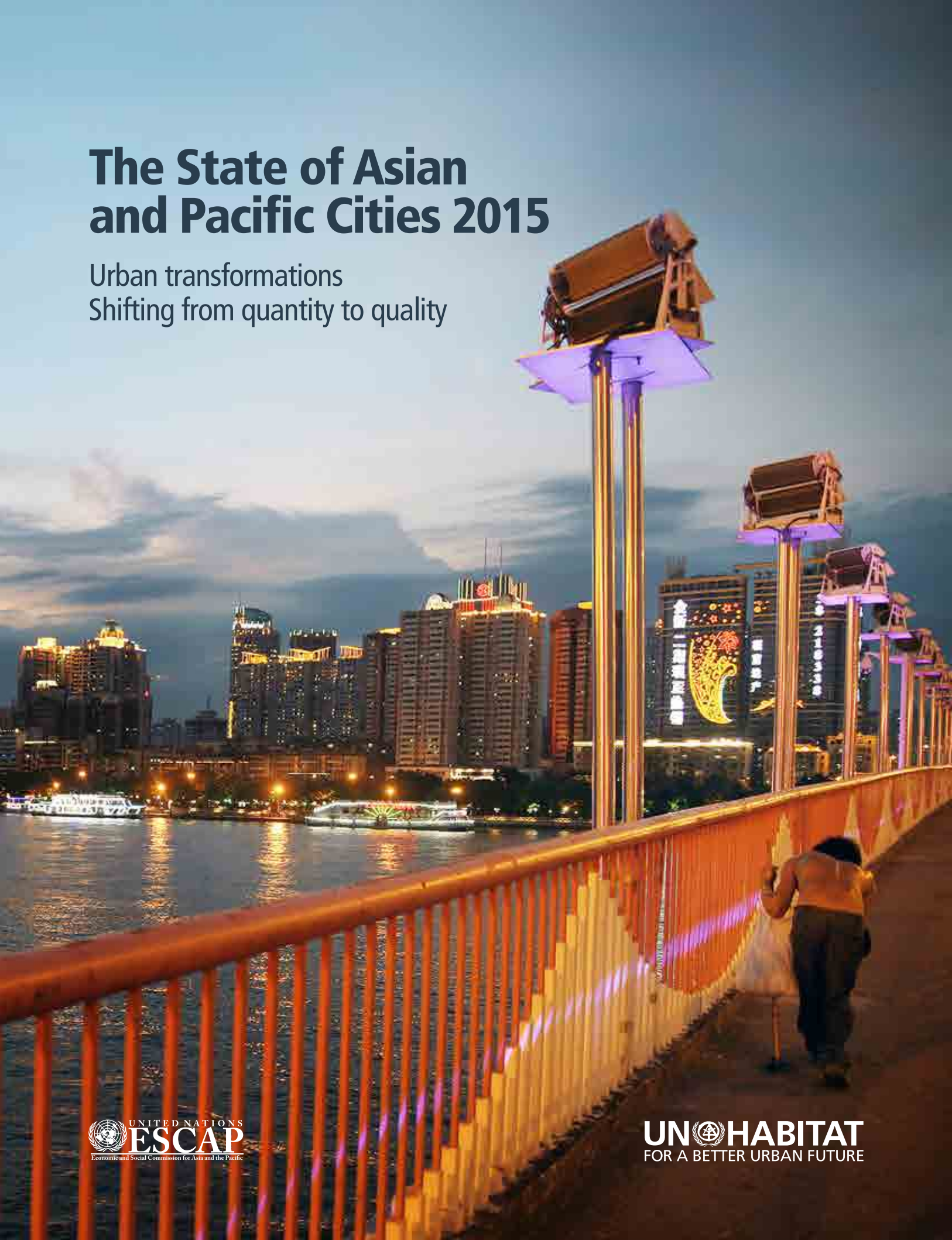
The State of Asian and Pacific Cities 2015

Urban transformations
Shifting from quantity to quality



UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

UN HABITAT
FOR A BETTER URBAN FUTURE

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A bridge on the Pearl River, Guangzhou
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Foreword

It gives me great pleasure to introduce this second *State of the Asian and Pacific Cities* report which, like our 2010/11 publication on this region, is the outcome of close cooperation, in a true One-UN spirit, between UN-Habitat and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).

The current report is very timely, indeed, since the Asia and Pacific region finds itself in a period of very rapid change. Therefore, this publication attempts to shed light on the unfolding demographic, economic, societal and environmental trends and the associated challenges faced by the region's governments, the business sector and civil society.

It is also a timely publication in the light of the forthcoming third United Nations Conference on Housing and Sustainable Development (Habitat III), scheduled for 2016. It is hoped that this report's findings will assist Asian and Pacific nations in their national and regional preparations for the Habitat III Conference.

Over the past decades, globalisation, foreign direct investments and private sector-led initiatives have all combined to create rapid economic growth and even more rapid urban development in Asia and the Pacific. This has generated both benefits and drawbacks.

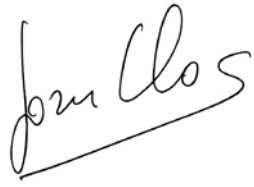
On the positive side, parts of Asia and the Pacific have become the factories, laboratories and travel destinations of the world - in the process lifting millions of people in the region out of poverty.

But there is also a darker side to these advancements. The transformations have come at considerable environmental costs, while the massive reduction in income poverty has not always addressed other dimensions of poverty, such as inadequate housing, or lack of access to safe water and sanitation. All these remain major unaddressed problems throughout the region.

Moreover, whereas various coalitions of the public and private sector have, over time, made many Asian and Pacific cities highly competitive in the global economy, this has often happened at the expense of central governments' traditional roles in assuring domestic equity, equality and sustainability. Consequently, a significant share of Asia and Pacific populations remain exposed to low wages, inhuman work conditions, and poor living environments.

Comprehensive public sector-led urban planning has, in general, also weakened in the pursuit of economic growth and it would now be prudent for the region's governments to start reviewing their urban, social and environmental governance modalities to determine what reforms will be required to guide developments into more desirable and sustainable future directions.

The above matters and others are explored in-depth in the present report, thanks to the commendable inter-agency cooperation between ESCAP and UN-Habitat that facilitated its preparation.



Joan Clos
Under-Secretary-General of the United Nations and Executive Director of the United Nations Human Settlements Programme (UN-Habitat)

Foreword

Following the successful *The State of Asian Cities 2010/2011,* I am pleased to present this second edition, *The State of Asian and Pacific Cities 2015*. Like its predecessor, this report is the outcome of a partnership between ESCAP and UN-Habitat, without which the enormous undertaking of reviewing and analysing urban development trends in Asia and the Pacific would not have been possible.

The speed and scope of urbanisation in the Asia and Pacific region is unprecedented. It is projected that by 2018 half of the region's population will be living in urban areas. Currently more than two billion of the region's total population live in cities and towns – with one billion more likely to be added by 2040.

The Asia and Pacific region is undergoing tremendous change, in which cities are playing a critical part. The region has become a global economic centre of gravity, this emergence largely driven by globalisation and trade liberalisation. Most of this wealth has been generated in and around its cities. Cities are now clearly at the epicentre of the region's development, and its future development prospects.

But the Asia-Pacific region is no longer just a global manufacturer; it is increasingly host to centres of research, creativity and innovation. Newly emerging and mostly urban-based middle classes have become a major social, economic and political force, creating demand for higher-quality goods, services, infrastructure and a better quality of life. This is driving creative thinking and solutions about how to sustainably meet the needs of the largest urban agglomerations in human history.

While urbanisation has contributed positively to lifting millions of people out of poverty, unacceptable numbers of people continue to live in slums, earn insufficient incomes and live in vulnerable and unhealthy environments. Current economic models are not providing a sufficient basis for inclusive and sustainable development. Transformation of the urban economy requires new visions and partnerships spanning national and local government, as well as the private sector and civil society. This report addresses those opportunities.

The region's cities face immense environmental challenges. Unchecked exploitation of natural resources is no longer sustainable or without irreversible costs. An increasing number of cities are facing multiple crises of liveability, illustrated by pollution and declining air quality. Even the region's most impressive urban façades can mask high levels of vulnerability.

In meeting these challenges new multi-level and collaborative governance modalities are required. Local government has a key role to play, but often lacks capacity and authority to act. Current revenue sources are also woefully insufficient to meet the long-term financing needs of infrastructure and other capital investments.

Clearly, there is much to be done to harness the great opportunities of our urban future. But little can be achieved without adequate information. Effective policies for spatial management, economic growth, poverty reduction and environmental protection require accurate, relevant, and accessible data. The region needs no less than an urban data revolution to meet that goal.

The current report was developed with the post-2015 development agenda in mind. It also addresses key regional concerns, to be discussed at the sixth Asia-Pacific Urban Forum, and which will inform the New Urban Agenda, to be formulated at the Third United Nations Conference on Housing and Sustainable Urban Development (Habitat III), to be convened in 2016. It provides an analytical knowledge platform for evidence-based policy and planning around the three dimensions of sustainable development, including their integration, plus a critical fourth dimension: urban governance. ESCAP is committed to play a leadership role in these efforts for a more sustainable regional and global future.

Shamshad Akhtar
Under-Secretary-General of the United Nations and Executive Secretary of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

Acknowledgements

The current report, *The State of Asian and Pacific Cities 2015,* reviews and analyses key trends in urban development throughout the region. It follows the publication of *The State of Asian Cities* in 2011 but goes further in evaluating the most recent urban data from The World Urbanisation Prospects 2014, as well as reflecting on the rapid change taking place in the region's towns and cities. Its timing furthermore contributes to the post-2015 development agenda and to regional preparations for the United Nations Conference on Housing and Sustainable Urban Development, to take place in Quito, Ecuador, in 2016.

The State of Asian and Pacific Cities 2015 was conceived jointly by the United Nations Human Settlements Programme (UN-Habitat) and the United Nations Economic and Social Commission (ESCAP). From UN-Habitat, it was prepared under the direction of Alioune Badiane, Director of the Programme Office and from ESCAP initially under the direction of Rae Kwon Chung, former Director, Environment and Development Division.

The conceptualisation and the coordination of this report was undertaken by Jos Maseland of the Technical Advisory Branch of UN-Habitat in Nairobi and Donovan Storey of the Sustainable Urban Development Section of ESCAP in Bangkok. In the coordination of all activities they were assisted by Kyungkoo Philip Kang, Economic Affairs Officer, in Bangkok, and Katharina Rochell, Human Settlements Officer, in Nairobi. Kioe-Sheng Yap was the overall substantive and principal author, assisted by research associates Matthew Sarsycki and Witchaya Pruecksamars. Banashree Banerjee contributed to the drafting of Chapter 5 on urban governance and management.

From ESCAP, special thanks go out to the following staff members and interns for the substantive reviewing of successive drafts of the report: Lorenzo Santucci, Ram Tiwaree, Natalja Wehmer, Alberto Isgut, Andres Montes, Fernando Preminda, Mari Sawai, Saori Miyake, Tiyani Yang, Seungji Choi, Inhye Kong, Duncan Munro and Jihyun An. Statistical data and information was supplemented by Eric Hermouet and Panpaka Supakalin of ESCAP's Statistics Division. Assistance with several maps was provided by Nia Cherrett. Administrative and logistical assistance was provided by Rujiraporn Polchai and Sirikul Chan-amnuaysook.

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Introduction

This report on the state of Asian and Pacific cities is the second in the series first published by UN-Habitat (the United Nations Human Settlements Programme) and ESCAP (the United Nations Economic and Social Commission for Asia and the Pacific) in 2010 then 2011. Building on the findings and baseline data provided in the 2010 report, and in capturing both rapid change and new policy opportunities, *The State of Asian and Pacific Cities 2015* seeks to further contribute to policy-relevant literature on the region's urban change. Specifically, as reflected in its subtitle, the report highlights growing gaps between current urbanisation patterns and what is needed to shift to a more inclusive and sustainable urban future, in which the role of the region's cities is unquestionably tied to national, regional and global development prospects.

Geographic coverage

The Asia and Pacific region covered here comprises 58 countries and territories. For the purposes of this report these have been grouped into five sub-regions, as shown in Box 0.1 below. These correspond with the Member and Associate Member countries of ESCAP. The sub-regional grouping reflects both geographic proximity and – despite their often highly different socio-economic, political, and administrative status – a degree of comparability which made analysis and discussion of the state of their cities more practicable.

Structure of the report

The organisation of this report was finalised following deliberation on whether analysis of the state of cities in this vast and highly differentiated region should be approached from a geographic or thematic perspective. While sub-regional characteristics are important, and no doubt the urban experience of South Asia, North East Asia and the Pacific Islands warrants fuller analysis, there are also important regional connectivities and experiences from which to draw lessons. As a result, while highlighting sub-regional trends where possible, this report consists of five thematic chapters. Chapter 1 focuses on regional, sub-regional and national urbanisation trends and the underlying city demographics; Chapter 2 reviews the region's urban economies in correlation with unfolding urbanisation; Chapter 3 analyses the urban social transformations evolving in the Asia and the Pacific region; Chapter 4 looks at the ecological and environmental impacts of urbanisation on the region, its nations and urban

Box 0.1 **Asia-Pacific Countries, Territories and Sub-regions**

South and South-West Asia
Afghanistan
Bangladesh
Bhutan
India
Iran (Islamic Republic of)
Maldives
Nepal
Pakistan
Sri Lanka
Turkey

South-East Asia
Brunei Darussalam
Cambodia
Indonesia
Lao PDR
Malaysia
Myanmar
Philippines
Singapore
Thailand
Timor-Leste
Viet Nam

North and Central Asia
Armenia
Azerbaijan
Georgia
Kazakhstan
Kyrgyzstan
Russian Federation
Tajikistan
Turkmenistan
Uzbekistan

East and North-East Asia
China
DPR Korea
Hong Kong, China
Japan
Macao, China
Mongolia
Republic of Korea

Pacific
American Samoa
Australia
Cook Islands
Fiji
French Polynesia
Guam
Kiribati
Marshall Islands
Micronesia (Federated States of)
Nauru
New Caledonia
New Zealand
Niue
Northern Mariana Islands
Palau
Papua New Guinea
Samoa
Solomon Islands
Tonga
Tuvalu
Vanuatu

population concentrations; and Chapter 5 reviews the governance challenges facing the region and the opportunities for more effective policy responses.

These five generic substantive themes also feature strongly in each of the other reports published in the State of the Cities series, covering Africa, the Arab States, Asia and the Pacific, Transitional Europe and Latin America and the Caribbean produced by UN-Habitat since 2008. This shared feature, to some extent, facilitates intra-regional comparisons on the state of cities worldwide.

A new feature in this publication is the addition of four thought-provoking essays on some of the more critical issues facing the region, but also what policy opportunities there may be to bring about change. The first essay focuses on urban mobility; the second highlights social and societal perspectives; the third examines newly emerging eco-cities in the region; and the final essay reviews current urban finance challenges, practices and opportunities. It is hoped that they will stimulate further exchanges at the regional, national and local levels on the topics they address.

The report concludes with a statistical annex providing key numerical information on regional, sub-regional, national and local levels; rural and urban populations; city size categories; urbanisation levels and rates and other data pertinent to the research and analysis in this report.

Statistics and other data

It is important at the outset to point out the difficulties arising when comparing data and indicators, especially when trying to draw authoritative comparisons to provide clear policy messages. A general problem in some of the countries covered in this report is either a lack (or inaccessibility) of statistical material, as well as data coverage of various administrative-territorial levels. Similar difficulties occur in testing economic and social development indicators, as well as data monitoring environmental conditions.

Due to methodological differences among national systems for the collecting and processing of statistical data, their unification proved difficult. Over time, methodological frameworks for conducting censuses have also changed, which often leads to data incompatibility, even within countries or cities.

Given the disparities in data collection methodologies, their interpretation and the inconsistency defining what actually constitutes an 'urban area', all demographic statistics used in this report, unless otherwise indicated, are derived from *World Urbanisation Prospects: The 2014 revision,* prepared by the United Nations Department of Economic and Social Affairs (UNDESA).

The shortcomings of the UNDESA figures are acknowledged, especially where these concern future projections based on national data from 'less than very recent' census rounds. In this report, this data has therefore been used only for general trend recognition purposes and the associated broad policy-sensitive messages that can safely be derived from them.

Key Findings and Messages

By 2018, the population of the Asia and Pacific region is expected to become more than 50 percent urban – the point at which the region can no longer be understood as predominantly rural. This historic change and how it is managed is arguably the biggest challenge facing the Asia and Pacific region's governments and cities at the start of the 21st century. For this is the urban century: the first in which the number of people living in towns and cities is greater than those living in the countryside.

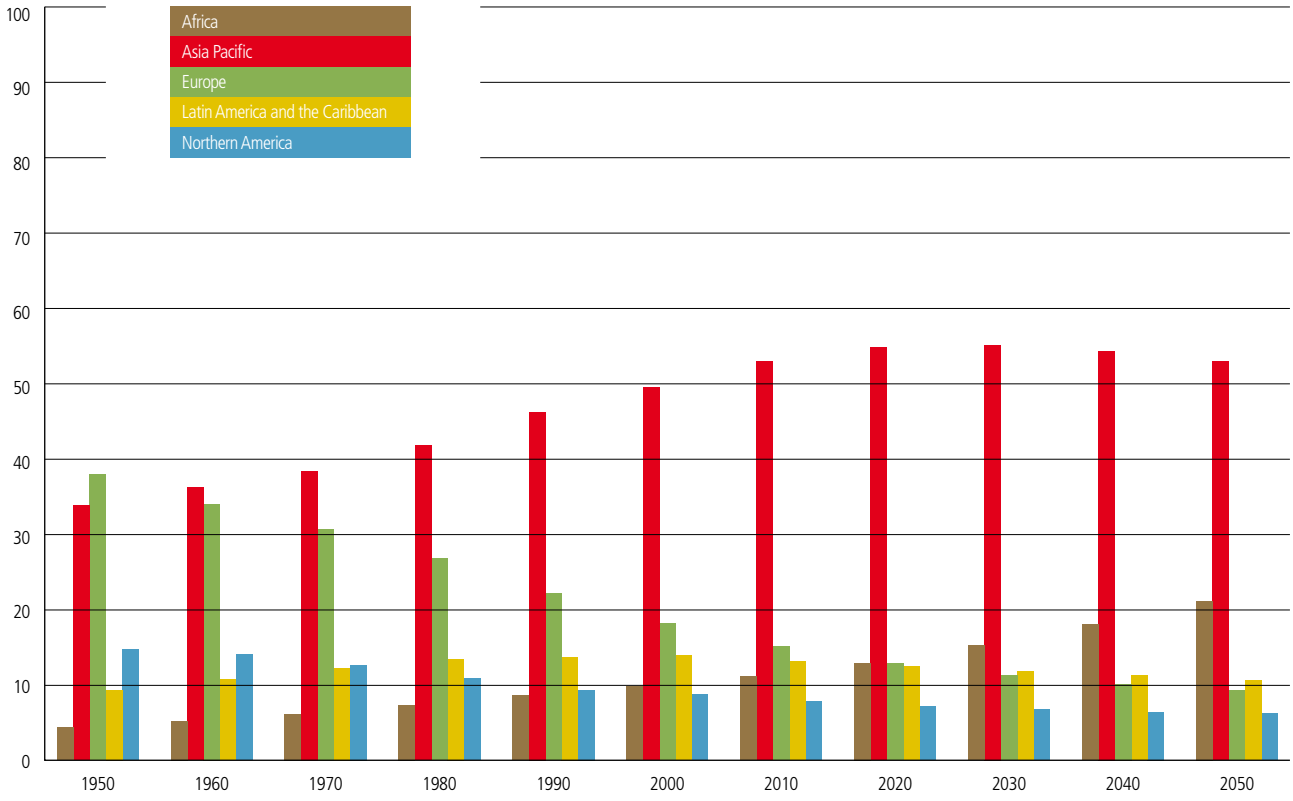
The region's urbanisation also has important global implications. In 2014, 55 percent of the the worldwide urban population was living in Asia and the Pacific.

Recent economic successes in the region have lifted hundreds of millions of people out of poverty and created a rapidly growing urban middle class that now accounts for almost 2 billion people. Nevertheless, Asia and the Pacific is also home to the world's largest urban slum populations and the largest concentrations of people living below the poverty line. Adequate shelter, safe neighbourhoods, clean water and sanitation, health care, transport and access to modern energy systems, or even a legally defined address, are rights still not shared by all. Clearly, the region's economic progress has not benefitted all, and some of the starkest examples of such disparity are to be found in its urban areas.

The Asia and Pacific's impressive urban façades often mask enormous vulnerabilities and inequalities. It is no secret that the region is home to some of the world's most polluted and unhealthy cities. Moreover, its cities are among the most vulnerable to natural disasters and the projected impacts of climate change. Almost three-quarters of the worldwide fatalities of disasters between 1970 and 2011 occurred in the Asia and Pacific region. Consequently, there is an urgent need to address the resilience of the region's cities. Underpinning such responses is the need for pro-poor strategies, as disasters and the slow onset changes of climate change disproportionately affect the poor and marginalised.

As such there rests a great responsibility on the shoulders of the politicians, policymakers and urban managers of Asia and the Pacific. They must, through this century, more effectively capture the clear development benefits of urbanisation while

Graph 0.1 **Urban population at mid-year per region as defined in World Urbanisation Prospects (2014)**



Source: World Urbanisation Prospects: The 2014 revision, File F03

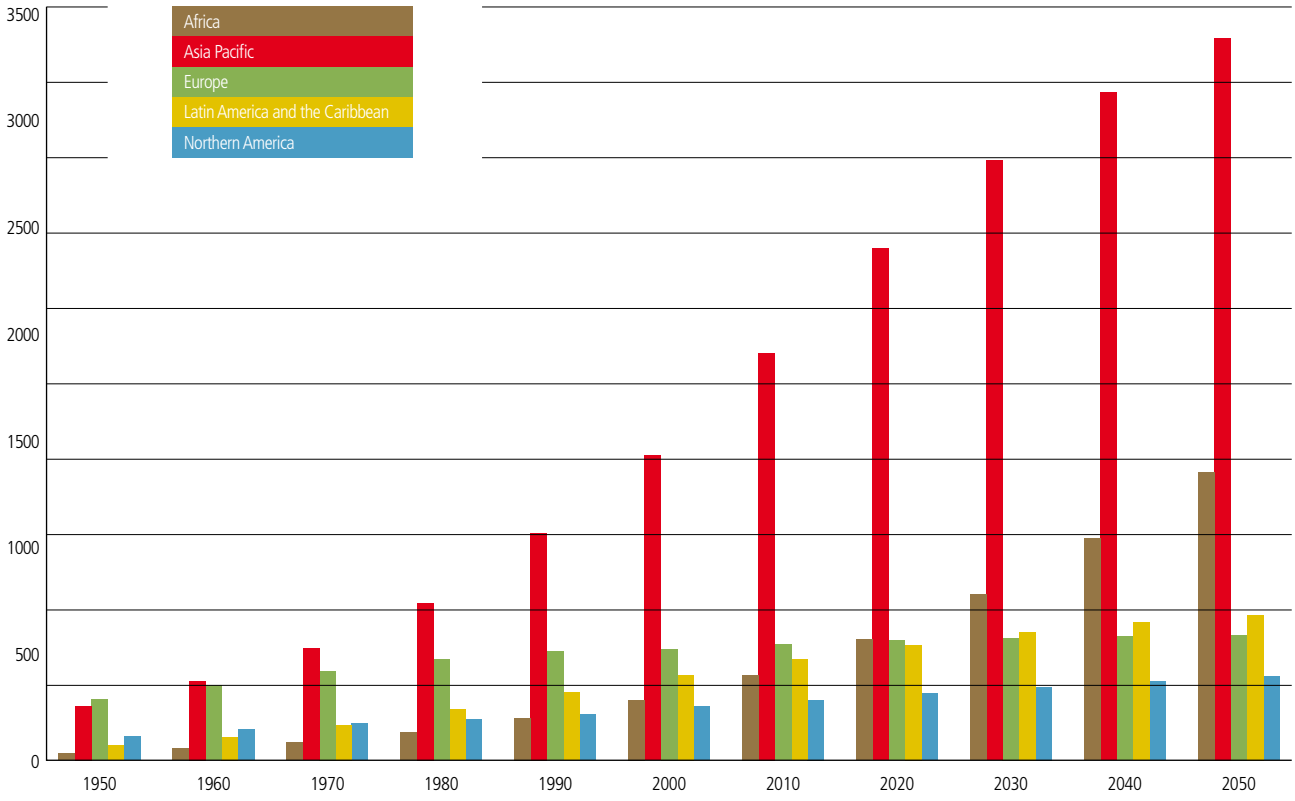
minimising the social and environmental costs. In so doing there is a manifest need to address institutional arrangements and financing mechanisms – which are proving inadequate in the face of rapid change. These are critical local, national, and regional concerns but, given the significance of the regions urbanisation for the world, they also have global implications. Indeed, the world's sustainable development prospects increasingly depend on how Asian and Pacific cities are managed.

