, this method is known as Value Increment Financing (VIF). In the USA, under TIF schemes, local governments enter into agreements with private developers that they will not be taxed for 20 years because the community will benefit from investments undertaken by private developers.

In Australia, a modified method is used in which the State government, after computing the incremental value added by the new development by the private developers, loans the developers that incremental value, which is to be repaid by the developers over a ten-year period at a low interest rate. According to Doherty, this method allows taxes collected from the area to be reinvested in the same area, instead of letting it go to the State and/or the central government.

An advantage of this method is that it does not impose an additional tax burden on private enterprises. At present, a large number of TIF districts are functioning in most of the States in the USA (Wikipedia 2). State of California introduced TIF way back in 1952. There over 400 TIF districts in California that generate over USD10 billion annually in revenue, more than USD28 billion of long-term debt and over USD674 billion of assessed land valuation (Wikipedia – Tax-Increment-Financing).

#### **Traffic impact fees**

Traffic Impact Fees are fees collected from motorists to pay for investments in parks, schools, roads etc. that are needed as a result of new development. In most cases, these impact fees are collected to improve transport systems to meet the increased demand due to new development.

#### **Development land tax**

Development Land Tax (DLT) is used in some countries as a land value capture mechanism (e.g. UK and Australia). Under DLT, private developers of non-residential land are expected to contribute towards building some infrastructure such as drainage and community facilities in the area being newly developed. They do this because the public investments in transport links benefit the developers as their property values increase due to public investments. Traffic Impact Fees mentioned above are a variation of DLT.

#### **Others**

Other and more common value capture strategies include sales taxes, property taxes, real-estate lease, parking fees and business licenses. It is important to note here that taxes on property, particularly land taxes, can also be considered as a way of capturing capital gains because present land values represent accumulation of land value increments over time (Smilka and Amborski, 2000). Fees are perhaps the most common tools used to capture capital gains.

### 3. POLITICAL ECONOMY CHALLENGES OF LOCAL GOVERNMENT REVENUE GENERATION

Although there is a well-developed set of public finance principles for choosing and designing local government revenues, and it is often used as the anchor for developing intergovernmental and local fiscal reform, urban revenue performance in developing countries is generally mediocre. This state of affairs persists both because the mainstream principles do not adequately consider key factors that influence local revenue generation and because the principles are not always appropriately implemented.

Underlying this situation is a set of diverse, complex political economy considerations that rarely get the attention they deserve. These range from the behaviors of national politicians and bureaucrats who shape the rules of the intergovernmental fiscal relationships and how they are implemented, to local political economy dynamics among elected councilors, local government staff and citizens.

These actions and interactions play out in a broader context that also influences the options for effective local revenue reform and decentralization in general. Inadequate understanding and attention to these dynamics can result in serious flaws in revenue reform design and implementation.

Some remedial actions to improve local revenue generation can be taken by urban governments on their own, but others require national-level action or support, or at least recognition of what is feasible locally, given constraints imposed by higher levels. Even where local action can be productive, urban officials must be mindful of essential linkages among the elements of the local governance system. Pursuing a state-of-the-art but revenue-specific reform without attention to other relevant factors, such as expenditure policies, fiscal transfers, or accountability mechanisms, is unlikely to result in improved local revenue performance.

Given the complex array of actors and interdependencies involved in urban revenue generation and the common need for considerable policy and system modifications in many developing countries, it is important to be strategic in pursuing urban government revenue reform. Sudden dramatic changes are likely to overwhelm local capacity and may even provoke pushback from those parties most affected by the reforms. Particularly critical at the local level is to invoke the social contract - to ensure that those citizens who will pay more to their local government under revenue reforms feel that they are getting some benefit from doing so, and are being treated fairly in the process.

### 4. FINANCING PUBLIC SERVICE PROVISION IN METROPOLITAN AREAS

In metropolitan areas, different tiers of government and numerous public enterprises are typically involved in the provision of public services. Metropolitan areas use various governance approaches in the provision of public services: some follow jurisdictional fragmentation arrangements while others use functional fragmentation. In some cases, the metropolitan governments take full responsibility for the provision of public goods.

Metropolitan areas in developing countries often have a mix of relatively wealthy areas and poor areas. Therefore, if efficient and effective public service provision were limited to wealthy areas where taxes are generated (specifically property taxes), this would lead to growing disparities in the level of service provision across the city.

Investments in road networks and transport, as well as other public infrastructure that service the entire metropolitan area, typically require a concerted effort and coordination among the different actors. This makes governance and financing in metropolitan areas inseparable. Effective implementation requires institutions and governance mechanisms that enable local governments to meet the growing demand for urban service provision, support the economic competitiveness of metropolitan areas, and ensure equitable provision of services to all constituents regardless of location.