This report seeks to address such challenges that must become the key priorities for cities and governments in the changing urban landscapes of Asia and the Pacific. Below, the key findings of the report are presented. They highlight and reflect the main focus of the chapters, and think pieces, to which readers are encouraged to refer.

Population and urbanisation

- The speed and scope of urbanisation in Asia and the Pacific is unprecedented. Between 1980 and 2010, the region's cities grew by around one billion people. United Nations projections show they will add another one billion by 2040.
- All Asia and Pacific sub-regions are experiencing urban growth at higher rates than overall population growth. While the region as a whole does not yet have the high urbanisation levels of North America (81.5 percent), Latin America and the Caribbean (79.5 percent) or Europe (73.4 percent), by 2018 half of the Asia and Pacific population will be living in the region's towns and cities. By 2050, urban areas will account for nearly two out of three people. Without doubt, the region faces an urban future for which it must prepare.
- The development prospects of the region will increasingly depend on how its cities are managed. Policymakers therefore need to close existing and emerging gaps between the unfolding patterns of urbanisation and what needs to be done to bring about sustainable and inclusive urbanisation. Beyond demographic drivers, this implies an urgent need to address gaps between quantity and quality of growth.
- Asia and the Pacific's sheer size and diversity make it an enormous challenge to capture and describe the region. National urbanisation levels, for instance, range from 100 percent in Singapore to 13, 18.2 and 18.3 percent in Papua New Guinea, Nepal and Sri Lanka respectively.

Graph 0.2 **Urban Population at Mid-Year, 1950-2050 (thousands)**



Source: World Urbanisation Prospects: The 2014 revision, File F03

- Urbanisation trends in China and India are having a major impact on regional demographic storylines - between 2000 and 2010 for example, China's urban population grew at 3.8 percent annually and India's at 2.6 percent. But growth rates only tell part of the story - the absolute growth in urban population numbers overall is staggering. The United Nations projects that, by 2050, the number of people living in cities in China and India alone will grow by 696 million (India 404 million; China 292 million).

- Cities are no longer bounded entities. Through their geographic expansion, it is increasingly necessary to look not only at the municipal area but also at the wider urban agglomeration, irrespective of administrative boundaries. As urban populations grow, urban areas are expanding beyond their borders through both formal and informal means, often absorbing smaller settlements in their growth path.

- Megacities (cities exceeding 10 million inhabitants), once exceptional, are now increasingly commonplace. Today, the Asia-Pacific region is home to 17 megacities, three of them the world's largest - Tokyo, Delhi and Shanghai. It is projected that, by 2030, the region will have no less than 22 megacities. Moreover, megacities are now giving way to the emergence of mega-urban regions that encompass cities, towns, villages and rural areas, some of which even cross national boundaries in the form of planned or unplanned urban corridors.

- It is extremely difficult to holistically manage such regional cities, mega-urban regions and their impacts, as they are often divided administratively while their problems transcend administrative boundaries. New multi-level and collaborative governance systems are required to better manage these emerging behemoths. In some cases, greater benefit may come from a functional or territorial rather than administrative definition of urban areas.

- Contrary to common perception, only a little over 10 percent of the Asia and Pacific region's urban population actually lives in megacities. The region's urban population is predominantly found in medium-sized and small cities, and it is in these cities where the region's urban transition is largely unfolding. This is a critical trend and dynamic in the region.

Yet, despite their growth and increasing significance, most secondary and smaller cities face the future in the absence of necessary human, financial, and organisational resources.

- Smaller cities are often outliers of globalisation and international trade, and are less able to capture the benefits. Without an adequate fiscal base, they struggle to provide services like water, sanitation and adequate transport. Whether and how these cities address such challenges, will largely determine the conditions of the region's urban future. It will also determine whether lower-carbon, more sustainable, resilient, successful and inclusive cities will be realised.

- Asia and the Pacific has no single urban storyline. While many of its cities are growing, other urban areas are experiencing growth stagnation or even population decline. There are different causes for this phenomenon, including ageing populations, deindustrialisation, loss of traditional forms of employment, and suburbanisation. 'Shrinking cities', evident in the greatly varying contexts of both 'developing Central Asia' and the OECD countries of East Asia, challenge urban planners and policy makers to look to new models for economic and social sustainability that do not rely on city growth and economic expansion.

- Much of the region's urbanisation is no longer determined by migration, or by any other single clear factor. After driving high rates of urban growth in previous decades, migration now accounts for roughly 20 to 30 percent of urban growth in the region, with natural population increase and reclassification accounting for a roughly equal share. While some governments have sought in the past to curb rural to urban migration, recent years have begun to see relaxation of population movement controls or even promotion of migration. This reflects a greater association of urbanisation and economic development prospects.

- Effective policies for spatial management, economic growth, poverty reduction and environmental protection require accurate and relevant, up-to-date and real-time data on urban trends and conditions. But urban data collection and reporting have not kept up with the needs of most countries of the region. Where it does exist – specifically in the case of globally connected cities – data is rarely designed for urban policy use. This 'data deficit' is affecting informed decision making and the planning of urban development. In the midst of its urban transformation, the region faces a serious data deficit affecting its ability to respond to complex social and economic change. The region is in need of an 'urban data revolution'.

Urban economies

- Asian and Pacific cities are now the pre-dominant hubs of economic growth and wealth creation. Their economic successes and transformations have lifted millions of people out of poverty. Recognising this, governments have explicitly linked their future urbanisation to national development strategies and economic prospects. An increasing number of cities now outwardly aspire to the goal of becoming 'world class' or 'globally competitive' and have larger GDPs than many national economies in Asia and the Pacific.

- However, in most cases this growth has been based on a competitive structure driven by export manufacturing, and underpinned by low-cost and low-wage production. It has thus come at significant cost – whether social, environmental or in terms of equity. Keeping production and labour costs low is not an effective development strategy in the long term.

- Transformation of the urban economy requires new partnerships spanning national and local government, as well as the private sector and civil society. It requires investments in education and skills while nurturing a culture of creativity. Such transformations will be essential if cities are to go beyond 'urban middle income traps', but the rewards will take generations to emerge and require long-term visions of change.

- Current economic models are not providing a basis for inclusive and sustainable development. Despite the economic success of its cities, a third of the urban residents in Asia and the Pacific are without access to adequate shelter, safe drinking water and sanitation, and clean energy.

- Economic growth in Asia and the Pacific has generated employment and created large middle classes during the past two decades, particularly in North and North-East and South-East Asia. The region has experienced a shift in employment, with the industry and services sectors growing significantly, but this has not provided opportunities for all. Women and youth face additional barriers to finding employment because of lower educational levels and in some cases traditional family norms. These two groups make up a disproportionate number of the urban under-employed and unemployed. Greater equity could be achieved with investments in education and training for improving the quality of human capital.

- Urban poverty and vulnerability continue to be underestimated. Urban income poverty cannot be understood solely based on national poverty lines because, unlike the rural poor who produce many of their own goods and food, the urban poor typically must pay cash for all basic items and have much higher housing and transport costs.

- Millions of people continue to work in the informal sector and depend upon informality for access to housing, land, infrastructure and services. Yet the major contributions of informal workers to the region's urban economies and their impacts on the very competitiveness of its cities are rarely reflected in pro-poor economic and social policies. Informal sector workers are much less likely to have pensions, social protection, physical (police) protection or other forms of support and rights. As cities in the region develop, they face a great demand for provision of adequate employment, sustainable livelihoods and managing the significant economic gaps and opportunities among urban populations.

- Many cities and towns have been bypassed by the benefits of globalisation, leading to inequality amongst urban areas in the region, notably disadvantaging small and regional towns and cities. Despite their growth and increasing significance, most secondary and smaller cities do not have the necessary human, financial, and organisational resources to connect into the global economy to take advantage of globalisation and international trade. More can be done through national urban policies and planning to create greater opportunity for regional and smaller towns and cities so that they too can benefit from the region's transformation.

Urban societies in transition

- Significant social changes are taking place in the region's cities. Urban societies are becoming more diverse and complex, with greater regional connectivity set to accelerate this process. Managing and benefiting from change and diversity will be both a key challenge and opportunity for local government. Those cities able to harness social transformation, in creating open, tolerant and inclusive societies, are more likely to benefit and progress.

- The region's rapidly growing middle classes have profound cultural, economic and political significance for its cities, and will undoubtedly transform the urban social fabric. Their expectations and changing consumption and mobility patterns will place extraordinary demands on policymakers, but can also bring opportunity. As incomes rise, the middle classes are demanding higher quality services, cleaner environments, greater opportunities for homeownership, mobility and material comfort. As they often turn to the private sector to satisfy these needs, opportunities for broader economies will emerge. However, this may lead to a fragmentation of access and fewer resources for local governments through declining taxation and user charges.

- The rise of the Asian and Pacific middle classes is not an all-inclusive process. Those defined as 'middle class' in the region's cities range in income from USD 2 to USD 20 a day. The region remains characterised by high levels of inequality and poverty. It is often difficult for the urban poor and minority groups to gain access to affordable or adequate housing and services.

- While for the most part, the region's cities are safe places in which to live, widening disparities may undermine social cohesion and consensus. Balancing competing demands and interests, and levelling out disparities, will require significant attention to (and investment in) social policy.

- As long as the urban poor and their assets are not formally recognised, they are deprived of the rights of urban citizenship, secure land tenure and access to basic services. This is despite their often significant contributions to urban social and economic life. Migrants without papers are often denied access to services, secure tenure and housing. Their children may be denied health care and school enrolment. These problems are likely much greater for those who migrate in quest of work across national boundaries, and who lack the required documentation.

- There is an urgent need across the region to promote more balanced models of growth whereby the population at large, including the poor, benefit from, rather than suffer under, the efforts to encourage and invest in urban development. At present, too many people are living in cities without access to decent shelter, secure tenure, affordable health care or emerging social protection systems. In many cases these gaps intersect, especially for those most vulnerable. For a prosperous and inclusive urban future, policymakers must urgently close social divides through a renewed urban social policy agenda.

- Increasing attention must also be paid to demographic ageing and the needs of older people in urban development policy. The economic pressures of urban life make it difficult for families to meet their traditional obligations of caring for the elderly, while State provision

is still very limited in most countries of the region. In many cases, changing family structures and gender roles are seeing a decline in traditional support structures and government will be expected to play a much greater role. Likewise, greater attention will also need to be paid to those living with disabilities so that they too can become or remain active and independent and participate in and contribute to future urban society and the economy.

The urban environment and climate change

- The region's cities face immense environmental challenges. Some of these challenges are newly emerging (e.g. climate change), while others are persistent (e.g. sanitation and water). A number of cities in the region are struggling with these challenges simultaneously. There is a need to mobilise resources and the political will to expand access to environmental services, to abate water, soil and air pollution and to reduce greenhouse gas emissions and adapt to the impacts of climate change.

- While many cities have developed through an exploitation model with regard to their environmental capital, this model is no longer sustainable or without costs. Across much of the region, urban environments are heavily degraded, leaving them highly vulnerable and facing significant clean-up costs. The region must develop new and sustainable urban models if it is to remain competitive and manage its transition to an urban-based future.

- There are still millions of people in the region who lack access to basic services, notably water and sanitation. Although over 90 percent of the urban population in the region now have access to improved sources of water, there is not a significant quantity of clean water for many urban poor communities, and access to water remains highly unequal.

- Progress with sanitation has been much slower - despite the targets of the Millennium Development Goals. Less than 75 percent of the urban population in many Asian and Pacific countries has access to improved sanitation. The urban water and sanitation crisis is compounded as a result of unequal distribution, poor resource management, and a limited institutional impact on behavioural changes in use. Women and girls are especially vulnerable in the absence of adequate and safe sanitation facilities.

- As incomes rise, and consumption and production patterns change, the region's cities also face a waste crisis. While traditional waste management practices threaten to overwhelm public resources (including land), a number of cities in Asia and the Pacific are demonstrating waste-to-resource and waste-to-energy initiatives. As 'end of pipe' solutions will no longer be tenable in future, much greater commitment is needed to manage solid waste and wastewater, valuing waste as a resource.

- An increasing number of cities are facing crises of liveability, characterised by congestion and declining air quality. Air pollution is a serious problem in cities as diverse and different in economic composition as Bangkok, Beijing, Delhi, Kathmandu and Ulaanbaatar. Future development of low-carbon cities based on alternative non-polluting energy resources should be a priority concern.

- Coastal cities in the region are extremely vulnerable to the impact of climate change - in particular sea-level rise and stronger storms and storm surges - putting fast-growing and globally-connected cities in harm's way. Inland cities and land-locked developing countries across parts of Central and South Asia are facing increased heat and drought periods. This will undoubtedly increase energy costs related to cooling and the costs of water distribution. Recent regional experiences of earthquakes and tsunamis have shown just how serious the vulnerabilities are. Pacific island cities, particularly vulnerable to sea level rises, experience a variety of problems because the majority of the countries in the region lack financial resources and physical options to respond effectively.

- Many local governments do not have the human and financial resources to expand environmental infrastructure and services, or to enforce regulations. A dilemma for local governments is that highly diverse environmental challenges cannot be resolved in isolation from one another because they are closely related. Sustainable, long-term development of urban areas requires integrated planning and management, across both administrative and physical boundaries, which is often lacking.

- Water, energy and food security are closely interconnected, providing an opportunity for a 'policy nexus' that integrates urban planning and resource management within and across urban boundaries or jurisdictions. Resource-efficient approaches and practices can ensure that natural commodities are conserved and consumed prudently. Integration of resource planning and management - a 'policy nexus' - requires the active involvement of all actors and stakeholders at local and regional levels, but there is often a lack of institutional capacity and coordination for planning and management in local and regional governments.

Urban governance

- Asian and Pacific cities are still grappling with how best to manage their rapid growth and economic transformation, their increasing social complexity and fragmentation, and their environmental impacts. The absence of effective management of cities and urbanisation in the region exists largely because of the vacuum created by less, rather than more, government intervention. This certainly does not mean governments should try to do everything. Rather, governments should play an active, pro-active and strategic role in orchestrating urban development to achieve social, environmental and economic sustainability. This role can neither be performed by the private sector nor by civil society.

- There are essential changes needed in the way cities are managed and planned, inclusive of finance. The urban prospects and future challenges demand paradigm shifts in urban planning and management inclusive of all spheres of government and engaging all stakeholders - notably civil society and the private sector.

- Urban governance occurs in an arena of multiple stakeholders, interdependent actions, shared purposes and increasingly blurred boundaries between the public and private, formal and informal and state and civil society sectors. Local government is a key actor as it has unique opportunities to harness citizens, educational institutions, government, non-governmental organisations and the private sector.

- In addressing the needs of urban development, it is essential that new forms of collaborative governance emerge. Many Asian and Pacific cities are managed using outdated legal and regulatory frameworks and institutional arrangements. These are inadequate to deal with current, let alone future challenges.

- Achieving more transparency in public decision-making and establishing institutional accountability should be essential objectives. Strengthening and reforming governmental urban planning through national-level support is critical to creating more responsive and effective local institutions.

- More coherent national guidance and policies are required to ensure the effective management of local government capacity building. Decentralisation has been implemented to varying degrees throughout the region, but there is a growing need for local government to strengthen their income flows. The power-sharing gap between local and central government needs to be addressed too, as do financing gaps in local government budgets and investment, and the capacity gaps of local governments in promoting sustainable urban planning.

- Current revenue sources of local government are woefully insufficient to meet the long-term financing needs of infrastructure and other capital investments. Local budgets are inadequate to finance basic revenue expenditure, including adequate maintenance of existing infrastructure. Many small and medium-sized towns across all countries in the region continue to depend on transfer of funds from higher levels of government for capital as well as revenue expenditure. Often, these funds are not assured and lead to chronic shortages of services and skilled staff, besides complicating budget planning processes.

- Following the subsidiarity principle of decentralisation, property taxes can be a most powerful source of local revenue; however, evidence from the region shows that property tax usually accounts for only about 20 percent of local government revenues because very few local governments are able to collect the full property tax owed to them. Cities which have streamlined property tax assessment and collection have been able to significantly improve their revenues.

In addressing the needs of urban development it is essential that new forms of collaborative governance emerge. Many Asian and Pacific cities are managed using outdated legal and regulatory frameworks and institutional arrangements

- Whatever the method of improvement, governments in the Asia-Pacific must learn how to balance decentralisation policies. They must also continue to improve local financing sources to ensure that cities can initiate sustainable, inclusive development in the short and longer term.

- Throughout the region there is need for a return to stronger roles for public sector intervention and regulation including urban planning. Governments at all levels must recapture their primary responsibility of providing good governance for all.

Chapter 1.
Population and Urbanisation

Quick facts and policy points:

- Between 1980 and 2010, the region's cities grew by around one billion people and will grow by another one billion up to 2040. Half of the region's population will be urban by 2018. Rural areas are entering a period of overall population decline.
- By 2050, cities in China and India alone will have grown by an additional 696 million – India by 404 million and China by 292 million.
- The region is now home to 17 megacities, including the world's three largest: Tokyo, Delhi and Shanghai. By 2030, the region may have 22 megacities.
- Megacities also start to give way to huge mega-urban regions that encompass cities, towns, villages and rural areas, with some even crossing national boundaries in the form of planned or unplanned urban corridors.
- Mega-urban regions are often administratively divided and their problems transcend these administrative boundaries. Managing their impacts requires new, multi-level and collaborative governance modalities.
- Megacities only accommodate a little over 10 percent of the region's urban dwellers and 7 percent of its total population. The bulk of urban dwellers live in small- and medium-size cities where much of the region's urban transition is actually unfolding. Yet, despite their increasing significance, most small cities face their future with limited human, financial, and organisational resources.
- While many cities are growing, others are experiencing growth stagnation or even population decline. The causes are varied: from ageing populations to loss of employment and deindustrialisation.
- Shrinking cities challenge urban planners and policymakers to look for new models of economic and social sustainability that are not reliant on city growth and economic expansion.
- The region lacks accurate data for effective spatial, economic, environmental and poverty reduction policies. Nothing less than an 'urban data revolution' is needed.

The region is undergoing a profound urban transformation


TESCO
Lotus

Chapter 1.
Population and Urbanisation

Data source: World Urbanisation Prospects: The 2014 revision

1.1 Urban Transformation

The Asia and Pacific region's urban transformation is best understood in the context of its overall regional and sub-regional demographic patterns and transitions. In 2014, the Asia and Pacific region had a population of 4.3 billion, which represented 60 percent of the world's total. While population growth in the region is often still described by some as a 'demographic explosion', its growth rate (1.0 percent in 2015) was actually lower than the global population growth rate (1.2 percent) and it has been decelerating for some time: from 1.4 percent during 1990-2000 to 1.2 percent during 2000-2010. Yet, in absolute terms the region's population growth remains highly significant with 676 million people added between 2000 and 2015 alone (WUP 2014).

But the Asia and Pacific region is both large and diverse, with region-wide trends hiding very clear sub-regional differences. The 2000-2015 population growth rate of North and Central Asia was the lowest in the region (0.2 percent), mainly due to low crude birth rates relative to crude death rates. In the case of Central Asia, and in some Pacific Islands, high rates of emigration also contribute to lower sub-regional population growth.

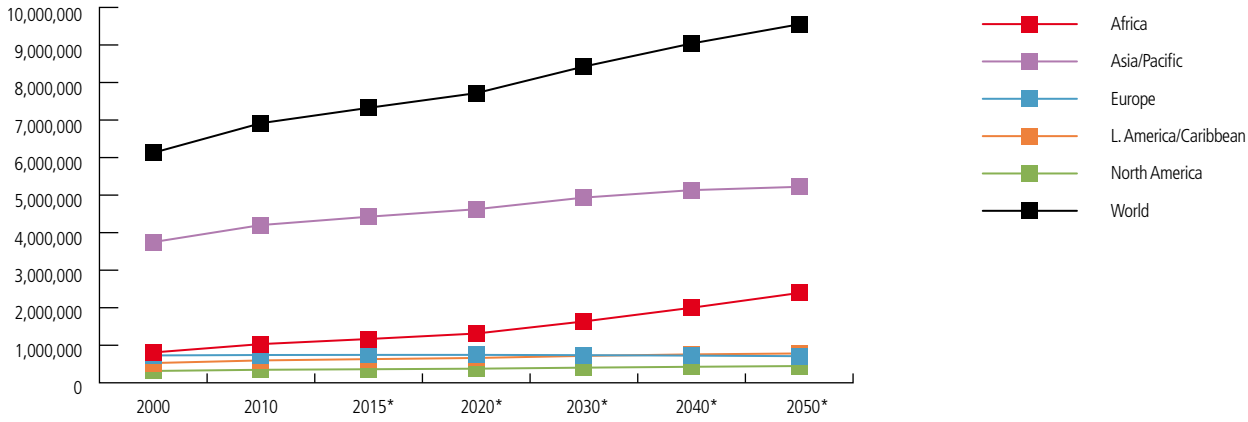
In the South-East Asia sub-region, the population grew at an average rate of 1.3 percent, but rates varied significantly from country to country, with Thailand's growth rate at only 0.5 percent compared to Singapore's 2.5 percent - the latter largely the outcome of immigration.

South and South-West Asia had a growth rate of 1.4 percent, but Afghanistan's rate (3 percent) was significantly above the sub-regional average and amongst the highest in the entire Asia and Pacific region.

The Pacific had the highest average sub-regional growth rate (1.6 percent). Several Melanesian countries, (such as Vanuatu at 2.4 percent) had a higher growth rate still but Pacific Island populations are relatively small, with only Papua New Guinea's population exceeding one million. High Pacific growth rates are locally pronounced but have limited impact on absolute numbers.

In the context of general demographic change, it is clear that urban areas are quantifiably re-shaping

Graph 1.1 **Absolute total population numbers, by region, 2000-2050 (thousands)**



*Projection
Source: World Urbanisation Prospects: The 2014 revision.

the region. In 2014, the Asia and Pacific region's *level* (47.7 percent) and *rate* (2.3 percent) of urbanisation were close to the global averages (53.6 percent and 2.0 percent, respectively). Between 2000 and 2010, the Asia and Pacific region's urban population grew much faster (at an average annual rate of 2.7 percent) than both its total population (1.0 percent) and global urban population (2.2 percent). This was because of the impact of urbanisation trends in China and India on regional and sub-regional trends. Between 2000 and 2010, China's urban population grew at 3.8 percent annually and India's at 2.6 percent (ESCAP, 2013: 17).

But what makes this region's urbanisation truly remarkable is the huge number of people involved. In 2015, 2.38 billion people lived in urban areas, representing 60.1 percent of the world's urban population. The urban population of the region more than doubled between 1950 and 1975, and doubled again between 1975 and 2000. It is projected to almost double once more between 2000 and 2025 (Table 1.1). In absolute terms, the current quarter century (2000-2025) is projected to add an estimated 1.1 billion people to the region's urban areas.

In Asia and the Pacific, the relationship between the level of urbanisation and the level of domestic economic development indicates a strong correlation, although the causal link between the two is not clear-cut. Low-income economies in the region had an average urbanisation level of 30.2 percent in 2012, while the levels for lower-middle-income and upper-middle-income economies were 35.5 and 54.0 percent, respectively. At 90.0 percent, high-income economies were the most urbanised (ESCAP, 2013: 17). Although least-developed economies tend to have low urbanisation levels, they also are likely to have high urbanisation rates (Table 1.3). This poses major challenges for the cities of those countries, as they often lack the institutional capacity and financial resources to expand housing and infrastructure delivery in support of their rapid urbanisation.