The types of governance structures and initiatives that have emerged in various metropolitan areas reflect the local and national context; differences in constitutional provisions, whether the country is federal or unitary, division of responsibilities, assignment of revenue sources, history and politics of the country, and a host of other factors. For example, a metropolitan area in a country with a long history of local autonomy (such as the United States, Switzerland, or the Philippines) is unlikely to create metropolitan governments by amalgamating smaller, local governments, but it may form a regional body voluntarily.

A successful model in a metropolitan area in a country with an authoritarian regime cannot easily be applied to a metropolitan area in a country with democratic traditions. As is often the case with institutional design, while the questions to be dealt with seem universal, the answers are invariably context-specific, and policy choices are rarely straightforward (Stren and Cameron, 2005).

Nevertheless, to improve service delivery, most countries would be well advised to move towards developing more effective systems of governance for the whole metropolitan area than now exist. A strong regional structure that encompasses the entire economic region is essential to ensuring that services are delivered in a coordinated fashion across municipal boundaries, and to be able to improve service delivery by reaping the benefits of economies of scale and internalizing externalities. Lefèvre (2008) emphasizes five characteristics of an effective regional structure: political legitimacy through direct election; geographic boundaries that match the functional territory of the metropolitan region; independent financial resources; relevant powers and responsibilities; and adequate staffing.

Yet, voluntary cooperation and special-purpose districts that have very few of these characteristics are popular around the world, while amalgamation tends to be unpopular. As Dafflon (2012) notes, amalgamation is usually justified for economic reasons – administrative economies, economies of scale, improved efficiency, internalization of spill-overs, and more robust tax bases; but opponents justify their position on the basis of democratic arguments: voice and free democratic choice at the grassroots level.

The choice of voluntary cooperation and special-purpose districts over a regional government structure to address inter-municipal service delivery issues tilts the balance towards local autonomy and responsiveness and away from a regional vision.

Voluntary cooperation may be effective in providing some services but it is unlikely to provide an adequate regional foundation for metropolitan areas. Where special districts are created to deliver specific services, the regional vision is further diluted, but also, since the boards of special districts are generally appointed or indirectly elected from members of the local councils, accountability to local citizens is compromised.

A shift from inter-municipal cooperative governance structures to a regional government structure with direct election would improve political legitimacy, but almost inevitably at the expense of local responsiveness. At the very least, some form of community or neighborhood councils is needed to balance regional and local interests.

Finally, the services that local governments in metropolitan areas provide and how they pay for them are inextricably linked to governance (Black and Slack, 2013). Viable solutions to the problems of metropolitan areas can be attained only when those who live there have to make the critical decisions about service delivery, pay for the services, and live with the consequences (Black and Slack, 2007).

The fragmentation of the governmental structure of metropolitan areas means that it is often both technically and politically difficult to make appropriate decisions on expenditures when benefits and costs spill over municipal boundaries. How to share costs fairly within the metropolitan area is also always and everywhere a controversial issue. What is needed to improve service delivery is thus: first, to design some form of effective metropolitan governance, and second, to set out an appropriate fiscal structure.

**+ LEFÈVRE (2008) EMPHASIZES FIVE CHARACTERISTICS OF AN EFFECTIVE REGIONAL STRUCTURE: POLITICAL LEGITIMACY THROUGH DIRECT ELECTION; GEOGRAPHIC BOUNDARIES THAT MATCH THE FUNCTIONAL TERRITORY OF THE METROPOLITAN REGION; INDEPENDENT FINANCIAL RESOURCES; RELEVANT POWERS AND RESPONSIBILITIES; AND ADEQUATE STAFFING**

## 5. FINANCING PUBLIC SERVICE PROVISION IN SMALL MUNICIPALITIES AND PERI-URBAN AREAS

One of the challenges that large urban governments and metropolitan areas face is the growth of population in their peripheries and city extensions. The problem of extending services to peri-urban areas touches on both governance and technical issues, especially related to economies of scale in public service delivery. Certainly, the issue of scale is also a challenge facing small municipalities and towns outside metropolitan areas.

In the case of large urban governments, there are often significant differences in the level and quality of public services provided in different areas of the city. In most developing countries, these differences result in the inferior provision of public services in the peripheral areas. Challenges arise from the lack of sufficient infrastructure for newly incorporated areas, which are associated with fast growth in recently migrated populations often characterized by low levels of skills and education, as well as with the lack of adequate housing.

The presence of crime and violence further complicates the improvement of service provision in these areas. Moreover, there is evidence that in large local authorities, policy-makers have a tendency to target policies to satisfy the needs of certain groups while they are less inclined to provide public goods to others.