Box 1.1 **Urbanisation defined**

Urbanisation can be defined in a number of ways. From a demographic perspective, urbanisation is the proportion of the population that lives in areas defined as 'urban'. In preparing estimates and projections of the urban population, the United Nations relies on data produced by national sources based on the definitions and criteria established by the respective national authorities. It has long been recognised that, given the range of circumstance across countries, it is neither possible nor perhaps desirable to adopt uniform criteria to distinguish between urban and rural areas (UNPD, 2012). However, there are attempts, led by the European Commission, in cooperation with the OECD and the World Bank, to provide something closer to a universal definition, and it is possible that, at the Habitat III Conference in 2016, this definition may be globally adopted.

There is often confusion between the level and rate of urbanisation. Within nationally determined definitions of 'urban', the urbanisation level is the share of a country's urban population in its total population, expressed as a percentage. The rate of urbanisation is the change in the level of urbanisation, usually expressed as an average annual percentage over a particular period.

Table 1.1 **Urban population, mid-year, 1950-2025 (thousands)**

Sub-region	1950	1975	2000	2025
East and North-East Asia	117,478	273,629	617,070	1,137,080
South-East Asia	26,066	74,039	199,681	370,921
South and South-West Asia	84,212	194,186	461,584	853,263
North and Central Asia	54,207	112,692	139,178	144,665
Pacific	7,906	15,450	22,013	31,791
Total Asia-Pacific	**289,868**	**669,995**	**1,439,528**	**2,537,720**

Source: World Urbanisation Prospects: The 2014 revision.

The Asia and Pacific region today is home to ten of the world's 15 largest cities. These are significantly sized megacities with enormous physical, demographic, intellectual and economic clout. They are great powerhouses in their respective countries. Asia's three largest megacities - the largest in the world - are Tokyo, Delhi and Shanghai. India and China lead the way for being home to many of the world's biggest and fastest growing cities, as the tables on the following pages show.

There are reasons why these giant urban agglomerations and the huge urban corridors linking many of them grow or diminish. They are ever changing and it is this change and how we manage it that is arguably the biggest challenge facing the Asia-Pacific region's governments and cities at the start of the 21st century.

Urban agglomerations projections show how the world's urban landscape, especially in Asia and the Pacific, is likely to change. The sustainable urbanisation challenge is daunting in a world where in the next 30 to 35 years, United Nations projections show that up to 70 percent of humanity will be living in towns and cities. It makes more difficult the quest for cities without slums, cities which are people-friendly, inclusive, with safer streets and public spaces. It also makes more challenging aspirations for better planned towns and cities.

The Asia-Pacific region has no single urban storyline: while some cities are growing rapidly, others are stagnant or even slowing down. Many of the fastest-growing cities in the region (Table 1.6) are still quite unknown outside their national borders and their rapid growth can be as much a result of administrative or political decisions as of actual population growth. Can Tho, Viet Nam, for example, was previously a small town of 300,000 inhabitants. In 2004, it was reclassified as a 'provincial-level municipality' and administratively absorbed the adjacent rural population. As a result, its population grew to almost one million. Likewise Nay Pyi Taw, the new capital of Myanmar, which comprises five new towns and incorporated three existing towns, now has a population exceeding one million.

Some cities are benefitting from locational advantage, specifically economic development and livelihood opportunities offered in a neighbouring or nearby municipality, and have grown from investments

Table 1.2 **Urban population growth by sub-region, 2000-2014 (thousands, percent)**

Sub-region and global	2000	2005	2010	2014	Annual change 2000-05 (%)	Annual change 2005-10 (%)
East and North-East Asia	617,070	731,136	848,539	942,356	3.5	3.0
South-East Asia	199,681	231,789	265,801	294,409	3.0	2.8
South and South-West Asia	461,584	529,567	601,619	664,417	2.8	2.6
North and Central Asia	139,178	138,114	139,840	141,047	-0.2	0.2
Pacific	22,013	23,711	25,924	27,473	1.5	1.8
Total Asia and Pacific	1,439,528	1,654,317	1,881,721	2,069,702	2.8	2.6
Total World	**2,856,131**	**3,119,013**	**3,571,272**	**3,880,128**	**2.3**	**2.2**

Source: World Urbanisation Prospects: The 2014 revision.

Table 1.3 **Urbanisation levels and rates of selected countries and territories, 2014 (percent)**

Most urbanised		Least urbanised		Highest urbanisation rate (Average annual change of the percentage urban, 2010-2015)	
Country/region/territory	**Urbanisation level**	**Country/region/territory**	**Urbanisation level**	**Country/region/territory**	**Urbanisation rate**
China, Hong Kong SAR	100.0	Papua New Guinea	13.0	Lao PDR*	3.1
China, Macao SAR	100.0	Nepal*	18.2	Thailand	2.7
Singapore	100.0	Sri Lanka	18.3	Maldives	2.6
Nauru	100.0	Samoa	19.3	China	2.4
Guam	94.4	Cambodia*	20.5	Bangladesh*	2.4
Japan	93.0	Solomon Islands*	21.9	Solomon Islands*	2.2
Australia	89.3	Micronesia (Fed. States of)	22.4	Bhutan*	2.1
Northern Mariana Islands	89.3	Tonga	23.6	Timor-Leste*	2.1
American Samoa	87.3	Vanuatu*	25.8	Nepal*	2.0
Palau	86.5	Afghanistan*	26.3	Viet Nam	2.0
New Zealand	86.3	Tajikistan	26.7	Niue	1.9
Republic of Korea	82.4	Timor-Leste*	32.1	Myanmar*	1.7
Brunei Darussalam	76.9	India	32.4	Afghanistan*	1.6

* Least developed country
Source: World Urbanisation Prospects: The 2014 revision.

Can Tho, Viet Nam has grown to one million inhabitants after reclassification as a provincial-level municipality © Donovan Storey

Table 1.4 **World's largest urban agglomerations, 2014 (thousands)**

Rank	Agglomeration	Country	2014 Population
1	Tokyo	Japan	37,833
2	Delhi	India	24,953
3	Shanghai	China	22,991
4	Mexico City	Mexico	20,843
5	Sao Paulo	Brazil	20,831
6	Mumbai	India	20,741
7	Kinki (Osaka)	Japan	20,123
8	Beijing	China	19,520
9	New York-Newark	United States	18,591
10	Cairo	Egypt	18,419
11	Dhaka	Bangladesh	16,982
12	Karachi	Pakistan	16,126
13	Buenos Aires	Argentina	15,024
14	Kolkata	India	14,766
15	Istanbul	Turkey	13,954
16	Chongqing	China	12,916
17	Rio de Janeiro	Brazil	12,825
18	Metro Manila	Philippines	12,764
19	Lagos	Nigeria	12,614
20	Los Angeles	United States	12,308
21	Moscow	Russian Federation	12,063
22	Guangzhou, Guangdong	China	11,843
23	Kinshasa	D.R.Congo	11,116
24	Tianjin	China	10,860
25	Paris	France	10,764
26	Shenzhen	China	10,680
27	London	United Kingdom	10,189
28	Jakarta	Indonesia	10,176

Source: World Urbanisation Prospects The 2014 revision, Highlights, UNDESA 2014

in and population overspill from that city. This has been, for instance, the case with Samut Prakan, near Bangkok, and Yongin, adjacent to Seoul.

Economic growth has been a driver of urban population growth for other cities. The populations of Jiangmen, Dongguan and Zhongshan, three cities in the Pearl River Delta, and Batam in the Singapore-Johor-Riau Growth Triangle, grew rapidly due to foreign direct investment and industrialisation-driven migration. Haikou, the capital of Hainan, the smallest and southernmost province of the People's Republic of China, grew rapidly after it became an important free-trade zone. Denpasar, the capital of Bali, saw rapid growth after the island became a major tourism destination.

Despite the many and varied reasons for rapid urban growth, all growing cities face similar challenges of having to quickly adjust and develop solutions to rising housing, transportation and basic services demand. Fast urban expansion, which typically occurs as a result of both formal and informal sector forces, continues to shape urban growth throughout the region and is likely to do so for decades to come.

Cities with high absolute growth

Some cities may not have a high rate of growth, but their growth is still very significant in absolute terms (Table 1.7). This is an increasingly evident trend, especially in the region's megacities. Between 2000 and 2014, Beijing, for instance, added almost 9.4 million people

Despite the many and varied reasons for rapid urban growth, all growing cities face similar challenges of having to quickly adjust and develop solutions to rising housing, transportation and basic service demands

to its population and Delhi 9.2 million. The ten cities with the largest population growth in absolute terms saw a combined population expansion of 63.7 million between 2000 and 2014. Five of these cities were in China, three in India and one each in Bangladesh and Pakistan. Shenzhen has undergone truly phenomenal growth over the past three decades. It was a small town of around 30,000 when it was selected as China's first Special Economic Zone in 1980. It now has a population exceeding 10 million. Reclassification – discussed below – is often a major factor in population growth, reflecting the increasing number of people in peri-urban zones, added to the urban population counts.

Shrinking cities

Despite the overall growth rate of cities in the region, some are not growing at all or are actually experiencing population declines. Worldwide, such shrinking cities are more common in developed than in developing economies and this also applies to Asia and the Pacific. Several factors are driving such urban population decreases: demographic ageing; the departure of young people to cities with better employment opportunities; loss of employment due to the collapse of industries or their relocation to lower-cost places; sub-urbanisation in areas with better living conditions and cheaper housing; or shifting national

Table 1.5 **Asia and Pacific largest urban agglomerations, 1990, 2014 and 2030 (thousands)**

Rank			Agglomeration	Country	1990	2014	2030 projection
1990	2014	2030					
1	1	1	Tokyo	Japan	32,530	37,833	37,190
6	2	2	Delhi	India	9,726	24,953	36,060
11	3	3	Shanghai	China	7,823	22,991	30,751
3	4	4	Mumbai	India	12,436	20,741	27,797
2	5	8	Kinki (Osaka)	Japan	18,389	20,123	19,976
13	6	5	Beijing	China	6,788	19,520	27,706
14	7	6	Dhaka	Bangladesh	6,621	16,982	27,374
12	8	7	Karachi	Pakistan	7,147	16,126	24,838
4	9	9	Kolkata	India	10,890	14,766	19,092
15	10	13	Istanbul	Turkey	6,552	13,954	16,694
22	11	11	Chongqing	China	4,011	12,916	17,380
10	12	12	Metro Manila	Philippines	7,973	12,764	16,756
7	13	22	Moscow	Russian Federation	8,987	12,063	12,200
24	14	10	Guangzhou, Guangdong	China	3,072	11,843	17,574
19	15	15	Tianjin	China	4,558	10,860	14,655
25	16	20	Shenzhen	China	875	10,680	12,673
9	17	17	Jakarta	Indonesia	8,175	10,176	13,812
5	18	24	Seoul	Republic of Korea	10,518	9,775	9,960
21	19	14	Bangalore	India	4,036	9,718	14,762
18	20	16	Chennai	India	5,338	9,620	13,921
8	21	25	Chukyo (Nagoya)	Japan	8,407	9,373	9,304
17	22	21	Bangkok	Thailand	5,888	9,098	11,528
20	23	19	Hyderabad	India	4,193	8,670	12,774
23	24	18	Lahore	Pakistan	3,970	8,500	13,033
16	25	23	Tehran	Iran	6,365	8,353	9,990

Note: Megacities are marked with shading.
Source: World Urbanisation Prospects: The 2014 revision, file 22.

Box 1.2 **Urban population decline in Central Asia**

In the former Union of Soviet Socialist Republics (USSR) a number of new cities were created to meet the needs of the national economy. Most of these new cities' economies were mono-sectoral, dominated by one or two economic sectors (typically agrarian or extractive enterprises). They attracted people from across the country to live in these new towns.

When the USSR began its political and economic transition in the early-1990s, resulting in the independence of countries in the Central Asian region, global competition rendered many industries obsolete. The links between these cities and their previously captive markets within the USSR collapsed and many urban economies declined sharply. The commensurate political and economic changes led to the departure of many ethnic Germans, Russians and Ukrainians from the Central Asian nations. In the first half of the 1990s, for instance, over three million people emigrated from Kazakhstan (more than 20 percent of the population); close to eleven percent left Tajikistan; about four percent left Uzbekistan and seven percent left Kyrgyzstan, mostly from these countries' urban areas. Since then, some urban economies have recovered and the population has stabilised. In some cases, growth is now recurring again, but the need to diversify urban economies is a clearly understood lesson from the past (CER, 2013: 17-20; Becker et al, 2012: 55-57). (For more in-depth description of these phenomena, see *The State of European Cities in Transition 2013,* www.unhabitat.org/pmss/.)

Table 1.6 **Fastest growing urban agglomerations, 2000 and 2014 (thousands, percent)**

Urban agglomeration	Country	Population (thousands)		Change 2000-2014	
		2000	2014	Absolute	Percent
Nay Pyi Taw	Myanmar	0	1,015.7	1,015.7	∞
Miluo	China	109.1	470.9	361.8	331.7
Samut Prakan	Thailand	388.6	1,652.1	1,263.5	325.1
Hosur	India	80.5	320.4	239.8	297.8
Roorkee	India	113.1	365.3	252.2	223.1
Begusarai	India	105.5	333.6	228.1	216.2
Batam	Indonesia	415	1,285.3	870.3	209.7
Bazhong	China	212.2	631.7	419.5	197.7
Xiamen	China	1,416.5	4,124	2,707.5	191.1
Rayong	Thailand	108.7	310.9	202.1	185.9
Liuyang	China	272.4	765.2	492.8	180.9
Agartala	India	187	512.8	325.8	174.2
Erduosi	China	210.1	570	360	171.4
Santipur	India	136.1	369.1	233	171.2
Yichun, Jiangxi	China	221.6	600.9	379.2	171.1
Yongin	Republic of Korea	375.5	1,004.5	629	167.5
Shizuoka-Hamamatsu M.M.A*.	Japan	1,216.8	3,239.3	2,022.5	166.2
Ranipet	India	126.1	334.2	208	164.9
Malard	Islamic Republic of Iran	125.7	331	205.4	163.4
Yinchuan	China	570.8	1,495.7	924.9	162.0

Source: World Urbanisation Prospects: The 2014 revision.
*MMA: Major Metropolitan Area. The cities Shizuoka and Hamamatsu combined for the 2010 census.

economic policy and investment priorities. Urban population decline has been evident in the case of several Central Asian nations (see Box 1.2 on urban population decline).

The Russian Federation and the Republic of Korea are among the nations that have cities with significantly shrinking populations (Table 1.8), although the drivers are quite different. The population of some Russian cities has been contracting since the early-1990s due to high crude death rates, low crude birth rates and emigration. Emigration, however, is likely to be a one-off phenomenon with departure after the collapse of the former USSR.

For some time, Seoul Municipality has been losing population to adjacent cities in the Gyeonggi province and Incheon: 900,000 during the 1990s and 200,000 during the 2000s (Cox, 2011a). This contrasts with the Seoul Metropolitan Area, which is attracting migrants from around the country, which may explain the population decline in Busan (the Republic of Korea's second-largest city and its largest port) and Daegu (the fourth-largest city). An important factor in this may be that the populations of these two cities are ageing and because, in the Republic of Korea, the elderly tend to remain in or move to rural areas and younger people to the Seoul Metropolitan Area.

1.2 Drivers and Components of Urbanisation

Many policymakers consider rapid urbanisation problematic and also express concern about population losses in rural areas despite relatively low economic opportunities in agriculture. However, rural-urban migration is only one of three components of urbanisation and is diminishing in importance. The two other factors driving urbanisation are natural growth and reclassification of rural into urban areas (also referred to as 'in-situ' urbanisation). The contribution of the latter two varies across time and place and according to unfolding changes in traditional norms and values. A better understanding of each of these components' contribution to urbanisation is critical for

Between 2000 and 2014, Delhi added 9.2 million people to its population © Ritu Jethani

Box 1.3 **Components of urban growth**

In a global sample of developing countries, about 60 percent of urban growth could be attributed to natural population growth (that is, urban births exceeding urban deaths). The remaining 40 percent was due to rural-urban migration and reclassification (Montgomery, 2008: 763). The share of these three drivers in overall city growth has been shown to fluctuate markedly over time in the cities studied.

In India, natural population growth was the main contributor (50-60 percent) to urban population growth over the period 1961-2001, followed by rural-urban migration (around 20 percent) and reclassification (up to about 15 percent). But between 2001 and 2011, the respective contributions of these three drivers to city growth had changed considerably: only about 44 percent resulted from natural growth, 25 percent from migration, while reclassification accounted for nearly 30 percent (Kundu, 2011:16; Bhagat, 2011a: 11; Pradhan, 2012: 1, 6).

Rural-urban migration has been a key driver of population growth in Shanghai with nearly 10 million people added since 2000 © UN-Habitat

Table 1.7 **Urban agglomerations with the largest absolute population increase, 2000 and 2014 (thousands)**

Country	Urban agglomeration	2000	2014	Absolute change 2000-2014	Relative change 2000-2014 (percent)
China	Beijing	10,162	19,520	9,358	92.1
India	Delhi	15,732	24,953	9,221	58.6
China	Shanghai	13,959	22,991	9,032	64.7
Bangladesh	Dhaka	10,285	16,982	6,697	65.1
Pakistan	Karachi	10,032	16,126	6,094	60.7
Turkey	Istanbul	8,744	13,954	5,210	59.6
China	Chongqing	7,863	12,916	5,053	64.3
China	Guangzhou, Guangdong	7,330	11,843	4,513	61.6
India	Mumbai	16,367	20,741	4,374	26.7
China	Tianjin	6,670	10,860	4,190	62.8
India	Bangalore	5,567	9,718	4,151	74.6
China	Shenzhen	6,550	10,680	4,130	63.1
China	Dongguan	3,631	7,410	3,779	104.1
Japan	Tokyo	34,450	37,833	3,383	9.8
India	Chennai	6,353	9,620	3,267	51.4
India	Hyderabad	5,445	8,670	3,225	59.2
China	Foshan	3,832	6,989	3,157	82.4
China	Chengdu	4,222	7,289	3,067	72.6
Pakistan	Lahore	5,452	8,500	3,048	55.9
China	Suzhou, Jiangsu	2,112	5,156	3,044	144.1
China	Hangzhou	3,160	6,121	2,961	93.7
China	Nanjing, Jiangsu	4,279	7,127	2,848	66.6
Philippines	Metro Manila	9,962	12,764	2,802	28.1

Source: World Urbanisation Prospects: The 2014 revision.

Natural population growth being the main contributor to urban population growth is, perhaps, somewhat counter-intuitive because fertility rates in urban areas tend to be lower than in rural areas

the formulation of effective urban policies in the Asia-Pacific region.

Natural urban population growth

The concept of natural population growth being the main contributor to urban population growth is, perhaps, somewhat counter-intuitive because fertility rates in urban areas tend to be lower than in rural areas. Moreover, urban fertility rates decrease over time due to: a) greater access to family planning; b) better health care for children (which results in choices of fewer births); and c) the cost of urban living - particularly housing - which creates an economic disincentive for large families. Also, higher rates of education for girls - and the resultant new employment and career opportunities - have contributed to declines in marriage and fertility rates.

However, for many cities in the region, the urban population is generally young and, although urban couples may have fewer children, the urban share of childbearing-aged women is higher than the rural figure. Rural-urban migrants also tend to be younger, while reverse migrants (urban to rural) tend to be older than those staying in the cities. Whereas there is evidence of declines in urban fertility and mortality, time lag effects also ensure that high rates of natural population growth in many of the region's cities will continue for some time (Table 1.9).

Table 1.8 **Urban agglomerations with shrinking populations, 2000 and 2014 (thousands)**

Country	Urban Agglomeration	2000	2014	Change 2000-2014	
				Absolute	Percent
Republic of Korea	Busan	3,594	3,237	-358	-10
Bangladesh	Khulna	1,247	1 035	-212	-17
China	Yichun, Heilongjiang	815	655	-161	-20
Russian Federation	Nizhny Novgorod	1,331	1,224	-107	-8
Republic of Korea	Seoul	9,878	9,775	-103	-1
DPR Korea	Hamhung	666	581	-85	-13
Republic of Korea	Daegu	2,323	2,250	-73	-3
Japan	Sendai	2,184	2,113	-71	-3
Armenia	Yerevan	1,111	1,049	-63	-6
Russian Federation	Saratov	878	822	-57	-6
China	Fushun, Liaoning	1,358	1,304	-53	-4
Russian Federation	Nizhny Tagil	398	349	-49	-12
Russian Federation	Ivanovo	440	398	-42	-10
Republic of Korea	Changwon	1,077	1,042	-35	-3
Russian Federation	Yaroslavl	616	582	-35	-6
Japan	Nagasaki	353	319	-34	-10
Russian Federation	Ulyanovsk	633	605	-28	-4
Russian Federation	Perm	1,014	987	-27	-3
Russian Federation	Bryansk	435	409	-26	-6
Russian Federation	Orel	334	311	-24	-7

Source: World Urbanisation Prospects: The 2014 revision.

Migration-driven urbanisation

Rural-urban migration, on average, now constitutes some 20-30 percent of urban population growth in the region, but its exact contribution is difficult to measure as migration can take many forms: short-term, seasonal, annual or permanent. Although migrants often plan to return to their place of origin, most do not go back; at least, not permanently.

Attempts to restrict rural-urban migration have a long history in the region but have almost invariably proven ineffective, especially over the longer term. In the absence of income-generating options in rural areas, regulations for reducing urban in-migration are almost impossible to enforce and are ultimately often also counter-productive to national development. Urban household registration to control population movements nevertheless still exists in some Central Asian countries and in China and Viet Nam but these are gradually being relaxed because many cities need additional labour supply.

In recent decades, international labour migration has become more evident and important across the Asian and Pacific region. It has also diversified, consisting not only of low-skilled labour but also highly skilled professionals, besides female marriage migrants and refugees (Collins et al, 2013: 5). For some time, many countries considered international labour migration undesirable because there were sufficiently large domestic labour pools. Moreover, large numbers of immigrants could also undesirably affect the country's ethnic homogeneity. However, urban economies have grown rapidly and often generated opportunities for both low-wage and professional careers. As a result, international labour inflows and outflows have increased across the region (see also Chapter 2).

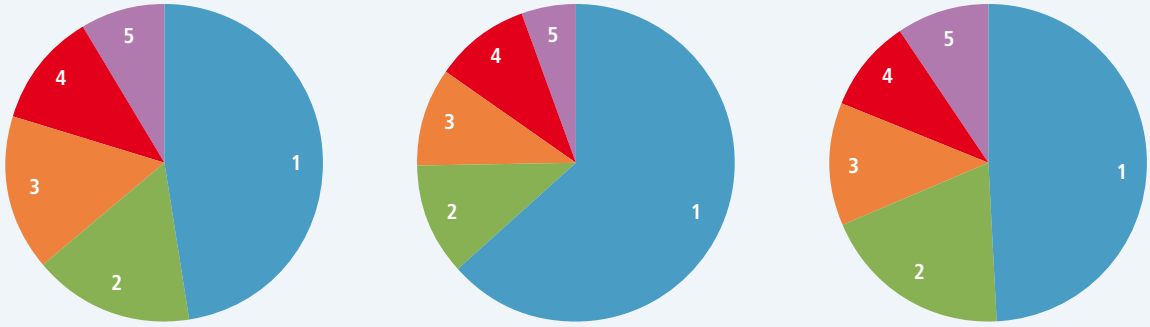
For example, in 2013, the Government of Singapore (NPTD, 2013: 26-27, 48) noted that its advocacy for more births was largely ineffective and that the population would shrink without immigration. Thailand now sees workers leave for economies like Singapore while, at the same time, others migrate to Thailand from less-advanced economies. In 2009, 3.1 million international migrants lived in Thailand, including 2.5 million from neighbouring countries, 1.5 million of them from

Shenzhen, China, has grown from a fishing village of 30,000 people in 1980 to a megacity of over 10 million today © Zheng Xiaoqiao

Box 1.4 **Rethinking urbanisation in China**

For a long time, China discouraged rural-urban migration. Nonetheless, economic growth and demand for labour has led to a large floating urban population of 'temporary' migrant workers, notably in its coastal cities. The 2010 census counted 221 million rural migrants, an increase of 83 percent between 2000 and 2010 (Ren, 2013: 9-10). Rural migrants come from all over China but their destination is usually a coastal city in the Pearl River Delta, the Yangtze River Delta or Beijing. An exceptional destination is Xinjiang in Western China, due to the special economic status of the province (Howell and Fan, 2011: 119).

Inter-provincial migration destinations in China, 1990-2005 (thousands)



1990-1995			1995-2000			2000-2005		
Rank	Destination Province	Net migration	Rank	Destination Province	Net migration	Rank	Destination Province	Net migration
1	Guangdong	1,799	1	Guangdong	11,063	1	Guangdong	10,281
2	Shanghai	610	2	Shanghai	2,005	2	Zhejiang	4,021
3	Beijing	606	3	Zhejiang	1,745	3	Shanghai	2,650
4	Xinjiang	437	4	Beijing	1,715	4	Jiangsu	1,963
5	Jiangsu	319	5	Xinjiang	925	5	Beijing	1,916

Source: Chan, 2008: 11.

Household registration is still in place today in China and unregistered rural-urban migrants are denied access to many of the urban services to which the registered population is entitled. While nearly 54 percent of China's population lives in cities, only 36 percent is registered as urban residents. In the absence of formal urban residence rights, many migrants are forced to leave their family (particularly children) behind in the village.

The government is, however, changing its urbanisation policy as it seeks to increase domestic consumption and grow the urban middle classes. In March 2014, the government announced its plan to move 100 million people to cities by 2020 and provide better access to schools and hospitals for the 100 million rural migrants that already reside in urban areas but who are currently denied basic services. As a result, China's urbanisation level could reach 60 percent in 2020, up from 53.7 percent in 2013.

The government sees urbanisation as essential for China's future: "urbanisation is modernisation" and "urbanisation is an inevitable requirement for promoting social progress". The plan emphasises improved quality of life for city residents through increased government spending on housing, transport and infrastructure (*The New York Times,* 17 March 2014).

Table 1.9 **Urban and rural fertility rates, selected countries**

Country	Year	Fertility Rate (percent)	
		Urban	Rural
Timor-Leste	2009-10	4.9	6.0
Afghanistan	2010	4.7	5.2
Samoa	2009	4.1	4.7
Pakistan	2006-7	3.3	4.5
Philippines	2008	2.8	3.8
Armenia	2010	1.6	1.8
Russian Federation	2009	1.4	1.9
Viet Nam	2002	1.4	2.0
Singapore	2005	1.3	-
China	2001	1.2	2.0

Sources: Afghanistan: APHI et al, 2011: 40; Armenia: NSS: 2012; China: Riley, 2004: 11; Pakistan: NIPS, 2008; Philippines: NSO, 2009; Russian Federation: Becker et al, 2012: 25; Samoa: MoH, 2010; Singapore: Jones, 2007: 454; Timor-Leste: NSD, 2010; Viet Nam: NCPFC, 2003.

Reclassifying a rural settlement as urban gives local politicians more powers and central government may for various reasons be reluctant to do so

Box 1.5 **Conflict and urbanisation**

Migration, whether domestic or international, usually occurs for economic reasons, but ethnic conflict and war can also be powerful drivers. By some accounts, Kabul's population has grown sevenfold since 2001 through the influx of repatriating refugees and internally displaced persons who, today, may very well constitute 70 percent of Kabul's population. Unofficial estimates put Kabul's 2006 population at 3.4 million (Crisp and Refstie, 2011: 4), rising to 4.4 million in 2014 (WUP 2014, file 13). Conflict and limited security has also propelled migration to urban areas outside of the country. An estimated 10 percent of Karachi's population consists of undocumented immigrants, including 400,000 to 500,000 originating from Afghanistan (Gazdar, 2005: 155-157).

Timor-Leste has also experienced significant conflict-related migration. Following a referendum which supported independence, held in 1999, large numbers returned to the country and principally to the capital and largest city, Dili. High migration rates to Dili continued throughout the conflict following the referendum and leading up to newly won independence in 2002. Sporadic bouts of violence since have also driven migration. Over that period the city's population increased significantly - at an estimated rate of 8.4 percent between 2004 and 2009 – as it was seen both as a safer environment than many rural areas and as a key opportunity for employment, especially for youth (Jutersonke et al. 2010:17).

Myanmar alone (Huguet and Chamratrithirong, 2011: 9-10; He, 2008: 2).

However, current methods of collecting data are insufficient and it is difficult to establish the exact number of undocumented migrants, notably immigrant labour living in cities. This is because such communities tend to keep a low profile, avoid registration and enumeration, and live in unrecognised informal housing. Delhi, for instance, is home to more than 15,000 refugees and more than 6,000 asylum seekers, predominantly from Afghanistan and Myanmar. The latter are among the poorest of the poor and live unregistered, in crowded, single rooms, sometimes shared by as many as 20 families (WRC, 2011: 5-13).

Reclassification: Administrative urban growth

Whereas natural growth and migration are the outcomes of individual decisions largely beyond government control, reclassification is, at least in principle, the outcome of a political or administrative decision.

Reclassification is driven by a number of factors; some formal, some informal. These can include land conversion (often for real estate and industrial park development); increased population densities, especially in peri-urban areas where previously rural areas take on urban characteristics; and administrative/political interventions that seek more land resources for future development.

Each country has its own set of criteria for the conversion of rural into urban settlements. This can make regional comparison of in-situ urbanisation difficult: what one country considers an 'urban-type village', another country defines as a 'rural-like town'. Governments can change the criteria, thereby increasing or reducing their urban population count and the urbanisation level with a stroke of the pen. In China, for instance, the definition of 'urban' has changed three times over recent decades, leading to sudden increases in the level of urbanisation from 23.5 percent to 46.6 percent between 1983 and 1987 without significant changes on the ground (Chang and Brada, 2006: 29; Ren, 2013: 9; Jones, 2002: 9).

While administrative criteria for reclassification are usually clear, their application is often a political

Box 1.6 **The blurring urban-rural interface**

The relationship between urban and rural areas cannot just be understood as expanding cities and shrinking non-urban spaces. In many cases rural economies and systems (including governance) play an important role in cities and indeed shape their development. Through farmers migrating to the city and villages being absorbed into the city fabric, rural livelihoods are to be found in urban areas. Because food is often expensive in cities and because of high demand for fresh agricultural produce, urban agriculture is frequently a viable livelihood practice to supply urban food markets. Many Asian and Pacific cities still keep 'wet markets' where live poultry is sold. In a number of cities, urban agriculture has been actively encouraged, but it may also exist at the local level through informal use of vacant sites and alongside urban waterways.

Most Pacific Island cities and towns have developed around or alongside traditional villages. In some cases, urban expansion has enveloped traditional villages, creating a mosaic of villages and unplanned and planned urban development. Such 'urban villages' may operate under traditional governance rules with their status and rights often preserved in land use planning and other governance arrangements, including legislation. Examples of this can be found in Apia, Port Moresby, South Tarawa and Suva. Identity and association with rural places of origin and kin remain important in such villages (Jones, 2011c).

As the use of new technology (particularly smartphones) increases in rural areas, new ideas and information spread much faster and reach more people. Consumption patterns in rural areas consequently take on a more 'urban' form

decision. Reclassifying a rural settlement as urban gives local politicians more powers and central government may for various reasons be reluctant to do so. But it can provide reclassified areas with greater capacity to deal with their challenges through raising local taxes and guiding urban development, or facilitate necessary support and resources from higher levels of government. Conversely, the designation of an urban settlement as a rural one typically reduces the powers of local politicians, but it can also lower the fiscal demands on an urban area in decline. In Central Asia, there have been several instances in recent years where towns have been reclassified as 'rural' to reduce fiscal burdens.

Rural-urban convergence

The expanding spatial reach of the region's growing cities makes it increasingly difficult to clearly identify urban and rural boundaries. Many urban researchers, planners and policymakers are re-casting where urban ends and rural starts, as urban economic characteristics, urban lifestyles and urban social norms are increasingly penetrating rural areas.

Information and communication technology (ICT) has been one reason for this breakdown of the previously held urban/rural dichotomy, as has greater mobility resulting from better public transport networks. Cellular phones enable cheap communications over great distances through SMS messaging, as well as money transfers, making remittances easier and quicker than in the past (Akkoyunlu 2013: 4-5). This is one reason why an increasing share of rural incomes is now derived from off-farm work and from urban areas. Education, the mass media and returning migrants increasingly transfer urban norms and values to rural areas and, as a consequence, more villagers now expect and demand access to a range of services equal to that of urban areas. As the use of new technology (particularly smartphones) increases in rural areas, ideas and information spread much faster and reach more people. Consumption patterns in rural areas consequently take on a more 'urban' form.

Conversely, rural lifestyles can also be found in urban areas and especially in peri-urban zones. Urban populations with strong rural roots tend to maintain links with their rural areas. The rural norms and values of urban newcomers are often neither immediately nor fully replaced by urban ones. Some urban residents hold on to their rural culture and connections to emphasise their distinct identity; to maximise their livelihood opportunities; or facilitate access to traditional safety nets. Circular migration may enhance these links and economic security.

Another cause for rural lifestyles in urban settings is the absorption of villages into the growth path of cities. The resident village population often seeks to continue their rural livelihoods and values in "urban villages" which may even be underpinned through the recognition of their 'traditional' leadership by the city's

The population of Kabul in Afghanistan has grown sevenfold since 2001 © Bruno Pagnanelli

Table 1.10 **Aggregate megacity populations in 2014**

Country	Number of megacities	Population (thousands)			Megacity population share of all urban (%)	Megacity population share of total population (%)
		Combined Megacities Population	Total Urban Population	Total Population		
China	6	88,810	758,360	1,393,784	12	6
Japan	2	57,956	118,136	126,981	49	46
India	3	60,460	410,204	1,267,402	15	5
Bangladesh	1	16,982	53,127	158,513	32	11
Pakistan	1	16,126	70,912	185,133	23	9
Turkey	1	13,954	55,279	75,837	25	18
Philippines	1	12,764	44,531	100,096	29	13
Russian Federation	1	12,063	105,318	142,468	11	8
Indonesia	1	10,176	133,999	252,812	8	4

Source: World Urbanisation Prospects: The 2014 revision.

Table 1.11 **Average annual growth rate of megacities (1970-1990 and 1990-2010)**

Country or area	Megacity	Annual population (thousands)			Average annual growth rate (%)	
		1970	1990	2010	1970-1990	1990-2010
Japan	Tokyo	23,298	32,530	36,834	1.68	0.62
India	Delhi	3,531	9,726	21,935	5.20	4.15
China	Shanghai	6,037	7,823	19,980	1.31	4.80
India	Mumbai	5,811	12,436	19,422	3.88	2.25
Japan	Kinki M.M.A. (Osaka)	15,272	18,389	19,492	0.93	0.29
China	Beijing	4,426	6,788	16,190	2.16	4.44
Bangladesh	Dhaka	1,374	6,621	14,731	8.18	4.08
Pakistan	Karachi	3,119	7,147	14,081	4.23	3.45
India	Kolkata	6,926	10,890	14,283	2.29	1.37
Turkey	Istanbul	2,772	6,552	12,703	4.40	3.37
China	Chongqing	2,237	4,011	11,244	2.96	5.29
Philippines	Metro Manila	3,534	7,973	11,891	4.15	2.01
Russian Federation	Moscow	7,107	8,987	11,461	1.18	1.22
China	Shenzhen	22	875	10,223	20.25	13.08
Republic of Korea	Seoul	5,312	10,518	9,796	3.47	-0.35

Source: World Urbanisation Prospects: The 2014 revision.

With the exception of China, where economic liberalisation and some relaxation of population movement regulations have unleashed massive rural-urban migration, few megacities in Asia and the Pacific are experiencing a population explosion

formal institutions. Examples of this can be found in urban *kampungs* in Indonesia and in peri-urban villages of some Pacific Islands, but also in Chinese and in some South Asian towns and cities.

1.3 Managing Urban Growth

The Asian megacities

Given the sheer size of the total population, it is not surprising that the number of megacities (urban areas exceeding 10 million inhabitants) is steadily growing in the Asia and Pacific region. In 1970, Tokyo was the region's only megacity. By 1990, there were five: Tokyo and Osaka-Kobe in Japan, Mumbai and Kolkata in India, and Seoul in the Republic of Korea. By 2014, 17 of the world's 28 megacities were in Asia and the Pacific.

The significance of megacities to national urban population differs between countries. Megacities now dominate the urban population in Bangladesh and Japan. Dhaka holds one-third of the total urban population of Bangladesh. The two megacities of Japan, Tokyo and Osaka-Kobe, have a combined population of 57.9 million, equivalent to 49 percent of Japan's total urban population and 46 percent of its overall population. In contrast, the megacity populations of India and China represent relatively small portions of both the urban and the total population (Table 1.10).

With the exception of China, where economic liberalisation and some relaxation and change of population movement regulations have unleashed massive rural to urban migration, megacities in Asia and the Pacific are not experiencing a population explosion. In fact, on the whole, their growth rates are in decline or at least are slowly decelerating (Table 1.11). There are complex factors involved in this trend, including a general slowdown in the rate of national population growth and, perhaps also undercounting of megacity populations as urban development accelerates beyond urban administrative boundaries. At the same time,

Economic growth has lifted millions out of poverty and created large middle classes

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Table 1.12 **Urban population and distribution by city-size class, 2000 and 2015**

City Size Class	Population (thousands)		Share of urban population (%)		Average annual rate of change (%)
	2000	2015	2000	2015	2000-2015
10+ million	152,710	305,626	10.6	14.4	4.7
5-10 million	129,327	182,736	9.0	8.6	2.3
1-5 million	281,239	421,681	19.5	19.9	2.7
0.5-1 million	125,266	202,812	8.7	9.6	3.3
<0.5 million	750,797	1,002,872	52.2	47.4	1.9
Total urban	**1,439,528**	**2,115,913**	**100.0**	**100.0**	**2.6**
Total rural	**2,327,243**	**2,266,077**	**-**	**-**	**-0.2**
Total Asia-Pacific	**3,766,771**	**4,381,990**	**-**	**-**	**1.0**

Sources: World Urbanisation Prospects: The 2014 revision.

the population numbers involved are very high and, in absolute terms, growth remains significant.

The rise of secondary cities

It is a popular perception that the region's megacities are home to a majority of the urban population, but the majority of the urban population in the region actually resides in cities of less than one million. In fact, only 14 percent of the urban population live in megacities and 47 percent of the regional population live in cities and towns classified below 500,000 people.

Secondary cities are increasingly significant in national and regional economies, including by providing critical links as provincial centres, tourist destinations, as sites of emerging technology investment and as transportation hubs. New prosperity is being found through greater economic integration, as part of urban corridors, with rural economies and adjacent countries. Such links are providing new economies of scale. Nevertheless, as discussed in later chapters, despite the fact that these opportunities do exist throughout the region, smaller cities and towns often lack the urban management capacity and the financial and human resources to exploit economic potential, thus undermining future development prospects.

The economic and environmental impacts of urban expansion

Many large cities in Asia and the Pacific have experienced a slowdown in their growth rates or even absolute declines of their city-core populations. Growth and sprawl in adjacent cities and transforming rural areas is one of the leading reasons, and Jakarta's relationship within its megacity region (JABOTABEK – an acronym inclusive of surrounding provinces) is one good example (Cox, 2011b). While the JABOTABEK megacity region is one of Asia-Pacific's fastest growing,

In a global sample of 120 cities, urban land cover expanded at an annual rate of 3.7 percent during the 1990s, whereas the urban population grew at an average annual rate of only 1.6 percent

the share of Jakarta DKI (central Jakarta) remains stagnant. There has been a spill over from Jakarta into the surrounding areas with Jakarta experiencing "metropolitan fragmentation". The built-up area of the Jakarta metropolitan region crosses 12 municipalities or regencies in the provinces of Greater Jakarta (Jakarta Raya), Banten, and West Java (Jawa Barat) and subsequent growth has occurred along broad corridors toward the east, west, and south (World Bank, 2015).

As cities expand, there is also growing concern about the conversion of agricultural land to urban uses, especially through informal conversion. In a global sample of 120 cities, urban land cover expanded at an annual rate of 3.7 percent during the 1990s, whereas the urban population grew at an average annual rate of only 1.6 percent (Angel, 2012: 2565). The expansion of urban land is clearly then increasing more than urban population growth per se, and includes developmental factors, such as increasing household incomes (that led to higher land consumption); downsizing of households (which tend to occupy a larger number of homes); and improvements in mobility (which encourages sub-urbanisation); all with consequential implications for more public facilities and businesses (that come with higher disposable household incomes). There are clear lessons here then for urban planners and policymakers.

Table 1.13 **Urban primacy in Asia and the Pacific (2010, thousands, percent)**

Country or area	Largest Urban agglomeration	Population	Share of the total urban population (percent)	Second-largest agglomeration	Population	Share of total urban population (percent)
Mongolia	Ulaanbaatar	966	57.7	Erdenet	83	2.6
Afghanistan	Kabul	3,731	56.7	Kandahar	379	5.4
Armenia	Yerevan	1,112	56.0	Gyumry	146	7.4
Cambodia	Phnom Penh	1,562	51.6	Sihanoukville	157	7.7
Georgia	Tbilisi	1,120	50.3	Batumi	124	5.4

Singapore, with an urban primacy of 100 percent, has not been included in this table.
Sources: UNDP, 2010b: 42, UN-Habitat 2013: 209-211, World Urbanisation Prospects: The 2014 revision. http://www.citypopulation.de/Mongolia.html, http://population.mongabay.com/population/cambodia

According to Angel et al (2010a: 74-75), the idea that cities take up a substantial share of arable land, though, may be somewhat exaggerated. Globally, cities occupied less than one twenty-fifth of the area occupied by arable land in 2000. Although many cities have been expanding rapidly, they still cover, on average, less than one percent of the total land area and only 2-4 percent of all arable land in three of the Asia and Pacific sub-regions. However, projected urban expansion in Asia and the Pacific over the next few decades could, indeed, result in significant loss of arable land. In that case, new land would have to be brought under cultivation and/or land productivity would have to be improved to continue producing sufficient food for growing populations. Urban planners will also need to look towards more integrated and compact models of growth, if such negative impacts are to be avoided.

Spatial balancing of urban growth: Can policy make a difference?

Many governments in the region remain concerned about the spatial distribution of their populations. They point, for instance, at urban primacy, the dominant position of a single city in terms of population and economic activity (Table 1.13). Ulaanbaatar and Kabul, for instance, are home to over 55 percent of the urban population in their respective countries and in many ways this primacy 'crowds-out' the development of alternative urban centres. It makes it difficult, if not impossible, to achieve a more balanced urban hierarchy and for other cities to develop, because investments and resources are concentrated in one or two cities only. In the context of small island states, there is often only one urban centre, which may be significantly remote from other islands and atolls. As an example, 95 percent of the national urban population of the Maldives lives in its capital city, Malé. From an economic perspective, a concentration of economic activities and human resources can make sense in the early stages of development, when resources are scarce. However, most governments in the region understand that for more balanced and equitable development, and to avoid problems of urban concentration, they need to strike a balance between economic efficiency and greater equity through a more balanced domestic distribution of employment and other economic opportunities.

A number of governments are formulating strategies to promote the development of their secondary and tertiary cities, particularly in those parts of the country that are lagging in economic and infrastructure development. Historically it has been difficult, however, to select urban centres for specific growth as patterns of urban development have tended to be driven by economic and spatial factors rather than national equity policies. In reality, resource constraints tend to limit the number of centres that can be promoted and supported and very few countries in the region have been able to redirect urban growth through specific spatial or other policies for any extended period of time.

Urban development in the region is instead being directly or indirectly dictated through macro-economic and sectoral policies. But these have their own spatial rationales and consequences and may not be in line with (or even go against) broader development goals, especially those seeking more balanced and equitable development. Also, across the region, ministries responsible for macro-economic policy tend to be more influential than those responsible for urban planning. Consequently, macro-economic policies may simply nullify the impact of urban policies, even where they may seek to counteract and balance private investment flows. Strong local government, with decentralised control and strong leadership relating to spatial decisions made within their boundaries could alleviate this. In practice, however, this is rare (Araki, 2000: 10). One of the key challenges for the region is in developing stronger national urban policies, including through closing the governance gap between spheres of government and in integrating national economic development policy with urban planning. One example of this in the region is to be found in Bhutan (see Box 1.7).

Box 1.7 A national urbanisation strategy for Bhutan

The urbanisation level in Bhutan is expected to increase from 30 percent in 2008 to 60 percent by 2020 due to a nationwide average annual urban growth rate of 7.3 percent for 2000-2005 and a 12.6 percent growth rate for the capital Thimphu.

Policymakers have had two basic options: (a) the path of least resistance that would allow current trends to continue and turn Thimphu into a primate city; or (b) a pro-active approach with strategic financial and institutional interventions to support the channelling of population growth to designated urban growth centres.

The government decided upon a national urbanisation strategy to ensure balanced, equitable development across the country. As the western region of Bhutan is the most populated and developed, the strategy aims at promoting urban population growth in the three other regions through: a) development of a more balanced hierarchy of urban settlements with specific roles for the urban nodes; b) prioritisation of infrastructure investments; and c) development of urban amenities and economic activities. Growth centres were identified by filtering existing urban nodes for their economic development potential. However, the work was constrained by the absence of parallel, long-term economic policies to help establish future generators of economic activity (RGoB, 2011).

Box 1.8 **Informal transport**

Transport and mobility are critical for mega-urban regions, as they determine the catchment area of labour markets by connecting cities, towns, villages and rural areas in a mega-urban region through a wide range of types of roads and modes of transport. Low-wage labour living in a village but having a livelihood in the city, for instance, may commute using a cheap form of transport like a motorcycle-taxi, while high-wage professionals may come from a distant city by high-speed train. Peri-urban farmers use transport to move agricultural produce to urban markets, while consumers take fresh fruits and vegetables from urban markets to their peri-urban homes.

As formal public transport often has a limited reach and capacity, informal transport with its inexpensive, flexible and reliable service provides the missing links and enhances the mobility of the poor and the middle classes. Jogyakarta and Solo, in Indonesia, for instance, with populations of 400,000 and 500,000 respectively, have a high level of movement across municipal boundaries. Commuters and other travellers tend to use informal transport, because formal modes operate only within the municipal boundaries and also cannot operate in the narrow streets of some parts of the city (CDIA, 2011).

A Bhutanese monk in Thimphu, where the government's national urbanisation strategy aims to ensure balanced, equitable development © Kok01687

1.4 Urbanisation Beyond Borders

Where do 21st century cities end?

Municipal boundaries delineate areas under the authority of local government but many people who work in the city live beyond those boundaries. Urban services such as transport, water and energy supply, as well as solid waste disposal often also cross municipal administrative boundaries, as does the environmental footprint of the city. When cities expand geographically and transcend their administrative boundaries, it is increasingly necessary to look not only at the municipal area, but also at the urban agglomeration - the contiguous territory inhabited at urban levels of residential density, irrespective of administrative boundaries. With efficient mobility and transportation systems, urban agglomerations can extend well beyond the administrative city. It is essential for the future that planning reflects such existing and emerging urban patterns and trends of the wider urban area, rather than conforming to a formal view of the administrative city only.

Urban agglomerations are expanding relentlessly as new roads and railway lines are built and transport networks grow. These agglomerations, in turn, become metropolitan regions, extended metropolitan regions or even mega-urban regions which cover the contiguous territory inhabited at urban levels of residential density, but also include the surrounding areas of lower density that are under the direct influence of the core city through transport and road linkages, commuting facilities and other functional interactions. The lower density areas beyond or between contiguous built-up areas defy strict classification since they are neither urban nor rural, or perhaps they are both. McGee (2009) called such areas in Asia and the Pacific *desakota*; a combination of the Bahasa-Indonesian words for village and town. In the Asia and the Pacific region there are many such examples: Bangkok, Delhi, Dhaka, Jakarta and Metro Manila, to mention a few, are all part of much greater mega-urban regions.

A major challenge for mega-urban regions is holistic coordination in such areas as transport, mobility, water supply and drainage, solid waste management and environmental management as they often lack the political-administrative structures and authority for holistic planning and governance. This includes managing daily commuting from ever-expanding catchment areas. For instance, Colombo, Sri Lanka, receives 400,000 to 500,000 commuters on any given working day, while the second tier city Kandy has 150,000 daily commuters compared to a resident population of 680,000 and 124,000, respectively (World Bank & UN-Habitat, 2012). Likewise, Jakarta is said to have a daytime population of 12 million, of which an estimated 2.5 million commute daily into the city (*Jakarta Post,* 10 September 2011). This mobile population is not included in the urban population statistics on which services delivery is based. Such patterns of growth demand new ways of conceptualising, planning and responding to urban agglomerations, the success of which will be critical to the management of the region's urban future (see Box 1.8).