International experience shows varying rates of success in addressing problems triggered by the urban periphery, and where efforts have been successful they are highly specific to both the context of the governance and the type and nature of the service. A parallel issue is that of smaller government units surrounding large metropolitan areas. This issue has a different nature.

For example, there is clear evidence that the size of local government influences the delivery efficiency of public services. While economic theory suggests that cities with larger local government units can enjoy economies of scale, very large local government units tend to experience diseconomies due to inefficiencies associated with large bureaucracies.

Moreover, there is evidence to suggest that smaller local authorities enjoy greater political accountability and are more efficient in the provision of public goods. Yet, other evidence suggests that smaller local authorities are associated with more corrupt behavior by government officials. This, of course, does not imply that local authorities should become larger as a strategy to promote good governance.

Public service delivery in peri-urban and small urban areas can be limited by problems on both the resource mobilization side and on the institutional side. Adequate services cannot be delivered unless sufficient resources are available. Local governments in many countries are granted limited own source revenue options, so inadequate resources are a concern.

User fees are the best means of financing for those services where a price can be imposed, because they offer both a means of determining the amount of services to be delivered and provide financing for the services. Local tax revenues are necessary when user fees cannot be efficiently levied. Access to broader based tax sources that grow with the economy is essential to a well-functioning system.

Intergovernmental transfers are also a very important source of local government financing in essentially every country, but transfers are often an unreliable source as national governments can vary their transfers across the business cycle. The opportunity cost of resources in the public sector is very high in places where they are difficult to obtain, and this high premium emphasizes the importance of providing those services for which a high demand exists.

One aspect of the service delivery issue is choosing the correct institutional arrangement for services. Many other difficulties arise, not the least of which is the political economy problem of accurately translating service demands into service provision. Appropriate size for a city is one aspect of ensuring low cost, high quality services.

The size of service delivery units should depend on a number of factors, including potential for size economies, limiting corruption, achieving political accountability, homogeneity of service demands and acceptability of cross subsidies, and likelihood of tax competition. Size economies are generally limited for local public services, particularly, when all costs including service production and distribution are taken into account.

Therefore, many peri-urban and smaller urban areas should not be significantly disadvantaged by insufficient scale for most services; so they should not be technically limited by the ability to produce services at low unit costs. Several of the other factors also suggest that relatively smaller cities often have the opportunity to be more efficient than larger ones, though smaller places may find it difficult to obtain the managerial and technical talent to provide some high quality services.

To realize the potential to deliver services well in many smaller cities, alternative means can be found to offset limitations that arise because of staff skills, scale or some other factors. Both alternative public sector approaches and privatization can enhance service delivery in some cases.

Among these approaches are contracting with other governments, cooperating with other governments, single purpose governments, consolidation, and shifting service responsibilities to intermediate level governments. Consolidation is politically costly to achieve and is unlikely to reduce costs in many cases.

A number of experiences with consolidation can be found around the world, but it is discussed much more often than it is achieved. Cooperating or contracting out is less politically costly, but still requires a skilled set of people to negotiate agreements.

Privatization has the potential to lower costs and improve service quality, though research seldom finds that costs are lowered. Furthermore, competitors are often limited in more rural places and smaller cities, so its greatest potential is in larger cities and higher income places. Furthermore, the benefits depend on the extent to which governments can manage private firms' delivery of the services, compared with their ability to deliver the services directly. Governments may need to actively develop a market for their services in cases where demand may seem inadequate for the private sector to seek out the market.

Alternative service delivery mechanisms are often characterized by difficult principal-agent problems where both constituents and local policy makers find it difficult to align priorities of the various groups, and particularly to ensure that priorities of the service consumers are properly reflected in service delivery. These problems are exacerbated by information asymmetries that tend to grow over time as service providers are able to understand costs and production conditions beyond the cities and consumers. These and other problems plague these alternative systems with weak accountability and transparency.

**PRIVATIZATION HAS THE POTENTIAL TO LOWER COSTS AND IMPROVE SERVICE QUALITY, THOUGH RESEARCH SELDOM FINDS THAT COSTS ARE LOWERED**



## Summary

Most local governments in developing countries face the difficult task of funding the infrastructure and services required to meet the basic needs of growing urban populations. Local financial management frequently suffers from lacking technological infrastructure and capacity. At the same time, opportunities for revenue generation are often constrained by inadequate regulatory frameworks or disadvantageous political structures. Lagging public sector spending takes a toll on urban efficiency and local economic activity, creating a vicious cycle of budgetary shortfalls, choking urban conditions, and economic stagnation.