Connectivity and urban development

Improvements in transport and mobility bring cities, towns and villages in ever-closer reach. Today, high-speed trains can efficiently connect large cities 250-500 kilometres apart, or link a series of very large cities every 150-300 kilometres (Amos et al, 2010: 1). Railway lines and highways connecting and inter-linking large cities have created urban corridors consisting of economic and information networks. This has generated additional economic activity in some smaller towns and cities. The cities linked through stops between the major hubs can gain significant economic potential. In this respect, a highway or a standard-speed train can have more impact on the development of in-between towns than high-speed (bullet) trains which tend to have fewer intermediate stops.

High-speed trains have reduced the travel time between Tokyo and Osaka (400 km) to 2.5 hours and turned the region into a *de facto* single urban catchment area with over 80 million people

Examples of urban corridors are the Tokyo-Yokohama-Nagoya-Osaka-Kobe-Kyoto Shinkansen (bullet train) corridor in Japan, the Beijing-Tianjin-Tangshan corridor in Northeast China and the Mumbai-Pune corridor in India, among others. High-speed trains have reduced the travel time between Tokyo and Osaka (400 km) to 2.5 hours and created a de facto single urban catchment area with over 80 million people. China is developing a high-speed railway network that has already connected 100 cities. This is expected to improve productivity, because companies can now reach millions of customers and workers within hours. It also enables them to draw upon research and development centres in nearby cities with an abundant supply of highly-educated workers or utilise factories in cities with low production costs.

Some urban corridors have emerged spontaneously, but others are being planned by government to promote economic growth (Choe and Laquian, 2008: 8-12). A corridor-based approach takes advantage of the existence of proven but underutilised economic potential in an area. It promotes economic growth by facilitating the integration of inter-dependent economic sectors through the mobility that improved infrastructure development brings. Corridor development must, however, make economic sense to be viable and its nodes must be substantive economic centres (Srivastava, 2011: 3).

Urban clusters consist of a number of functionally interlinked large, medium and small cities that cluster into dense sets of connected businesses, suppliers, service providers, intermediaries and associated institutions like universities and research institutes

Landlocked countries in Central Asia have often proposed corridor development to gain access to deep-sea ports and global or regional markets. Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan have long sought overland transportation routes which would connect their cities and transport networks to those of Asia and Europe, and to each other (CER, 2013).

Given continuing urbanisation and growing connectivity, some see urban corridors developing and extending across national borders. Facilitated through transport links there are emerging connectivities from Tokyo through Seoul to Beijing. Others have suggested that such a corridor could even extend beyond Beijing to Shanghai and Hong Kong (Jones, 2000: 1). A strengthened corridor has often been considered linking Bangkok through Kuala Lumpur to Singapore with a possible extension to Jakarta and Surabaya. In recent years, Thailand has sought greater connectivity with China to the north. While a number of geographic, financial and political barriers remain, the emergence of such groupings as the ASEAN - Closer Economic Relations Trade Agreement are likely to spur greater regional connectivity – in which cities will play a critical role.

Competitive advantages of shared space

The clustering of complementary economic activities within relative proximity and connected through transport, mobility and information links is expected to yield a cycle of knowledge sharing, innovation and entrepreneurship, while increasing employment, productivity and incomes, and enhancing economic performance. Urban clusters consist of a number of functionally interlinked large, medium and small cities that cluster into concentrations of connected businesses, suppliers, service providers, intermediaries and associated institutions like universities and research institutes (Istrate et al. 2011: 4).

The proximity of developed and developing economies in some parts of the Asia and the Pacific region also makes it possible for companies to locate labour-intensive activities in a lower-wage economy, often just across the border from the city where the capital-intensive activities are located. An example of such trans-border clustering is the Pearl River Delta. Rising wages and a lack of space forced Hong Kong to relocate its manufacturing plants. They found suitable locations in the nearby Special Economic Zones of Guangdong province. These zones were experiments (under the "one country – two systems" concept) by the national and provincial government to test free-market policies and develop export-oriented industries through foreign investments (Choe and Laquian, 2008: 29; 4).

Other city clusters cross national boundaries too. An example is the Singapore–Johor–Riau Growth Triangle that started emerging in the early 1980s and which includes Singapore, the islands of Batam and Bintan in Indonesia, and the city of Johor Bahru in Malaysia. It allowed Singapore to rely on the abundant labour of its neighbours without having to facilitate large numbers of migrants (Choe and Laquian, 2008: 31-33; Jones, 2000: 1-2). Likewise, to attract investments, Malaysia is developing Iskandar Malaysia, which is popular among small and medium-sized firms from Singapore because its operating costs are much lower while it is only a 30-minute drive away. There are plans for shared border

Box 1.9 Estimating population growth in Ho Chi Minh City

Looking beyond national surveys to alternative data sources can result in better understanding of the urban realities. Officially, Ho Chi Minh City grew by 198,000 persons annually between 2002 and 2007. However, official enterprise employment data indicated a growth of 400,000 to 500,000 persons annually, while motorcycle registration and construction permit data indicate a population growth of 487,000 and 425,000 persons per year, respectively. If the latter estimates are closer to reality, the official data are missing one-half to two-thirds of the actual population growth. Consequently, the 2007 city population would be 8.7 million rather than 6.6 million (Dapice et al, 2010: 3-5).

High-speed trains are at the core of some urban corridors and interlink cities

immigration checkpoints to speed up traffic, as well as the establishment of a mass rapid transit system between Johor and Singapore (Reuters, 22 October 2012).

1.5 Urban Knowledge Gaps

As urban systems and the regions surrounding them have increased in complexity, the diverse factors driving change can become difficult to understand and respond to. As city form is changing, there is an urgent need to redefine the urban policies required for future planning and implementation of plans.

The formulation of effective urban policies to manage urbanisation and urban growth requires relevant, reliable and up-to-date data on urban trends and conditions and an in-depth understanding of urban dynamics – though such coherent and comparable data is almost impossible to come by. Urban data collection and reporting have simply not kept up with the needs of urban planners and city managers. This 'data deficit' is affecting planning of city development, as well as the understanding of urban change, including complex social change. When public and private policymakers prepare urban policies and plans or compare urban trends and conditions, they are forced to use urban data that are often incomparable and incompatible.

Measuring urban areas

Sprawl into adjacent rural and urban areas not only distorts population data, but also creates problems

Economies of scale forced Hong Kong to relocate manufacturing to the Special Economic Zones of neighbouring Guangdong province © UN-Habitat

for urban planners. People who live just outside the municipal boundaries tend to be linked with the city economically and socially. They live in one administrative area, but work in another. This can lead to a delinking of costs and benefits, as people benefit from services in the city, but pay the lower taxes, if any, of the village. Commuters contribute to traffic congestion and pollution of the city, utilise urban water and sanitation facilities, contribute to solid waste generation and so on, but are not affected by the impacts nor contribute financially to infrastructure and services. This is a significant challenge posed to many urban managers of large or commuter-based urban areas.

More detailed studies in the region are needed to better determine the numbers and types of people who move into various urban zones and commute between these, as well as from rural to urban areas on a daily, weekly or seasonal basis. Closing such data gaps would help understand needs for urban infrastructure and services, as well as employment and mobility trends. This would enable local government to develop more focused and effective policies. However, acquiring such data requires new methods, including participatory processes, engagement, and outreach for which many local governments lack the capacity or time to pursue. Yet, it is increasingly essential that such real time 'dynamic data' be developed to form the basis of urban management and decision-making.

As the delineation of an urban area depends on the purpose of the analysis, there is a need to move away from simple criteria such as administrative status, size, density or occupation and to apply functional criteria. A functional definition could identify an urban area as a relatively self-contained economic unit, characterised by high levels of labour linkages and other economic interactions. It would allow for spatial analyses of production and productivity growth, the reach and the organisation of labour markets, business linkages and urban-rural spillovers and infrastructure and service needs (OECD and CDRF, 2010: 11; OECD, 2010: 5).

Closing urban data gaps

Data need not be confined to understanding the region's urban population. While cities are engines of economic growth, their contributions to national and global economies remain largely guesswork. Yet despite the known inaccuracy of both urban economic data and urban population sizes, these data sets are used to estimate the economic performance of a city, while the ranking is used by city leaders to evaluate a city's strengths and weaknesses or to exploit competitive advantages (Clark and Moonen, 2011: 5). In today's highly competitive global economy, governments need to tap into the various technological, human and fiscal resources of cities to better understand urban economic processes.

Cities today could at least make better use of data generated. Buses and trains, water infrastructure and gas line networks, hospitals, condominiums and office buildings all generate data, which can be collected and analysed in real time. This can provide insights into trends and conditions that make it easier to understand and to act more effectively. When cities provide the right information to the right people at the right time, they can make better decisions and measure continually the impact of their decisions.

However, urban data should not only make the urban economy more efficient, but also help improve poverty reduction policies and environmental decisions. There is a clear need for data on intra-urban conditions such as disparities in housing conditions, access to safe water and sanitation and solid waste collection, and on inter-urban conditions, including disparities between large and small cities. Lack of data is particularly significant if the urban poor and other marginal groups live outside the administratively defined urban boundaries or in unrecognised (and thus ignored) informal settlements (Raman, 2012: 2).

While cities are engines of economic growth, their contributions to national and global economies remain largely guesswork

But disaggregated data on social and economic conditions are rarely available, because the household surveys that collect data are not representative at the level of any but large cities in most countries. Lack of hard evidence affects the formulation of policies to reduce poverty. Instead there is an apparent 'doughnut' effect with much data now being collected on the region's urban areas. Many global economic and investment institutions, consultancy companies and the private sector collect quite comprehensive data on cities much of which is not available for local decision makers and planning authorities. Likewise, through participatory enumeration projects there is often a significant amount of local or community data – that, again, rarely informs urban policy (Dodman et al, 2013:1-4). The overall impact is that while there is much data available on the region's cities, it is often patchy or inaccessible, meaning that those responsible for making decisions regarding the future development of urban areas may have only limited information. This needs to change to support nothing less than a 'data revolution' at the city level.

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Afghanistan is faced with a formidable data deficit challenge © Alexandrl

Overcoming data deficits in Afghanistan

The United Nations Secretary-General's High-Level-Panel of eminent persons on the post-2015 development agenda has called for a "data revolution" with a view to capturing transformative changes worldwide as they unfold and to better inform the policies needed for achieving sustainable development. This will require huge investments in both 'hard' and 'soft' data infrastructure, including new data collection exercises and expanding existing ones. It also implies upgrading information technologies and other tools essential to the efficient functioning of modern statistical systems. One cost estimate for the 169 targets of the proposed Sustainable Development Goals (SDGs) data sets stands at USD 254 billion for the period of 2015-2030: almost twice the annual amount of Official Development Assistance in any recent year. Since this investment magnitude is clearly beyond the capacities of many nations and cities, thinking outside of the box in terms of data collection, analyses and communication will be critical.

Good data is particularly important to urban governance policy. Evidence-based urban policy making and planning can only be achieved if they are founded on knowledge derived from reliable, timely and up-to-date data. Bridging the existing urban data gaps is an enormous challenge due to the rapidity of demographic change and fluid urban transformations as well as the growing administrative and spatial complexity of urban agglomerations.

There are, however, a number of comparatively rapid and cost-effective ways to improve at least some urban

data flows. Administrative data currently held by governments are often under-utilised. These typically include data collected by education, transport, health, labour, finance and social services departments. Geo-spatial data applied to supplement census data are often also under-utilised, because lack of universal applications and common standards renders these potentially valuable data streams less effective than they could be. Much data is also generated by and for the private sector, which could be far better integrated in urban policy development, although costs and access to commercial information may present a challenge. Building new partnerships within and beyond government could provide effective platforms for collaboration and information sharing. And there are other ways of improving data flows through better use of what is already available.

Evidence-based urban policy making and planning can only be achieved if they are founded on knowledge derived from reliable, timely and up-to-date data

However, in addressing the current urban data, information and knowledge gaps, a critical starting point must be the adoption of new urban data geographies that capture 'actually existing cities' and their populations, rather than just what is within the confines of outdated administrative municipal boundaries. Many cities have long ago seen their urban fabric expand way beyond these boundaries, and capturing data on the wider urban catchment is becoming ever more critical to urban policy development.

Closing the data divide: The Afghan experience

An important example of the application of Geographic Information System (GIS) technology is found in Afghanistan, where urban data is outdated, scattered, incomplete and not routinely collected. Afghanistan is faced with a formidable data deficit challenge. Since much information was lost and data infrastructure destroyed during years of violent conflict and neglect, the country was well placed to apply new technologies and approaches.

With support from UN-Habitat, Afghanistan is now implementing the State of Afghan Cities Programme 2014/15 (SoAC) to address the urban data gap by quickly and cost-effectively collecting reliable and recent urban data and building capacities for improved urban monitoring.

Under the leadership of the Ministry of Urban Development, the Independent Directorate of Local Governance and Kabul Municipality, SoAC has developed a methodology that extracts up-to-date data from high resolution satellite images of urban areas. This has proven effective for generating data sets on land-use and housing types from which urban population estimates can be made. Two data sets are produced from the images: (a) house counts (hillside, irregular and regular, apartments and IDP camps); and (b) land-use (residential, commercial, institutional, industrial, agricultural and vacant plots).

The Afghan programme addresses a number of urban planning and policy needs including:

- Guiding smart urban growth – Sustainable urban planning will promote local economic development, ensure environmental protection, improve access to land, housing and basic services, and make cities safer and inclusive. Satellite maps have helped in optimising urban densities, ensuring mixed land-use, and improving connectivity between urban centres. UN-Habitat's Strategic Municipal Action Planning (SMAP), for example, helped the Bamyan Municipality identify key growth areas and limit development to protect historic sites and agricultural land.

- Developing a property database – There is enormous potential to increase local revenues through land and property taxation in Afghan cities to eventually support infrastructure and basic service provisions. Safayi (property taxation) has proven to be a cost-effective approach with multiple benefits such as municipal revenue generation, tenure security, and economic development, especially in informal settlements. This would have been difficult to establish though house-to-house surveys. Property registration and taxation is becoming more effective utilising GIS to collect and assess information which can be held on a digital property database.

- Community-led neighbourhood upgrading – Political conflict has torn apart communities and has impacted urban development. Civic engagement and capacity building are clearly needed in upgrading poorer and displaced communities as well as in improving urban governance and municipal services delivery. GIS has allowed for developing spatial frameworks through the identification of built-up areas, social and economic functional relationships, and future urban expansion areas. Communities have been able to engage through visual representations of their areas and contribute to participatory planning methodologies.

But data collection in itself is neither the ultimate aim nor the end of the process. Data is merely a building block that needs to be translated into usable knowledge before it can effectively inform policies and interventions. While many countries have focused on improving their data collection, the capacity to analyse these data often remains weak and constitutes an impediment to both policy development and evaluation.

An often encountered additional critical gap is data communication and dissemination to inform policy making. Furthermore, due to high levels of informality and "porous" urban boundaries significant sections of the urban population have remained uncounted in formal data collection. But for many years, local organisations have collected policy relevant data on urban informal settlements and their residents which have yielded important information on communities long left out by official census.

Then there are opportunities to go beyond traditional data sets and statistics towards visual information. Visually-assisted data, such as GIS mapping on the basis of satellite imagery, is often also an overlooked resource for policymakers, as highlighted in the case study from Afghanistan.

The bottom line is that cities have become too complex and dynamic for existing information systems to keep track. Traditional large-scale surveys are expensive and therefore infrequent. They also take a long time to analyse and evaluate, resulting in critical information gaps. Integration of geospatial, statistical and other information for urban policy is challenging but fundamental. There is a great need to overcome the barriers to integrated urban data, including a clear understanding of what kind of data is required and for what policy or planning purpose.

State of Afghan Cities 2014/15 Programme: Methodology

1. Primary analysis and data extraction from satellite images

Source up-to-date images for each city. Images contain at least the area within the municipal boundaries, as well as built up area outside the boundary that is functionally part of the city.

1. Collecting and analysis of other data

Source, collate and clean data sets from other sources e.g.:AUWSSC, MUDA, IDLG, CSO

2. Landuse

Using GIS on the satellite image, analyse and digitise main land use classes.

Review + input GIS land use data set ⟷

2. Landuse data

Review GIS landuse files for districts and input into SoAC GIS files.

3. Residential

Analyse and count individual dwellings in the residential land use class.

Cross-check data sets with count to check image interpretation accuracy ⟷

3. Other population data

Review population data and cross check with residential counting e.g.: UN-Habitat data sets; UNOCHA data sets.

4. Data table & map

The above analysis culminates in two main outputs: (i) A data table that outlines the extracted data for the key indicators by district and city; (ii) A GIS-based map that represents the data spatially.

5. Field verification and checking

The data is verified and checked by field survey. This includes: (i) spot checks of residential counts, (ii) reviewing GIS data set by local stakeholders and (iii) field survey of unknown areas.

6. Refine & consolidate city data set

Based on feedback and results from field survey, the city data set is updated and consolidated. Materials are prepared for the city consolation workshops (e.g. maps of density; district population and house maps).

7. Participatory city consultations

A city workshop/consultation is held, under the leadership of the Mayor, and Municipal Advisory Board, and attended by line departments, civil society, provate sector, academia and international community. City data is presented for feedback and further validation/refinement.

8. 2014/15 Data set complete and dissemination

The data set is updated to reflect inputs from the city workshops, to provide the final data set. This is used in the SoAC 2014/15 report and disseminated locally and internationally.

Chapter 2.
The Urban Economy

Quick facts and policy points:

- Over recent decades, many Asia-Pacific governments have linked urbanisation to their national development strategies. The economic success of cities is now fully entwined with that of nations and of the region.
- Many cities have become the key nodes of economic growth and wealth creation. Several urban economies now exceed the GDP of some Asia-Pacific nations.
- An increasing number of cities aspire to becoming 'world class' or 'globally competitive', but smaller cities and towns are disadvantaged by a lack of human, financial and organisational resources to connect into and take advantage of global trade.
- National urban policies and planning would help create greater economic opportunity for smaller towns and cities.
- Although competitive, low-cost production has lifted millions of people out of poverty and created large urban middle classes, in most cases this transformation has come at high environmental and social costs.
- Keeping production and labour costs low is also not an effective long-term development strategy, as it provides for neither inclusive nor sustainable urban development.
- If the region's cities are to go beyond 'middle income traps' they need new visions and partnerships, besides large investments in education and skills. Greater attention needs to be paid to quality of growth.
- Urban poverty and vulnerability continue to be underestimated: a third of the region's urban residents lack access to adequate shelter, clean energy, safe drinking water and sanitation.
- Women and youth continue to face employment and independent livelihood barriers due to reduced access to formal education and/or as a result of traditional family norms.
- The urban poor's contribution to economic competitiveness remains insufficiently reflected in pro-poor economic and social policies.

A vegetable seller in Rizal in the Philippines

Chapter 2.
The Urban Economy

Tokyo, one of Asia's leading post-industrial cities © Xiye

2.1 Cities and Regional Transformation

Cities in Asia and the Pacific are the region's powerhouses in terms of economic growth and transformation. Their role in both national and regional economic development has driven and benefitted from integration, large-scale investment and employment generation. This has lifted millions of people out of poverty, forged growing middle classes and transformed the urban physical landscape. Estimates of the contribution of cities to the GDP of various sub-regions (Dobbs et al, 2011: 29) clearly demonstrate their economic importance, as well as the relatively high productivity of urban populations. For example, in the China sub-region, cities contribute 74 percent of national GDP, while representing only 43 percent of the population. The dominant and growing importance of cities to economic performance is evident across the Asia and Pacific region as shown in Table 2.1.

The exact contribution of a city to the GDP, however, is hard to measure as economic data tends to be aggregated at the national level. In addition, the resources used to drive urban economic production and output are often not found in situ but sourced from rural hinterlands. But there is no doubt that the size of the region's urban economies is significant. In this respect, Tokyo leads the region - and indeed the world - with a Gross City Product (GCP) of almost USD 1.9 trillion in 2010, followed by Moscow and Sydney (Graph 2.1). These leading cities have economies larger than many countries in the Asia and Pacific region.

The roles cities play in the global or regional economy relate not only to the size of their economy but also to their function. Lo and Marcotullio (2000: 97-106) have distinguished four types of large cities in the Asia and Pacific region according to their function:

- **Post-industrial capital-exporting cities:** Tokyo and Seoul have a high concentration of headquarters of transnational corporations, multinational banks and producer services with a global and regional command-and-control role;

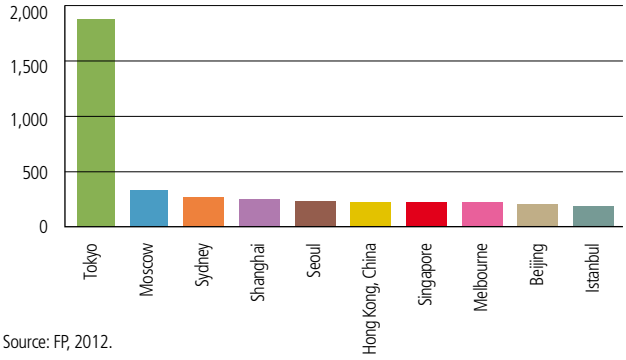
- **Industrial cities:** Bangkok, Jakarta and Manila remain the factories of the region and world, due to large-scale foreign direct investments in export-oriented manufacturing;

Table 2.1 **Share of cities in GDP (2007)**

Sub-region	GDP share (%)	Population share (%)
China sub-region*	74	43
North-East Asia	71	65
Australasia	68	65
South-East Asia	48	21
South Asia	31	18

***Includes China; Hong Kong, China; Macau, China; and Taiwan Province of China.**
Source: Dobbs et al., 2011: 29.

Graph 2.1 **Estimated GDP for the largest urban economies in the region (USD billion; 2010)**



Source: FP, 2012.

- **Entrepôt or borderless cities:** Hong Kong, China and Singapore are at the centre of single large cross-border economic zones: the Hong Kong-Pearl-River Delta-Fujian-Taiwan Province of China region and the Singapore-Johore-Riau growth triangle; and

- **Amenity cities:** Sydney has a post-industrial economy based on its integration into the regional economy and a high concentration of amenities to attract investments and economic activities.

Many large cities, although clearly connected to the global economy, are nevertheless subordinate to another city that performs domestic command-and-control functions, e.g. the relationship of Nagoya to Tokyo. Dhaka or Lahore, although linked to the global economy, have neither attracted the headquarters of multinational companies nor advanced producer services. For these they must rely on other cities, but they have nevertheless developed into important manufacturing bases, particularly Dhaka in relation to garments. Finally, some cities have been excluded or have excluded themselves from the global networks (e.g. Tehran and Pyongyang). Until recently, Yangon's connectivity was largely restricted through sanctions, but it is now seeking to reconnect (Short, 2014).

Some secondary and smaller cities have found a role in the global economy due to specialisation and serve as industrial centres in their own right. Rayong, a city of 60,000 in Thailand, is referred to as the 'Detroit of the East' and has the country's largest industrial estate and is one of the world's major petrochemical hubs.

For some cities in the region, travel and tourism are important sources of income (e.g. Phuket, Denpasar and Siem Reap). Tourism has also become a critical source of revenue for some of the region's large cities: Bangkok, Hong Kong, Istanbul, Kuala Lumpur, Seoul, Shanghai, Singapore, Taipei and Tokyo were among the top global tourism destinations in 2013 (see Table 2.2). Bangkok, the top destination in 2013, had 16 million overnight visitors who spent an estimated USD 14.3 billion (Hedrick-Wong and Choog, 2013).