However, strategic governance and financing systems can provide hope for struggling local governments. There are opportunities for matching local needs with institutional frameworks and revenue-generation tools. Appropriate financial management can tap into strategies that improve efficiency of revenue collection, win public support, capitalize on urban and regional economies of scale, curb land speculation and sprawl, incentivize economic activity, and improve urban affordability for the poor. The resulting budgetary improvements can allow municipalities to make strategic investments in their cities, stimulating a virtuous cycle of growth, revenue generation, and prosperity.

Reforming municipal finance is not easy. Perhaps the most significant challenges facing financing of urban authorities in developing countries are related to political economy issues. These issues are critical to understanding the consistent refusal of the central government authorities to decentralize significant tax revenues, as well as the common refusal of local authorities to adequately use the tax revenue authority they are granted. Local authorities need the capacity and political will to implement reforms. Moreover, they should generate political support among urban constituents to introduce the necessary legal and institutional changes with an aim to generating increased revenue through greater tax rates, improved tax collection and reduced tax evasion. On the other hand, central governments should offer municipal authorities more financial autonomy to restructure their tax bases and greater jurisdiction over revenue collection. These measures require conviction and commitment – they cannot happen in a vacuum, but are shaped and influenced by the political economy dynamics and the realities of each country. In that sense, each situation is unique and the reform process and design should be adjusted to reflect local and national conditions.

## References

- Bird, R. M. (2000). "Rethinking subnational taxes: a new look at tax assignment", in *Tax Notes International* 8, pp. 2069–2096.
- Bird, R. M.; Slack, E. (2007). "An Approach to Metropolitan Governance and Finance" in *Environment and Planning C: Government and Policy*, 25 (5).
- Bird, R. M. and Slack, E. (2013). "Metropolitan Public Finance" in Bahl, R.; Linn, J. & Wetzel, D. (eds): *Financing Metropolitan Governments in Developing Countries* (Cambridge, Mass.: Lincoln Institute of Land Policy) pp. 135-158.
- Bird, R.M.; Slack, E. 2004. *International handbook of land and property taxation* (Edward Elgar: Cheltenham, U.K. and Northampton, Mass.)
- Inman, R. P. 2010. "Financing cities", in Ingram, G.K.; Hong, Y.-H (eds), *Municipal Revenues and Land Policies* (Cambridge, MA: Lincoln Institute of Land Policy).
- Dafflon, B. (2012). *Voluntary Amalgamation of Local Governments: The Swiss Debate in the European Context* (Atlanta: International Center for Public Policy, Andrew Young School of Public Policy, Georgia State University).
- Doherty, Mathew. *Funding Public Transport Development through Land Value Capture Programs*, [http://www.cooperativeindividualism.org/doherty-mathew\\_land-value-capture.pdf](http://www.cooperativeindividualism.org/doherty-mathew_land-value-capture.pdf)
- Lefèvre, C. (2008). "Democratic Governability of Metropolitan Areas: International Experiences and Lessons for Latin American Cities" in Rojas, E. Cuadrado-Roura, J. R. & Fernández-Güell, J. M. (eds): *Governing the Metropolis, Principles and Cases* (Washington, DC: Inter-American Development Bank).
- Phu, Nguyen Thien. *Value capturing: a realistic funding source for urban transportation in Ho Chi Minh City?* Paper presented to the 15th annual Conference on Pacific Basin Finance, Economics, Accounting and Management held in Ho Chi Minh City on July 20 and 21, 2007.
- Smolka, Martim O. and David Amborski. *Value Capture for Urban Development: An Inter-American Comparison*. Lincoln Institute of Land Policy
- Stren, R. and Cameron, R. (2005). "Metropolitan governance reform: an introduction" in Stren, R. and Cameron, R. (eds): *Public Administration and Development*, 25 (4).
- ([https://www.lincolnst.edu/pubs/dl/1279\\_Smolka%20Final.pdf](https://www.lincolnst.edu/pubs/dl/1279_Smolka%20Final.pdf))
- UN-Habitat (2016). "Finance for City Leaders Handbook". United Nations Human Settlements Programme. Nairobi, Kenya.
- Walder. *Developing a New Agenda for Infrastructure Investment in Public Transport International*, (June 2003).
- Wikipedia 2. [http://en.wikipedia.org/wiki/Tax\\_Increment-Financing](http://en.wikipedia.org/wiki/Tax_Increment-Financing)



# UN HABITAT

United Nations Human Settlements Programme

P.O. Box 30030, Nairobi 00100, Kenya

T: +254-20-7623120

E: [advocacy@unhabitat.org](mailto:advocacy@unhabitat.org)

[www.unhabitat.org](http://www.unhabitat.org)