Cities in the region continue to benefit from business process outsourcing, both front-office (customer-related services) and back-office (human resources management, accounting etc.). Due to the English language proficiency

Pyongyang, Democratic People's Republic of Korea © Linqong

Table 2.2 **Asia-Pacific top-10 destination cities by international overnight visitors (2010-2014)**

Rank	City	International Overnight Visitors (millions)						2014 Visitor Spending (USD billion)
		2010	2011	2012	2013	2014*	Change 2013-2014 (%)	
1	Bangkok	10.4	13.8	15.8	18.5	16.4	-11.0	$ 13.00
2	Singapore	8.8	10.1	11.1	12.1	12.5	3.1	$ 14.30
3	Kuala Lumpur	8.9	9.0	9.3	9.6	10.8	13.1	$ 8.10
4	Hong Kong	8.1	8.4	8.4	8.3	8.8	7.0	$ 8.30
5	Seoul	6.1	6.6	7.5	8.2	8.6	4.7	$ 11.50
6	Taipei	3.5	4.0	4.7	5.8	6.3	8.4	$ 10.80
7	Shanghai	6.7	6.2	6.0	5.7	6.1	7.6	$ 5.30
8	Tokyo	4.5	2.9	4.1	5.0	5.4	6.5	$ 7.40
9	Mumbai	4.0	3.8	4.0	4.6	4.9	5.9	$ 3.30
10	Beijing	4.5	4.8	4.6	4.0	4.4	9.2	$ 4.20

*** Estimates**

Source: MasterCard, Global Destination Index 2014, p.8.

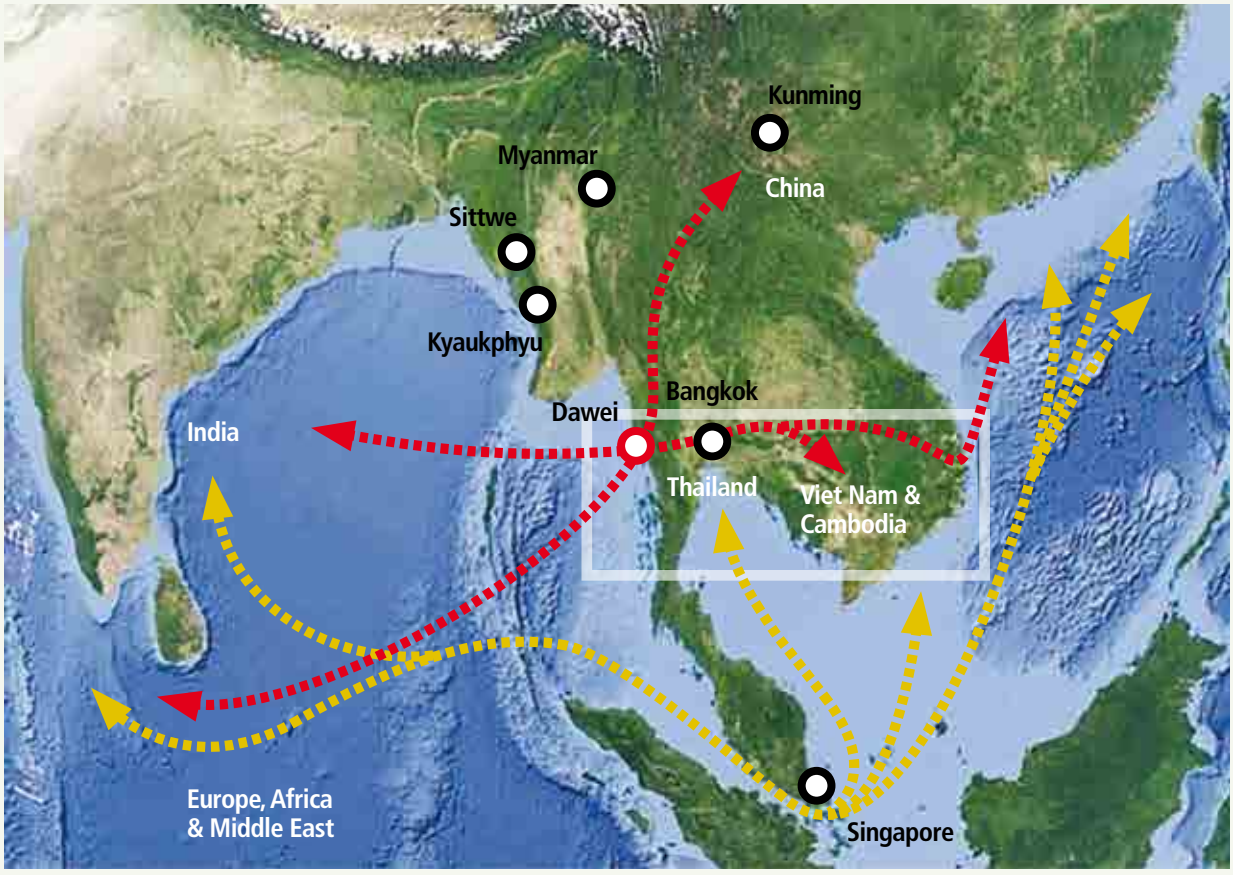
of their population, cities in India and the Philippines are global leaders in business process outsourcing, with Bangalore, Chennai, Delhi, Hyderabad, Mumbai and Pune in India and Cebu and Manila in the Philippines in the global top ten. For 2016, the Philippines is set to earn USD 26 billion in revenues from the services outsourcing industry, which would generate an estimated 1.3 million jobs (Tholons, 2014: 4-6).

Despite the growing number of Asia and Pacific cities connected to the global economy, truly global economic power and global city status characterise only a minority of cities in the region. Illustrating the asymmetrical contribution of cities to the global economy, it has been estimated that, worldwide, just 600 urban centres with a combined population of 1.5 billion generated USD 30 trillion or 60 percent of world's GDP in 2007 (Dobbs et al, 2011: 10).

Bagmane Tech Park in Bangalore, a city which has become a global leader in business process outsourcing © Joe Ravi

Box 2.1 **Opening access to global transport routes**

The transition of Myanmar offers new opportunities for urban and regional connectivity through linking existing and potential manufacturing centres to the Indian Ocean without having to pass through the Singapore Strait. Thailand, for instance, has shown interest in developing a deep-sea port in Dawei which is only 300 km over land from Bangkok and would give the Thai capital easier access to the Indian Ocean. Similarly, China is keen on developing the port of Kyaukphyu and linking it to Kunming in Yunnan, while India is interested in connecting its land-locked northeastern states and cities to the port-city of Sittwe.



Source: Global Asia's 2011 article entitled "Dawei Port: Thailand's Megaproject in Burma" written by Pavin Chachavalpongpun and posted on Global Asia Feature Essay (Vol. 6, No.4, Winter 2011)

Governments and international agencies in the region, including the Asian Development Bank, have been promoting the development of economic corridors that link cities in different countries. Such corridors based on an urban collaborative model, sometimes in combination with free-trade agreements and transport facilitation across national borders, have the potential of opening new or hitherto closed markets for local products and of shortening routes to sea- and airports. They can also provide smaller well-positioned cities with easier access to global markets. While there are already important examples in the region, such as the Pearl River Delta, corridors have also been proposed or planned in the Greater Mekong sub-region, the South-East Asian archipelago and Central Asia. Evidentially, cities will play a critical role in future regional and sub-regional integration efforts.

The economies of Pacific Island nations have also undergone significant adjustment in recent years, including a shift in resource allocation from rural sectors to urban areas. Although an increasing share of GDP is now being produced in urban areas, especially in the services sector, many smaller urban areas have seen only modest, if any, GDP growth. Some cities in the Pacific are among the most remote locations in the world and face challenges in determining a place and a role in urban

regional and global trade routes. This remoteness is also reflected in the high cost of air and sea travel to, within and among Pacific Island states. Still, the increasing share of urban areas in Pacific Island economic performance is evident as much as elsewhere in the region and, despite the challenges, cities will undoubtedly play a more important role for island economies in future (ADB, 2012: 31).

Being connected to the global economy has much to do with geographic location. Indeed, urban areas in the Asia and Pacific region's landlocked countries face similar challenges to those in remote island environments. Central and North-East Asian countries with vast land areas such as Kazakhstan, Mongolia, Turkmenistan and Uzbekistan also face high transportation and communications costs, and limited links between cities due to weak transport and expensive communication networks and markets.

2.2 From Comparative to Competitive Advantage

Investments in the Asia and Pacific region have often sought to take advantage of minimal tax regimes, low labour and land costs, as well as flexible and often unenforced labour, building and environmental regulations. Initially, cities were relatively passive recipients of foreign direct investments but, increasingly, cities in the region have shifted to more sophisticated comparative and competitive advantage marketing. Others are increasingly pursuing competitive advantage based upon city-to-city collaboration in production, transport or service nodes.

The importance of infrastructure

It is not just the largest cities of the region which seek to compete. Smaller cities in less-developed countries of the region have gradually emerged as increasingly cost-effective and competitive. In 2012, for instance, Phnom Penh was ranked in one survey as the most cost-effective city in the region due to its low labour costs, low profit tax, and its competitive office and industrial costs (fDi, 2012: 32). Other Asia and Pacific cities in the top ten were Da Nang, Hai Phong and Ha Noi in Viet Nam; Alor Setar and Johor Bahru in Malaysia; Vientiane in the Lao People's Democratic Republic; Kathmandu in Nepal; Multan in Pakistan and Rayong in Thailand. However, although low labour costs are a key factor in investment decisions, ceilings can be reached quickly due to infrastructure gaps and inefficacies. For many of the region's secondary cities, moving beyond their comparative advantage based on low labour costs can be difficult due to lagging investment in infrastructure, that increase costs and limit linkages to value-adding industries.

Given that the five top urban locations for infrastructure quality in the region (Singapore, Tokyo, Seoul, Hong Kong and Osaka) are economically successful and highly competitive, growing attention has been placed in recent years on the so-called 'infrastructure gap' of the region's cities and its consequences for future urban growth, competitiveness and prosperity (fDi, 2012). Much attention has been placed upon South Asia and South-East Asia, especially India and Indonesia, as having the greatest need to

Box 2.2 Revitalising small city economies in Indonesia

Pekalongan

Pekalongan, a city of 250,000 inhabitants along the northern coast of Central Java, has a unique Arab, Chinese and Javanese heritage. This is reflected in the city's multicultural population, which makes it stand out amongst Indonesian cities. Pekalongan used to have a thriving fishing industry, but inadequate facilities and sedimentation of the port led to its decline. The city formulated a vision to guide its regeneration and modernisation. The plan seeks to strengthen the unique identity of the city and turn it into a tourist destination by revitalising its centre and restoring cultural assets, such as its traditional neighbourhoods with their batik workshops and heritage buildings and the Batik Museum. To promote economic development, Pekalongan aims also at rebuilding its fishing industry, with a new port, boarding houses for fishermen and sailors and improved infrastructure. The city is conserving its mangrove forests to protect it from flooding and erosion that threaten communities along the coastline (UN-Habitat, 2012a).

Banjarmasin

Banjarmasin, a city of 639,000 inhabitants, is the gateway to Kalimantan. Due to its advantageous location, its port provides access to the resource-rich hinterland and trade routes beyond. The distribution and processing of coal, timber and rubber used to drive the local economy, but the rubber and timber industry are both now in decline. The city has to transform the local economy to maintain its role as a regional port, strengthen its function as a regional trading centre and develop its tourism sector. With this aim, the city is developing a central business district, renovating its market and improving the port infrastructure. As rivers are central to the city's identity, local government is reorienting the city and reviving the floating market to emphasise its traditional river culture, but this requires an improvement of the environmental quality of the rivers and the related public spaces (UN-Habitat, 2012b).

Box 2.3 **Power shortage as an investment obstacle**

Industries in Pakistan typically operate at half their capacity due to power shortages and cuts of up to 20 hours a day. Power shortage is also a major obstacle for India's attempts to develop export-oriented manufacturing. In Yangon, Myanmar, many factories rely on generators to bridge the frequent shortfalls in power supply, but power from generators is much more expensive than state-subsidised grid power. Cheap labour can partly offset the high costs of infrastructure deficits and still keep labour-intensive garment factories profitable, but investment in heavy industry is yet to take off. Even in hydropower-rich Nepal, the energy sector has been identified as requiring critical investments in order to meet growing demand (NYT, 29 June 2012; Asia Sentinel, 18 April 2014).

invest substantially in urban infrastructure to increase their competitiveness and efficiency. This has been estimated by the World Bank and Asian Development Bank in the trillions of US dollars, and requires considerable leveraging of private sector funds to support public investment (ADB/ADBI, 2009; Andres, 2013).

Improved infrastructure in some cities in the region is also needed to ensure that the built environment facilitates greater economic and social integration and opportunity, and contributes to lower-carbon cities of the future. Meeting the infrastructure gap for the region's towns and cities through low-carbon innovations and integrating social, economic and environmental outcomes can create an opportunity for addressing urban development challenges in unison.

Attracting business activity and investments are top priorities for many cities as a means of building economic strength and resilience. However, it is not so much the number of businesses but rather the degree of economic diversity that determines the economic flexibility and resilience of a city. Mono-industrial cities (which derive over 20 percent of their total output from one single economic activity) are far more susceptible to economic shocks than more diversified urban economies. External shocks can cause severe economic damage to mono-industrial cities and the region they support, as has been the case in Central Asia (CER et. al, 2013: 33). But excessive specialisation can also be found in some of the region's largest cities, such as female garment sector employment for export in Dhaka and Phnom Penh.

The consequences of keeping costs low

Rapid economic growth typically occurs when a country transforms from a low-productivity agricultural economy towards higher-productivity industrial and services sectors, as seen across many of the region's larger globalising cities in recent decades. When this process occurs, more skilled workers are needed and wages start to rise, affecting competitiveness, but also creating opportunities for smaller cities to compete. This is why other cities in Asia and the Pacific, but also in the Middle East and Africa, continue to enter the competition for foreign direct investments in export-oriented manufacturing by promoting themselves as places with low costs of doing business.

Informalisation and lack of regulatory enforcement of conditions are not limited to employment contracts but also extend to building and safety regulations. In 2012, a fire at a garment factory in Savar near Dhaka killed 112 persons. The Fire Department had previously refused a fire safety certificate for the building and had ordered its closure. Likewise, in 2013, an eight-storey building in Savar collapsed, killing more than 1,100 people. It housed five factories with 6,000 workers producing garments for foreign companies. Its building permit had been issued by the local municipality, which had lower building standards than Dhaka. The municipality had illegally issued a permit for three more floors on top of the existing five.

In 2012, a fire at a denim factory in Karachi killed 262 workers. The factory operated illegally without the required registration. The building had been approved for 250 workers but the owner had illegally built two more floors and hired 1,500 workers. Few of the workers had contracts with the factory; most were contract labourers hired by a third party. Just hours earlier, a fire in a shoe factory in Lahore had killed 25 workers when a generator ignited chemicals stored nearby. The Lahore factory had been illegally located in a residential neighbourhood. Such industrial hazards are common where companies compete for foreign orders by lowering production costs, and where there are few incentives for strong intervention and regulation in otherwise unregulated business environments.

2.3 Knowledge-based Cities

Keeping labour costs low is also not an effective strategy in the longer term due to the rising cost of living and greater claims for profit sharing. Economies may become stuck in what is known as the "middle-income trap": unable to transit from a middle-income to a high-income economy. In order to continue to grow, a city needs to distribute wealth more effectively, including by shifting to higher value-added and technologically advanced goods and services. However, such a shift is not easy since it demands

Box 2.4 The price of keeping costs low

Many companies in low-cost cities in the region have competed in the global economy by keeping production costs very low. They recruit a core staff of skilled workers and hire temporary workers to meet additional demand or outsource work to home-based workers. Temporary workers may be employed for long periods, but remain short-term and without social protection. Companies thus shift employment from permanent workers to permanently temporary ones and from permanently temporary ones to outworkers. As a result, many workers in the formal sector are *de facto* informally employed staff, without legal recognition or social protection. Companies also outsource work to other companies both to reduce costs and evade enforcement of labour regulations. Evidence of this exists, for instance, in Ahmedabad City, India, where *bidi* (hand rolled cigarettes) sellers acquire the raw materials and outsource the labour to roll the cigarettes before buying the finished product and selling it on the market. This outsourced labour does not require the same benefits provided to full-time employees of the *bidi* sellers (Chen, 2007: 8-9).

a different labour force and economic culture that emphasises and rewards knowledge, skills, creativity and innovation to develop and market new products. Acquiring such knowledge and skills requires investments in human capital and it takes time for the results to materialise.

Transformation of the urban economy also requires collaboration and consultation among all levels of government and the private sector. It is primarily the role of private entrepreneurs to invest, develop businesses, create profit and provide employment, while it is the responsibility of authorities to regulate. Local and national governments both need to create the conditions for the private sector to fulfil its role by supporting the development of the necessary physical and institutional infrastructure.

Economic transformation does not happen overnight, but governments can start this process in the short term by investing in education and healthcare. Indeed, one of the critical requirements for future development of the region's cities is the development of its human capital. It is not surprising that those cities that typically score well in terms of knowledge creation and innovation are also the more prosperous in the region. But it is important to note that such transformations have taken generations of commitment and renewal.

The human cost of keeping production costs down: in 2013, 1,127 people died in Savar in Bangladesh when a building housing garment factories collapsed © Maxim Petrichuk

Table 2.3 **Top-10 Asia-Pacific university rankings, 2013-14**

Rank	Institution	Country	Score
1	The University of Tokyo	Japan	76.4
2	National University of Singapore (NUS)	Singapore	72.4
3	The University of Melbourne	Australia	68.2
4	The University of Hong Kong	Hong Kong, China	65.3
5	Seoul National University	Republic of Korea	65.2
6	Peking University	China	65.0
7	Australian National University	Australia	64.4
8	Tsinghua University	China	63.5
9	Kyoto University	Japan	63.2
10	Korea Advanced Institute of Science and Technology (KAIST)	Republic of Korea	62.9

Note: In the worldwide rankings, the University of Tokyo is at 11th place, Kyoto University at 19 and the National University of Singapore at 21. Another global university ranking (QS World University Rankings) puts the University of Tokyo and National University of Singapore at a shared 31st place.
Source: http://www.timeshighereducation.co.uk/world-university-rankings/2013-14/regional-ranking/region/asia

Towards innovative cities

In addition to explicit knowledge, companies also need tacit knowledge, i.e. knowledge that is collective rather than individual and can only be gained by being on-site. It explains why research institutes, high-tech companies and manufacturing facilities are typically clustered. However, cross-fertilisation does not always work, as the experience of Osaka reveals. After the loss of its manufacturing industry, the city of Osaka tried to develop a knowledge-based economy, but institutional differences and contrasting priorities made it difficult to achieve synergies between the private sector and academia (Anttiroiko, 2009).

Cities in China have been sending delegations abroad to urge talented overseas-educated nationals to return. To make the return attractive, Shanghai and Beijing created high-tech zones for returning overseas scholars and offer tax breaks on imported cars, subsidies on home purchases, schooling for children and jobs for spouses. Most returnees are academics and scientists who specialise in areas critical for the growth of a knowledge-based economy: information and communication technology, biotechnology and so on. Many of them become entrepreneurs, as their experience abroad helps them connect their companies to the global economy (Zweig, 2006: 198-200; Wang et al, 2011: 414-415).

University-centred cities can be important places for multinational companies seeking relocation of their research and development activities to "offshore" Asia and Pacific affiliates. According to the US National Science Foundation, staff in research and development

Table 2.4 **Leading medical tourism destinations**

Rank	Country	Revenue (USD millions)	Principle Market	International Patients	Procedures
1	Thailand	USD 4,300 (2013)	Australia, Gulf Cooperation Council nations, Japan, United Kingdom, USA	2,500,000 (2013)	Cosmetic surgery, dentistry, ophthalmology
2	India	USD 3,900 (2014 est.)	Bangladesh, Central Asia, Europe, Malaysia, Middle East, Myanmar, Pakistan, Sri Lanka	500,000 (2014 est.)	Cardiovascular, orthopaedics (incl. hip and knee replacement)
3	Singapore	USD 3,500 (2014 est.)	Bangladesh, Cambodia, China, India, Malaysia, Myanmar, Viet Nam	850,000 (2014 est.)	Cancer, cardiovascular, fertility, neurology, ophthalmology, organ transplant, paediatrics
4	Taiwan Province of China	USD 430 (2014 est.)	China	200,000 (2013)	Comprehensive medical examination, cosmetic surgery, orthopaedics
5	Malaysia	USD 216 (2013)	Gulf Cooperation Council nations, India, Myanmar, Viet Nam	768,000 (2013)	Alternative medicine, cosmetic surgery
6	Republic of Korea	USD 204 (2013 est.)	China, Japan, Russian Federation, UAE, USA	250,000 (2014 est.)	Dentistry, dermatology, fertility, internal medicine, ophthalmology, plastic surgery

Sources: Medical Tourism Association; http://yourhealth.asiaone.com/content/43b-revenue-likely-singapore-medical-tourism-year; http://www.imtj.com/news/?entryid82=436838

Box 2.5 **Attracting highly skilled professionals**

Because human capital development takes time, the government of Singapore tries to attract foreign professionals by offering a globally connected working environment and a high quality of life, as well as high incomes. In Biopolis and Fusionopolis, Singapore seeks to facilitate industrial clustering and foster synergy between public and private research institutes. Biopolis offers world-class biomedical research and development (R&D) facilities with shared resources and services to promote collaboration among research institutes and private laboratories. Fusionopolis enables research and development in information and communication technology, material sciences, micro-electronics, high-performance computing and other resources. Some 3,000 researchers and scientists from 50 countries work in the complexes (Toh and Jiang, 2012: 46).

To become leading and transformative economies, cities also need entrepreneurs and Singapore has adopted business incubator policies as part of a five-year plan to groom high-tech entrepreneurs. It established N-House - residences modelled after the Stanford University dormitories that housed the Google founders. It allows students to brainstorm new ideas and pitch them to potential investors and offers subsidised office space, legal advice and free accounting to promising start-ups. The plan promotes the teaching of entrepreneurial skills, offers grants and supports venture capital funds (Bloomberg, 25 January 2013).

Singapore is a city that many other cities want to emulate, because it started without a significant resource base and developed into one of the wealthiest cities in the world. Many lessons can be drawn from the experiences of Singapore, chief among them being Singapore's coordination of economic, social, and spatial policies, along with the focus on integrating economic and social development policies at early stages of planning.

Bangkok has become a global medical tourism destination

Table 2.5 **Worldwide "Cities of Opportunity" (2014)**

Rank	City	Strengths
1	London, UK	Intellectual capital and innovation; city gateway; technology readiness, economic clout
2	New York, USA	Intellectual capital and innovation; ease of doing business; city gateway
3	Singapore	Technology readiness; city gateway
8	Hong Kong, China	Transportation and infrastructure; ease of doing business
9	Sydney, Australia	Sustainability and the natural environment; health, safety, and security
13	Tokyo, Japan	Intellectual capital and innovation; ease of doing business; city gateway
14	Seoul, Republic of Korea	Sustainability and the natural environment; intellectual capital and innovation
17	Kuala Lumpur, Malaysia	Technology readiness; transportation and infrastructure
19	Beijing, China	Economic clout; city gateway
20	Shanghai, China	Ease of doing business; cost of living
21	Moscow, Russian Federation	Economic clout; city gateway
25	Istanbul, Turkey	Intellectual capital and innovation; economic clout
28	Mumbai, India	Cost of living; city gateway
29	Jakarta, Indonesia	Sustainability and the natural environment; cost of living

Sources: PWC, 2014, Cities of Opportunity;

departments of US transnational corporations based abroad increased from 16 percent in 2004 to 27 percent in 2009. This trend may take cities in the region beyond their role as mere factories of the world and turn them into research hubs for the world (NYT, 30 March 2013).

Building world-class cities

In order to transform their urban economies into ones that are knowledge-based and attract high-quality talent, an increasing number of cities are seeking 'world-class' status. Cities as diverse as Colombo, Mumbai and Yangon have announced plans to emulate Singapore or Shanghai by investing in high-quality infrastructure and beautifying their city. Once world-class, the expectation is to attract mega-events, regional headquarters of multinational companies, as well as tourists and business travellers.

The development of a city as a place with world-class facilities can have unintended consequences however, and not all changes may be of benefit. Some cities in the region have become global medical tourism destinations, a notable case in recent years being Bangkok. A city can draw benefits from medical tourism if the profits cross-subsidise domestic health care or are invested in the expansion and improvement of health-sector infrastructure and medical staff. But medical tourism can also divert resources from local health care to private hospitals for foreign patients or induce staff to move

Table 2.6 **Global Cities Initiative, Supporting Our Cities' Economic Future (selected cities 2014)**

Rank	Country	City	Real GDP per Capita Growth 2013-14 (%)	Employment growth 2013-14 (%)	Rank Economic Performance 2009-14
1	Macau, China SAR	Macau	8.0	4.2	10
2	Turkey	Izmir	2.0	6.6	8
3	Turkey	Istanbul	2.0	6.5	17
6	China	Kunming	8.1	2.9	9
7	China	Hangzhou	7.0	3.3	6
8	China	Xiamen	8.6	2.6	1
9	Turkey	Ankara	1.1	5.7	27
10	China	Fuzhou	8.0	2.7	13
19	Malaysia	Kuala Lumpur	4.1	3.4	4
23	Vietnam	Ho Chi Minh City	3.9	3.1	46
34	Indonesia	Jakarta	4.3	2.6	42
47	Malaysia	George Town	3.8	2.6	52
61	Singapore	Singapore	1.8	3.1	48
139	Philippines	Manila	4.1	0.5	69
300	Thailand	Bangkok	-0.5	-1.7	259

Source: JP Morgan and Bookings Institute: Global Cities Initiative, Supporting Our Cities' Economic Future

Bukhara, Uzbekistan (top) and Penang, Malaysia (bottom) have invested in heritage preservation to target tourism and strengthen national positioning

from the public to the private sector, drawn by better salaries and working conditions (Lunt, 2014).

The presence of highly skilled, well-paid expatriate professionals or wealthy foreigners is not without consequences either. A "brain gain" can displace domestic enterprises and indigenous labour. It can also lead to rapid increases in property prices, as has happened in Hong Kong, Singapore and Sydney but also in some lower-tier cities. Initially driven by high-end property prices, over time this can affect housing costs for the middle classes.

Cultural heritage

Historical buildings and heritage sites can stand in the way if a city wants to reinvent itself. Across the region, historical buildings have been rased to make way for profits associated with urban renewal. The powerful real estate sector and rapidly rising property prices in Asia and Pacific cities often place cultural heritage conservation low on the urban agenda and can make it difficult for local government to enforce zoning laws. In many cities, historic buildings have been replaced by glass and steel office structures that give cities an identical look all over the world. But cities tend to overlook the economic potential of heritage sites, which give cities a unique identity and can bolster tourism (UNESCO, 2004: 50).

It is often difficult to strike a balance between the promotion of economic growth, poverty reduction, and protection of the natural environment and cultural heritage. Many local governments lack the capacity to successfully negotiate with a powerful and well-funded private sector. However, once they have been destroyed, heritage buildings, unique cityscapes and the natural environment do not recover. On the other hand, local governments may neither have the political will nor the economic resources to act in the public interest.

Nevertheless, there are important regional examples of especially secondary and smaller cities which have sought to develop a strong niche through heritage preservation. This has included targeting tourism, but also strengthening cultural sites for national positioning. Melaka and Penang, have both invested substantially in heritage buildings and museums which celebrate Malaysia's unique historical links as a trade route encompassing Dutch, British, Indian, Chinese and Malay influences. Bukhara, Uzbekistan, has recently revitalised cultural infrastructure linked to its important historic role along the Silk Road. Even for much smaller towns, such as the original capital of Fiji, Levuka, UNESCO World Heritage Status has facilitated its much wider regional and global positioning. With a population of little more than 1,000, its very survival as a small and remote town offers an example of how heritage can be harnessed.

Table 2.7 **Percent employment by sector and sub-region, 1995-2010**

Sector	Agriculture		Industry		Services	
Year	1995	2010	1995	2010	1995	2010
East and North-East Asia	46.3	33.0	25.0	28.8	28.7	38.1
South-East Asia	52.1	41.5	16.2	18.6	31.7	39.9
South and South-West Asia	59.2	49.4	16.1	21.2	24.7	29.4
North and Central Asia	21.3	19.3	28.4	24.3	50.4	56.4
Pacific	17.3	17.1	20.0	17.9	62.7	65.0

Source: ESCAP, 2013: 242

Economic growth in Asia and the Pacific over the past decades has created many new jobs, but specific data on urban employment is not easily available

Best cities for business

The 2014 PriceWaterhouseCoopers' *Cities of Opportunity* report listed 27 cities worldwide as the best environments for doing business. While the top of the list might skew toward the West, Asian cities are gaining fast with now 11 cities among the world's 30 highest ranked. Another report was recently released by JP Morgan and

Box 2.6 **Balancing economic growth and socio-cultural priorities in Myanmar**

Policymakers in Myanmar, who wish to turn Yangon into the next Singapore, have not only Singapore's economy but also its modern cityscape in mind. Colonial-period buildings define much of the city's character, although they have been called a British rather than a Myanmar cultural heritage. Many buildings were abandoned when the government moved to the new capital Nay Pyi Taw, and are in a state of disrepair. Many houses in the centre of Yangon have not been maintained due to rent control and/or unclear ownership. Non-maintenance can also be a deliberate strategy. As land values rise due to economic reform, landowners push local government to declare buildings unfit for habitation so that they can be demolished and the land redeveloped.

A son and father packing coal in Jharia, India. Most of the extreme poor work in the informal sector through own-account work or unpaid family work © Koscusko

Table 2.8 **Employment by economic class in selected sub-regions, 1991-2012**

Year	1991		2012	
	(millions)	%	(millions)	%
Middle class	65	5.0	671	37.9
Near-poor	178	13.8	497	28.1
Moderate poor	333	25.8	365	20.6
Extremely poor	715	55.4	238	13.4
Total	**1,291**	**100.0**	**1,771**	**100.0**

Regions includes East Asia, South-East Asia and the Pacific, and South Asia
Source: Huynh and Kapsos, 2013: 26-27.

the Brookings Institute through their joint Global Cities Initiative, which measured economic performance of cities. Out of the 10 highest ranking cities, nine were from Asia and the Pacific, indicating that global economic prowess has shifted to this region. It is striking that no less than 27 of the 50 best-performing cities are from China. The report also showed that employment levels and quality of life in Asian cities have improved with rising economic status.

2.4 Generating Urban Employment

Employment is the primary link between economic growth and poverty reduction, but this is not a predetermined relationship. Economic growth in the region's urban areas

Table 2.9 **Youth and total unemployment rates (1995-2010)**

Sub-region		Unemployment rate (%)	
		1995	2010
East and North-East Asia	Youth	8.6	8.8
	Adults	4.3	4.2
South-East Asia	Youth	9.5	13.9
	Adults	3.8	4.9
South and South-West Asia	Youth	9.7	10.7
	Adults	4.4	4.5
North and Central Asia	Youth	18.7	17.4
	Adults	9.9	8.1
Pacific	Youth	13.1	11.0
	Adults	7.3	5.0

Source: ESCAP, 2013: 243

Table 2.10 **Male and female labour force participation (1995-2012)**

	Male		Female	
	1995	2012	1995	2012
East and North-East Asia	79.3	75.0	66.6	62.7
South-East Asia	80.0	78.5	56.3	55.8
South and South-West Asia	79.9	77.3	33.0	29.4
North and Central Asia	64.1	67.4	48.1	52.5
Pacific	68.3	69.5	51.6	57.6

Source: ESCAP, 2013: 141

has not always been employment intensive. Some industries are capital and technology intensive, meaning that growth may not create more employment. Key determinants of the relationship between economic growth and poverty reduction are the number of new jobs created, the quality (including remuneration) and the stability of these jobs and the ability of people to seize new job opportunities (Melamed et al, 2011: 1).

Economic growth in Asia and the Pacific over the past decades has created many new jobs, but specific data on urban employment is not easily available. Employment by sector is often used as a proxy (Table 2.7). The Asia and Pacific region has experienced a shift in employment, with the industry and services sectors growing significantly, while overall employment in agriculture declined. A key trend in the region is the gradual shift from rural and industry-based employment towards services. Some caution should be taken with official data however, as informal sector employment activity is rarely captured to any confident degree.

Huynh and Kapsos (2013: 2) distinguished four classes of workers based on per capita consumption or income per day (at purchasing power parity):

- E**xtremely poor (under USD 1.25 a day):** cannot afford to meet all basic human needs.
- **Moderately poor (USD 1.25-USD 2.00):** can just meet their basic human needs such as an acceptable level of daily caloric intake.
- **Near-poor (USD 2.00-USD 4.00):** not poor, but highly vulnerable to slip into poverty.
- **Middle class (more than USD 4.00):** can afford non-essential goods and services.

A key trend in the region has been the labour shift during the past two decades towards middle-class employment, particularly in East and North-East Asia; but there has also been expansion of employment among the poor. These two trends led to a major decline in income poverty among both the extreme poor and the moderately poor (Table 2.8). On the whole, workers in many of region's urban centres have higher incomes and better

Box 2.7 **The female labour force in Bangladesh**

The expansion of the Bangladeshi garment industry has added more than 2.85 million women to the labour force. In 1980, around 50,000 female garment workers were employed in this sector. By 2002, there were about three million workers, of whom 90 percent were women. While the garment industry involves demanding, low paid work with repetitive skills over long hours, its employment creation has had positive impacts. Labour force participation has changed the status of women in their family and has balanced the traditional dominance of fathers, brothers and husbands, as women who earn their own income do not need to rely on a husband for income to the same extent. Many parents are now dependent on the income of their unmarried daughter(s) and are reluctant to permit marriage until the family has become financially secure. Today, women in general prolong marriage and delay childbearing, and there is some evidence of an increase in participation by the husband in household work. With 90 percent, female workers make up a large share of the labour in the Bangladeshi garment industry. This compares with 87 percent in Sri Lanka, 34 percent in India, 15 percent in Nepal and 10 percent in Pakistan (Ahamed, 2013: 46-47).

employment conditions compared to several decades ago, although not necessarily improved job security.

Barriers to employment opportunity

Globally, most of the extreme poor work in the informal sector through own-account work or unpaid family work. Only 12.7 percent of extreme poor are in wage employment. Among the moderately poor, there is less own-account work or unpaid family work and 19 percent is in wage employment. Among the near-poor workers, 35.3 percent, and among middle-class workers more than 60 percent is in wage employment. Higher incomes and more stable employment provide crucial benefits to middle-class families. They can invest in health and education and live a healthier and more productive life than the poor and near-poor. They also drive the economy as higher-spending consumers (Kapsos and Bourmpoula, 2013: 5, 25).

Employment generation as such is not sufficient to reduce poverty. People must have adequate health and education levels to fill the jobs that economic growth generates. Many urban poor live in informal settlements without access to basic infrastructure such as safe drinking water and sanitation and can be affected by poor health. Also, as the economy develops, employment characteristics change and employers demand better knowledge and skills, especially in the value-added manufacturing and service sectors. Workers without knowledge and skills are not easily employed. They often consist of the more vulnerable urban populations - older persons who grew up when primary education was not yet universal; migrants who received inadequate education in rural areas; and persons who are not being considered by employers despite their knowledge and skills, such as those living with disabilities. In some parts of the region, patriarchal systems continue to act as a barrier to the participation of married women.

Youth (aged 15-24) continue to form a significant proportion of the unemployed and underemployed in the cities of the region. Increasingly, many are facing difficulties finding full-time or regular employment. In all sub-regions youth unemployment is much higher than overall unemployment and in all but the Pacific and North and Central Asia, youth unemployment is on the rise (Table 2.10). Several factors lead to high rates of youth unemployment (World Bank, 2012: 207-208; Kapsos, 2013: 2-3). One is the demographic youth bulge, a relatively large youth cohort relative to the number of jobs available. Another factor is a mismatch between the type of skills demanded in the labour market and those available in the workforce, besides lack of work experience among the youth. A third factor is the presence of barriers to

In Bangladesh labour force participation has changed the status of women in the family

Box 2.8 **Urban informal employment in India**

India has a very high rate of urban informal employment. This high rate has persisted despite recent economic growth. It is comprised of a small formal salaried workforce (20 percent) of which around two-thirds work in formal offices and factories; an informal wage workforce (40 percent) of which around 15 percent work in formal offices and factories; and a large informal self-employed workforce (40 percent) half of which works at home or in open public spaces.

The largest share of informally employed urban workers is engaged in non-trade services, followed by manufacturing for women and trade for men. Domestic workers, home-based workers, street vendors and waste pickers represent 33 percent of total urban employment and 41 percent of urban informal employment. Home-based work is the largest sector (18 percent of total urban employment, and 23 percent of urban informal employment) (Chen and Raveendran, 2011: 6-7, 14).

Urban informal employment in India by sector, sex and year

Industry group	1999-2000 (%)		2004-2005 (%)		2009-2010 (%)	
	Male	Female	Male	Female	Male	Female
Agriculture	6	18	6	18	6	14
Manufacturing	17	21	19	26	17	25
Construction	9	5	9	4	11	5
Trade	25	14	24	10	23	10
Non-trade services	20	24	21	28	22	28
Total urban informal	77	82	79	85	79	81
Total urban formal	23	18	21	16	21	19
Total urban	**100**	**100**	**100**	**100**	**100**	**100**

Source: Chen and Raveendran, 2011: 6-7.

In India, the largest share of informally employed urban workers is engaged in non-trade services, followed by manufacturing for women and trade for men

employment such as lack of information on employment opportunities and the personal networks that can help find a job. Young entrepreneurs may also have difficulties gaining access to capital to start a business.

Likewise, female labour force participation rates in the region are significantly lower than those of males (Table 2.10). Female labour participation is the highest in East Asia, although it still lags behind male participation. In South and South-West Asia, female participation is persistently low and lower in urban than in rural areas. In rural areas, women have to work, while urban women may withdraw from the labour force if they cannot find work in line with their social status, or they may be denied entry into especially formal employment through education, cultural or discriminatory barriers. Due to restrictions on mobility, many women engage in unpaid family work or paid work inside their home (Kabeer and Mahmud, 2004: 94).

In South and South-West Asia, female labour force participation is sometimes seen as a challenge to patriarchal systems, even in urban poor households since tradition can take priority over loss of income. Its impact reaches beyond the household. Still, employment by a daughter is more acceptable than by a spouse, and this has made work in the garment industry an acceptable option for young, unmarried women (Banks, 2013).

2.5 A Persistent Urban Informal Sector

Despite rapid economic growth, many men and women in urban areas cannot find work in the formal sector because they either do not meet the qualifications or face too many barriers to start a formal enterprise of their own. The informal sector provides a greater opportunity for employment, including for family-based

Graph 2.2 **Employment in the informal economy in selected countries of the region**

Source: International Labour Organisation, 2012: 4-5

Box 2.9 **The vulnerable employment rate**

In 2013, global economic growth slowed to its lowest rate since 2009. The weak and uneven global economic recovery continued to take its toll on labour markets, particularly in the developing world. This was reflected in limited progress in the reduction of low-quality employment, which has been widespread in most developing countries. The vulnerable employment rate - defined as the percentage of own-account and unpaid family workers in total employment - accounted for an estimated 56 percent of all employment in developing regions in 2013, compared to 10 percent in developed regions. This rate decreased by 2.8 percentage points in the period of 2008–2013, compared to a decrease of 4.0 percentage points in the preceding five-year period (2003–2008). A high proportion of workers in vulnerable employment signifies widespread informal working arrangements. Workers in such situations usually lack adequate social protection and suffer low incomes and arduous working conditions under which their fundamental rights may be violated. The slower decrease in the rate of vulnerable employment affected most regions, but was most pronounced in Western Asia where the vulnerable employment rate decreased by only 1.2 percentage points in 2008–2013, compared to more than 8 percentage points from 2003–2008. (United Nations *Millennium Development Goals Report 2014*).

enterprises where work and other commitments can be shared. Because of its nature and its multitude of forms, the urban informal sector is hard to define and its economic importance is hard to measure, but its size and relevance in the Asia and Pacific region remains highly significant. Far from diminishing with economic growth, the informal sector in some cases is growing (Chen, 2007: 6). The magnitude of the informal sector, its resilience to changing economic circumstances, and its perseverance is an important urban employment characteristic in the region and a substantial driver of urban economies.

Diversity in informal employment

When the term "informal sector" was introduced to describe unregulated economic activities in Africa in the 1970s, a clear dichotomy was assumed between a modern, formal sector and the residual informal sector. In the Asia and Pacific region, the two sectors form a continuum from pure formal (regulated and protected) to pure informal (unregulated and unprotected) with many hybrids in between. Workers and enterprises move along this continuum and often operate simultaneously in both at different points. At the core of the urban informal sector are the own-account worker and his or her contributing family workers, but informal employment within the formal sector is also highly significant.

Self-employed workers and their families meet the demands for goods or services that formal companies are unable or unwilling to provide due to labour costs, regulation or the small size and low purchasing power of the market. The importance of the informal sector in many Asia and Pacific cities remains particularly evident in food, transportation and housing. Informality, whether in housing, services, commerce or mobility keeps the cost of urban living low for the poor and lower-

middle class, and thus significantly contributes to the region's urban competitiveness.

However, it is important to note that many informal enterprises supply finished goods and services to formal enterprises, to transnational companies and even to the global market (Daniels, 2004: 505; Chen, 2007: 2-3). The informal sector is said to be characterised by low productivity and low incomes, but some informal-sector productivity and incomes exceed formal-sector ones, while low wages and poor working conditions can be found in the formal sector too. Factories that subcontract work from other companies may offer working conditions and wages not very different from those in the informal economy (Kabeer and Mahmud, 2004: 95).

The limitations and risks of informal work

Working conditions in the informal sector are, however, often extremely poor and incomes are generally very low. Besides harassment by law enforcement agents and the need to pay bribes to stay in business, a lack of access to credit is a major obstacle for the development of a sustainable business in the informal sector or to move up to the formal sector. Due to their informal status, irregular income and uncertain prospects, informal entrepreneurs often have no access to formal financial institutions for credit. Also, the majority lacks access to emergent social protection systems, including pension and savings schemes. They have to rely on relatives and friends (sometimes through savings-and-loans groups), suppliers of inputs or buyers of their outputs, and local moneylenders. Micro-credit from micro-finance institutes can provide significant financial support to informal enterprises, but their reach still remains relatively limited in much of the region.

While a large number of children in Asia and the Pacific remain trapped in child labour, it is a more common phenomenon in rural rather than in urban areas. Recent estimates (ILO 2013b: 3-5) put the number of child labourers (aged 5-17) in the region at about 78 million, accounting for 9.3 percent of the child population. Almost half of all child labourers are involved in hazardous work (34 million), i.e. work that directly endangers their health, safety and development. The region has, however, seen an overall decline in child labour from 114 million in 2008 to 78 million in 2012 (Table 2.11).

2.6 Urban Income Poverty and Inequality

The shift from predominantly agriculture-based, low-productivity employment to urban-based higher-productivity employment has significantly reduced income poverty in Asia and the Pacific. ESCAP research shows that between 1990 and 2011, the number of people living on USD 1.25 or less a day (extreme poor) decreased from 1.6 billion to 743 million - a decline of 884 million. The

Informal entrepreneurs often have no access to financial credit

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Table 2.11 **Children in employment, child labour and hazardous work (2008 and 2012)**

Year	Children population	Children in employment		Child labour		Hazardous work	
	Thousands	Thousands	Percent	Thousands	Percent	Thousands	Percent
2008	853,895	174,460	20.4	113,607	13.3	48,164	5.6
2012	835,334	129,358	15.5	77,723	9.3	33,860	4.1

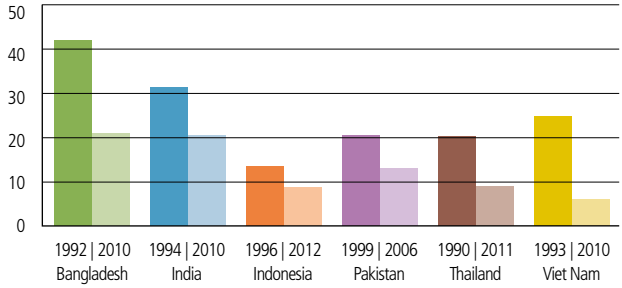
Children in employment: those engaged in any economic activity for at least one hour during the reference period.
Child labour: those in the worst forms of child labour and children in employment below the minimum age, excluding children in permissible light work, if applicable. Child labour is a narrower concept than "children in employment".
Hazardous work: any activity or occupation that, by its nature or type, has or leads to adverse effects on the child's safety, health and moral development.
Source: ILO, 2013: 27.

Table 2.12 **Percentage of the extreme poor by region (1990-2008)**

	1990		1996		2002		2008	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
East Asia and Pacific	67.5	24.4	45.9	13.0	39.2	6.9	20.4	4.3
South Asia	50.5	40.1	46.1	35.2	45.1	35.2	38.0	29.7
World	52.5	20.5	43.0	17.0	39.5	15.1	29.4	11.6

Extreme poor: persons living on USD 1.25 a day or less
The poverty data of these two sub-regions come from a limited number of countries, as data were not available for all countries in these sub-regions.
Source: World Bank, 2013b: 87

Graph 2.3 **Share of the urban poor in the urban population in selected countries**



Source: UNStats: 2013. <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=582&crid=>

'moderately poor' living on USD 1.25 to 2.00 a day have declined from 2.4 billion to 1.6 billion - a decline of 774 million (ESCAP et al, 2013: 26). Some of those who escaped poverty moved into middle-income status. Others, though not poor anymore, still remain highly vulnerable to slipping back into poverty.

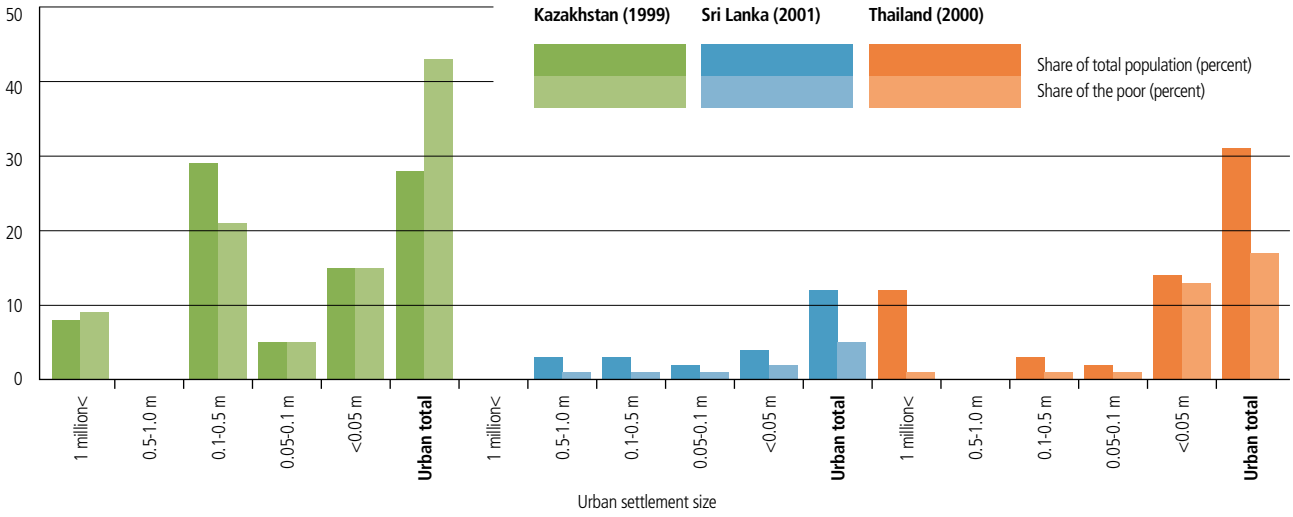
Despite rapid economic growth, massive employment generation and impressive gains in poverty reduction, income poverty is still widespread in the region, particularly in rural areas. There is, however, a concern that income poverty will become more of an urban problem as countries urbanise.

How the urban poor are penalised: The need to re-define urban poverty

The urban poor need to pay in cash for almost all basic necessities and usually have to pay more than those better off. The urban poor also have higher housing and transport costs relative to their income. Worldwide, those who lack access to piped water, for instance, always pay more than those connected to the grid. Often they also have to walk long distances to access water or collect cooking fuel; usually a task for the girls of a household. Where they lack sanitation, the problems are exacerbated because women and girls face the risk of being harassed or attacked on the way to, at or from the facility. Crime also tends to be higher in poorer communities than elsewhere in the city, though inadequate reporting and recording makes clear data problematic. Such are the penalties of urban poverty.

Data from a limited number of countries in sub-regions of Asia shows a decline in the share of both rural and urban income poor in the total rural and urban populations, respectively. In East Asia and the Pacific, the

Graph 2.4 **Poverty by urban settlement size, selected countries (percent)**



share of urban poor in the population declined from 24.4 percent in 1990, to 4.3 percent in 2008; in South Asia it declined from 40.1 to 29.7 percent over the same period. Although poverty incidence in these two sub-regions was heavily influenced by the trends in the two most-populous countries, China and India, data from six countries in the Asia and Pacific region show similar declines (Graph 2.3).

However, urban and rural poverty cannot be looked at separately because they tend to be interdependent and because urbanisation plays a major part in rural poverty reduction through rural-urban migration, remittances and reclassification. Migration to urban areas by rural poor can reduce rural income poverty and increase urban income poverty, but this is not always the case. Urban areas typically offer more economic opportunities than rural areas and some rural migrants are likely to escape their income poverty and join the near-poor or even the middle classes. Others simply migrate their poverty, join the urban poor and contribute to the increase in urban income poverty. Where those who escape urban income poverty form a large part of the (initially poor) rural-urban migrants, urbanisation contributes to both rural and total income poverty reduction.

The decline in rural income poverty and the increase in urban income poverty, however, can also be a result of reclassification of rural into urban settlements. In that case,

Table 2.15 **Urban population living in inadequate housing, selected countries**

	1990		2005		2009	
	Percent	millions	Percent	millions	Percent	millions
Bangladesh	87.3	20.0	70.8	27.8	61.6	27.5
China	43.6	131.7	32.9	183.5	29.1	180.6
India	54.9	121.0	34.8	112.9	29.4	104.7
Indonesia	50.8	27.6	26.3	24.8	23.0	23.3
Nepal	70.6	1.2	60.7	2.6	58.1	3.1
Pakistan	51.0	18.1	47.5	27.2	46.6	30.0
Philippines	54.3	16.5	43.7	18.0	40.9	18.3
Viet Nam	60.5	8.1	41.3	9.5	35.2	9.2

Inadequate housing has one or more of the following characteristics: insecure land or house tenure; lacking access to safe water and/or sanitation; insufficient living space; temporary or semi-permanent structures that fail to protect against extreme climate conditions; a hazardous, disaster-prone location.
Source: http://mdgs.un.org/unsd/mdg/Data.aspx

A mother washing her child in an informal settlement in Malate, Philippines. Those who lack access to piped water almost always pay more than those connected to the grid © Sjors737

urbanisation of poverty is the result of a purely administrative decision, without change to actual levels.

It should also be understood that remittances by rural-urban and international migrants constitute another way in which urbanisation contributes to rural income poverty reduction. Remittances form an increasing component of the rural household income in many countries of the region.

Income poverty and inequality

Data on income poverty come from nationwide sample surveys of household incomes and consumption. The samples are representative for the population as a whole and sometimes for large cities, but not for smaller cities. Using national poverty lines and noting several caveats (particularly on the definition of urban), Ferré et al (2012: 355-356, 360-361) found that the urban poor in Kazakhstan, Sri Lanka and Thailand disproportionally live in smaller cities and towns (Graph 2.4). The situation is similar in Viet Nam where small cities and towns account for 43 percent of the urban population, but over 70 percent of the urban poor, while Ha Noi and Ho Chi Minh City accommodate 32 percent of the urban population, but only 11 percent of the urban poor (Hoang et al, 2013: 4).

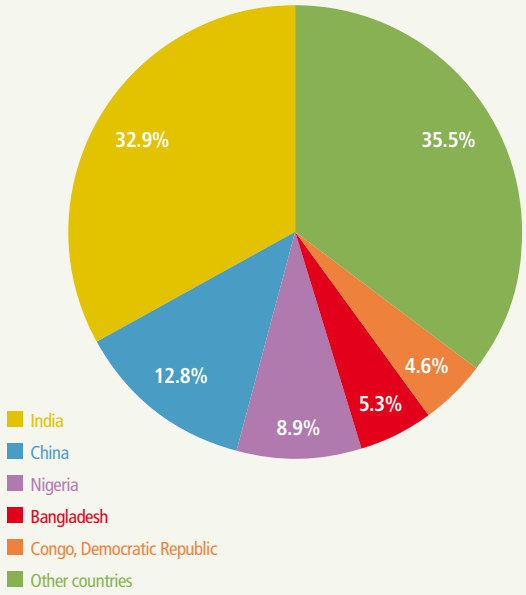
The decline in rural income poverty and the increase in urban income poverty can also be a result of reclassification of rural into urban settlements. In that case, urbanisation of poverty is the result of a purely administrative decision, without change to actual levels

Since measuring urban income poverty is difficult, lack of adequate housing is often used as a proxy (Table 2.15). It should be noted though that not all "income poor" live in inadequate housing and not all occupants of inadequate housing are "income poor". Moreover, informal settlements with inadequate housing are sometimes excluded from maps, surveys and censuses, as is some inadequate housing stock (e.g. low-cost rental housing).

Box 2.10 **Growing urban slum populations**

According to data of the United Nations' latest global poverty study, between 2000 and 2012, more than 200 million slum dwellers gained access to either improved water, improved sanitation, durable housing or less crowded housing conditions. By 2012, nearly 33 percent of the urban residents in the world's developing regions still lived in slums. Twelve years earlier, in 2000, about 40 percent of urban residents in developing regions had been in that situation. Despite these relative advances, the absolute number of slum dwellers has continued to grow, due, in part, to the fast pace of urbanisation. The global number of urban slum dwellers was estimated at 863 million in 2012, up from 760 million in 2000, and 650 million in 1990. The proportion of people living in slum conditions in urban areas was particularly high in sub-Saharan Africa (62 percent) and, to a lesser extent, in Southern Asia (35 percent), compared to 24 percent in Latin America and the Caribbean, and 13 percent in North Africa. More efforts are needed to improve the lives of the urban poor across the developing world, and to reverse the trend whereby the number of people living in slum conditions is increasing (*United Nations Millennium Goals Report 2014*).

Top five countries with the largest share of the global extreme poor, 2010 (Percentage)



Source: United Nations MDG report 2014

Table 2.16 **Selected cities with a high Gini coefficient in the region**

City	Year	Country	Gini Coefficient
Chiang Mai**	2006	Thailand	0.58
Hong Kong*	2001	China	0.53
Ho Chi Minh City*	2002	Viet Nam	0.53
Bangkok	2006	Thailand	0.48
Moscow*	2001	Russia	0.47
Colombo*	2002	Sri Lanka	0.46
Davao City*	2003	Philippines	0.44
Nonthaburi**	2006	Thailand	0.43
Manila*	2006	Philippines	0.40

* for income; ** predominantly urban province
a Gini coefficient exceeding 0.40 is considered to indicate high inequality
UN-Habitat, 2008: 193-194.

Despite these shortcomings, housing remains a valid and useful proxy for income poverty, as it is linked to several other dimensions of urban poverty. The key characteristic of inadequate housing is usually lack of legal recognition by the authorities of the (informal) settlements. This can have serious consequences: low levels of tenure security and constant threat of eviction, lack of access to safe water and improved sanitation, overcrowding, poor structural quality of the house and often higher vulnerability to insecurity, crime and disasters. These inadequacies can affect the health, productivity and income of its occupants and the capacity to perform well in school for children.

More striking than urban income poverty per se is the income and consumption contrast between rich and poor. This is because in cities the rich and poor often live or work in close proximity to one another and inequality is often highly visible. Glass-and-steel office buildings, shopping malls full of luxury goods, gated communities with impressive mansions can be found next to large informal settlements and slums, with street beggars trying to eke out a living from passing motorists in luxury cars.

However, as is the case with income poverty, intra-urban income inequality is difficult to measure with available data and consequential estimates must therefore be viewed with caution. Several cities in Asia and the Pacific for which data are available demonstrate high levels of income (or consumption) inequality (Table 2.16).

While the region's cities have undergone significant economic transformation and created opportunities for many, inequalities and limited access to infrastructure and services remain serious challenges. Greater attention and resources need to be dedicated to closing the growing economic and social divide in the region's cities, if they are to play a more developmental role.

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In Kathmandu, Nepal, over 40 percent of urban trips are on foot

Achieving Sustainable Mobility

By Paul Barter*

Why do politicians keep promising to ease congestion and to get traffic moving faster? Why do local authorities pledge to keep motoring costs low? These two priorities may seem reasonable but they are not without their implications. Will achieving them create a city that is liveable or sustainable? It can be disappointing to 'succeed' if the goals have been poorly chosen.

The twin desires for congestion-free and affordable driving are understandable. They are politically seductive and play to motorists' desires and the interests of car industries. But these desires are sending too many cities and their mobility systems down inequitable, costly and environmentally destructive development paths.

Urban mobility trajectories

The cities and towns of the Asia and Pacific region are very diverse. Car ownership rates, to mention just one variable, range from fewer than 50 to more than 700 cars per 1,000 people. Surely, mobility dilemmas faced by Kathmandu are nothing like Melbourne? Can Tokyo, Ho Chi Minh City and Thimphu really derive lessons from one another?

There are indeed common themes relevant to every city. The main trajectories for an important group of cities in Asia and the Pacific - those that lacked significant mass transit when private vehicle ownership began to escalate - are portrayed in Figure 1.

This perspective offers useful lessons and also raises a thought-provoking analogy with the 'brown', 'grey' and 'green' urban environmental agendas from urban

environmental transition theory, as explained below. (Marcotullio, P. J., & Lee, Y. S. F., 2003.

Asia's newly-motorising cities are mostly also low-mobility cities (see the top of Figure 1). The key urban transport challenges are shortages of basic mobility infrastructure and low mobility for most residents. These are analogous to the brown (or sanitation) agenda in urban environmental policy, which focuses especially on a lack of affordable basic sanitation and clean water. These are problems of poverty and their consequences tend to be primarily local. In urban transport the consequences include the dangers posed by buses, lorries and taxis trying to rush through streets crowded with pedestrians, vendors, rickshaws and bicycles.

A rapid rise in motor vehicle numbers in low-mobility cities quickly brings another set of problems (see the centre of Figure 1 'traffic-saturated cities'). Although broader access to private motor vehicles promises mobility improvements, the typical result is escalating problems: public transport mired in congestion; slow goods movement; increasing road casualties; health impacts of air pollution; blighted public places; and shrinking space for walking or cycling. Many of these problems also compound the exclusion of already marginalised groups such as the poor, people with disabilities, and the elderly. The economic consequences are serious too, with mobility accounting for burdensome shares in household and municipal budgets.

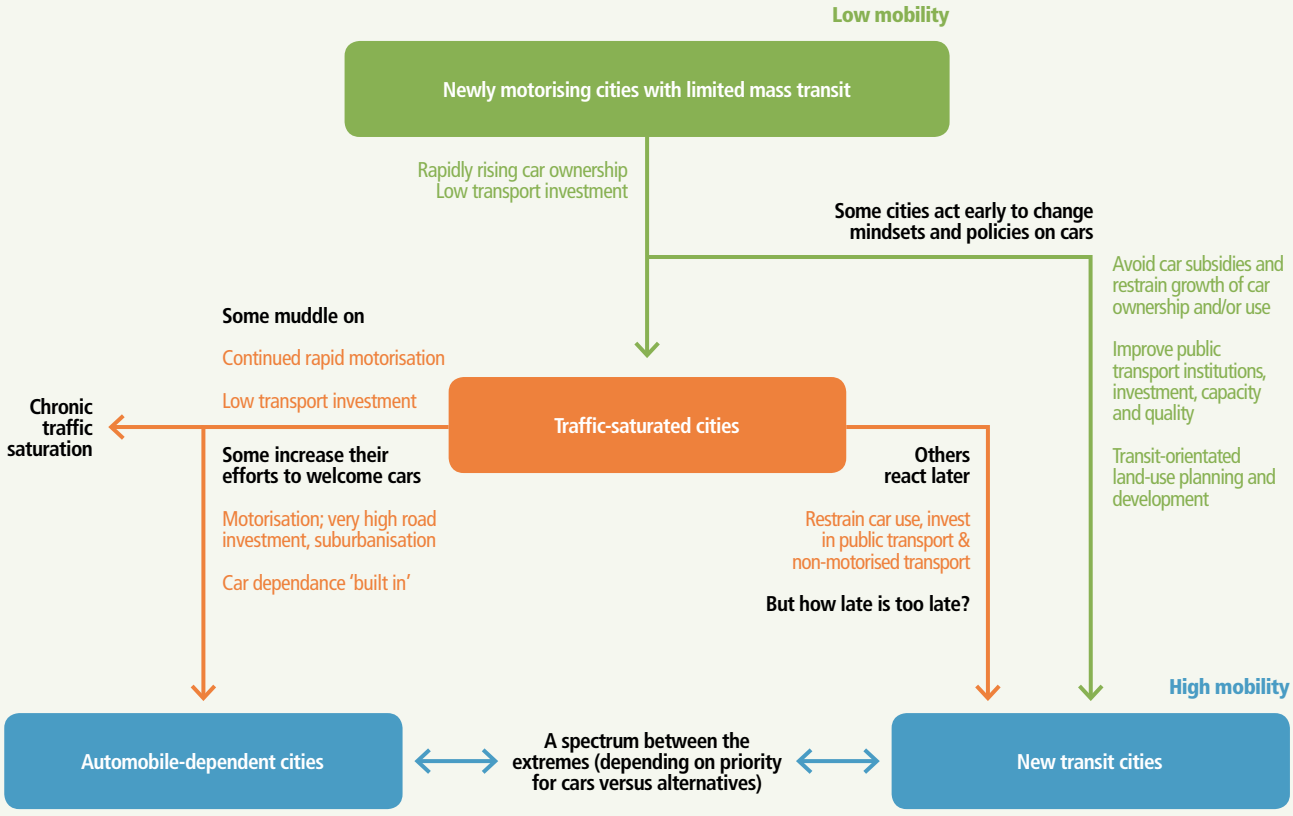
This is the transport analogue of the grey (or pollution) urban environmental agenda, which focuses on air and water pollution problems that emerge with industrialisation and that impact across whole metropolitan regions.

What comes next for traffic-saturated cities?

There are two broad but contrasting choices in moving from traffic-saturated cities (see the bottom third of Figure 1).

Under one choice, traffic-saturated cities strive to adapt to rising car numbers. Those that adapt to cars become 'automobile dependent'. The examples discussed below are of Perth and Kuala Lumpur. Addressing automobile dependence is the urban transport dimension of the green agenda in urban environmental studies. The green agenda battles problems driven by high consumption levels, such as climate change, which are mostly felt at the global scale.

Figure 1 **Trajectories for cities that entered their mass car-owning era without significant mass transit**



Under the second choice, traffic-saturated cities change course and limit the role of private cars, emphasising instead mass transit and other mobility alternatives. These are the 'new transit cities' in Figure 1. The final sections of this piece will seek lessons for the region.

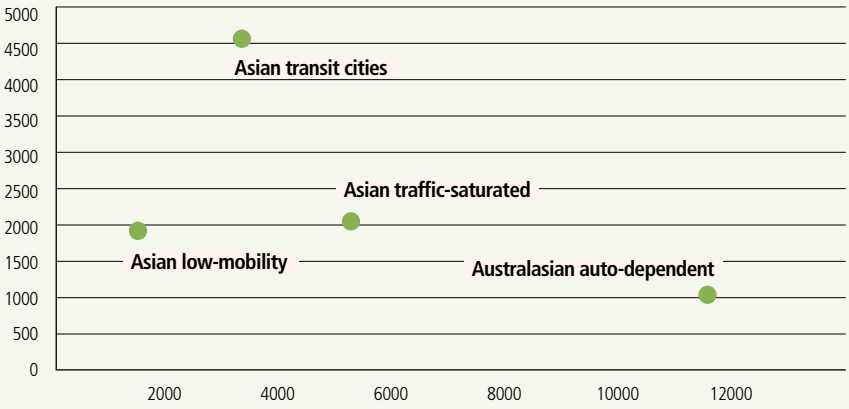
In practice, few cities follow exactly either of these two options but rather follow a path somewhere between these two extremes.

City trajectories quantified

Figure 2 above provides a more quantitative perspective on the city types mentioned. It shows the roles of public transport and private motorised vehicles (in terms of passenger kilometres per capita per year) for selected cities from the International Association of Public Transport (UITP) Millennium Cities Database. This source, although now a little dated, is one of very few datasets to provide comprehensive, high-quality and comparable transport data for many metropolitan areas and is the only such dataset within recent decades to include a large number of cities in the Asia and Pacific region. As such, it provides a very useful and important baseline.

The Asian 'low-mobility' group in Figure 2 includes cities with fewer than 5,200 annual motorised passenger kilometres per person in 1995. It consisted of Beijing, Chennai, Guangzhou, Ho Chi Minh City, Jakarta, Manila, Mumbai, Shanghai and Tehran. Cities that best matched the description of Asian 'traffic saturated' in the dataset were Bangkok, Kuala Lumpur, Sapporo, Seoul and Taipei. The Asian 'transit cities', providing public transport mobility that rivalled or exceeded private motorised mobility, were Hong Kong, Osaka, Singapore and Tokyo. The 'Australasian automobile- dependent' cities, with high private car proliferation and very modest public transport use, were Brisbane, Melbourne, Perth, Sydney and Wellington.

Figure 2 **Selected cities' public transport (y-axis) versus private transport (x-axis), (passenger kms per capita per year)**



Note: Based on the UITP Millennium Cities data set (1995). Private passenger kilometres here includes taxis and shared taxis

But all this is based on 20-year old data. What has happened since 1995? While comprehensive up-to-date data of the kind shown in Figure 2 is not available, we can get a sense of recent trends via numbers of vehicle ownership and modal splits shown in Table 1.

Table 1 suggests that some, perhaps many, of the cities that were in the low-mobility group in 1995 are now traffic-saturated. This certainly applies to Beijing, Jakarta and Tehran, for example. Mumbai probably remains a low-mobility city (although threatened with traffic saturation and with the potential to become more of a transit city).

However, some cities that were in the low-mobility or traffic-saturated categories in 1995 seem to be emerging as new transit cities. This applies to Shanghai, Seoul and Taipei. Meanwhile, Singapore and Hong Kong have consolidated their new transit city status.

Kuala Lumpur remains traffic-saturated but is on a path towards automobile dependence (discussed below). Melbourne remains automobile dependent (as with Perth, as we will see later).

As Table 2 shows, the Asian transit cities had much higher private transport costs per kilometre than the other groups. The transit cities also have (on average) high public transport speeds, especially compared with their private transport speeds, which are not much higher than those of the traffic-saturated group. We will see later that new transit cities have been following this example.

The next few sections examine the city types and their trajectories in more detail.

Low-mobility cities

In low-mobility cities, for many people "affordable mobility" means walking. In Kathmandu, far from an extreme case, more than 40 percent of urban trips are on foot. Even motorised trips are relatively slow and short on average. Populous low-mobility cities therefore cannot spread out much and must become very dense. The average urban density of the low-mobility group was 195 persons per hectare, by far the highest of the four city groups.

Low-mobility cities, by definition, have relatively low levels of motorised passenger travel, but they still vary widely in their mode shares of public transport, bicycles, motorcycles and taxis (two, three or four-wheeled).

Table 3 compares some of the negative impacts of transport in 1995

Table 1 **Car ownership and public transport modal share in selected Asia-Pacific cities**

City	Car ownership per 1000 persons		Modal share of public transport (% of all motorised trips)	
	1995	Most recent data	1995	Most recent data
Mumbai	21	44	81	67
Shanghai	15	42	68	62
Beijing	43	142	53	48
Tehran	95	170	28	28
Jakarta	91	203	48	56
Kuala Lumpur	209	314	32	19
Hong Kong	46	55	72	88
Singapore	116	112	37	57
Seoul	160	227	42	71
Taipei	175	253	24	40
Melbourne	594	649	9	8

Note: Motorcycle ownership is also very significant in Jakarta, Kuala Lumpur, Mumbai and Taipei.
Data for this table is derived from multiple sources and years.
Source: based on analysis conducted by the author using multiple sources from 1995 to 2014.

for the different city-mobility groups. Similar patterns will hold true today.

In most low-mobility cities the total negative impact of transport is usually modest. However, the average vehicle tends to have a significant negative impact because of poor maintenance and low fuel quality, exacerbated by poor street design and large numbers of people in the streets. For example, road death rates for low-mobility cities were high when counted per billion vehicle kilometres, but moderate when counted per 100,000 people (Table 3). Similarly, traffic-related air pollution in low-mobility cities is very high when measured per vehicle but is only moderate if counted per person. However, very high urban densities result in concentrated local air pollution, as measured by vehicle emissions per urban hectare. These spatial patterns of impacts are typical of 'brown agenda' problems.

How do low-mobility cities ease their problems? Understandably, most focus on simply increasing infrastructure: more road space, wider roads, more parking and so on. Many also try to keep vehicle costs low, since affordability is so obviously a challenge for their residents and, therefore, a political issue. Unfortunately, such policies help privileged people much more than the poorer majority. If these same priorities continue, even as vehicle ownership rises, the long-term results are usually not what was hoped for.

Traffic-saturated cities

Low-mobility cities that experience economic development eventually see steeply rising private motor vehicle numbers. China, Japan and the Republic of Korea were unusual in this respect because national policies slowed down their car ownership upsurges. Nevertheless, they too had explosively rising car ownership rates after restrictions were eased (in the late-1990s, late-1960s and mid-1980s, respectively). In Beijing, for example, private passenger car numbers rose five-fold from less than 0.7 million in 2003 to more than 3.5 million only seven years later. Road capacity almost never keeps up despite even the most dedicated road expansion efforts.

Such trends transform previously low-mobility cities into traffic-saturated cities. Higher vehicle numbers may bring improved mobility for their owners but conditions tend to worsen for everyone else. Soaring private vehicle use in cities not built for large numbers of cars brings grinding congestion that lasts for long

Table 2 **Selected cities' private transport user costs, road network speeds and public transport speeds, 1995**

City Group	Private transport user cost per 100 vehicle kilometres (1995 USD)	Average road network speed (km/h, 24 hour/7 day)	Overall average speed of public transport (km/h)
Low-mobility Asian	15	21	17
Traffic-saturated Asian	34	24	19
Asian transit cities	71	31	35
Australasian auto-dependent	34	44	33

Note: Derived from the UITP Millennium Cities 1995 data set. Private vehicle operating costs include the usual operating costs as well as maintenance and capital cost estimates converted to a per-km basis.

Table 3 **Road deaths and noxious pollutant emissions from urban transport**

City Group	Deaths per billion vehicle km	Deaths per 100,000 people	Pollutant (kg) per km of vehicle travel	Pollutant (kg) per capita	Pollutant (kg) per urban hectare
Asian Low-Mobility	105	10	.078	86	14,703
Asian Traffic-Saturated	46	18	.025	127	8,289
Asian Transit Cities	24	6	.014	33	4,428
Auto-Dependent Australasian	11	9	.021	145	5,173

Source: Derived from the UITP Millennium Cities dataset.

periods and extends across wide areas. Residents of Bangkok, Beijing, Jakarta, Manila, Tehran and many other cities across the region know this phenomenon all too well.

Other modes of transport face downward spirals too. Buses get stuck in traffic. Bicycles become risky to ride. Walking becomes less safe and less comfortable. The contrast between the private interests of motorists and the public interest is stark.

Although negative impacts per vehicle tend to ease a little as infrastructure and vehicle quality improve, this gain is often offset by increased traffic, which typically results in rising numbers of fatal road accidents and high pollutant emissions (Table 3). Slightly lower average urban densities may dilute vehicular pollution a little but traffic-saturated cities are often also industrialising cities, which adds to the overall air quality woes.

It would be a mistake to think that traffic-saturated cities are car dependent. Traffic-saturated cities have neither had the time nor the money to adjust and reshape themselves around the needs of cars. For example, they remain generally very dense, although lower-density urban sprawl usually emerges on the outskirts, enabled by road construction, car ownership, and increasingly car-oriented planning approaches. The average urban density of the traffic-saturated Asian city was 146 persons/ha; lower than the low-mobility group but almost ten times that of the Australasian automobile-dependent group (15 persons/ha).

Cities that focus on easing congestion and keeping driving cheap

As congestion worsens there is an understandable urge to ease the bottlenecks. Traffic capacity investments seem to promise solutions. Meanwhile, simplistic views on affordable mobility encourage efforts to keep vehicle-related costs low, even though this mainly benefits relatively wealthy people. Such simple agendas are politically appealing and often supported by outdated traffic engineering and transport planning practices.

What happens if these agendas are pursued? The examples of Perth, Australia, and Kuala Lumpur, Malaysia, can help illustrate the long-term effects of focusing excessively on congestion easing and cheap driving.

Perth, a city of 1.7 million, has 700 cars per 1,000 people. It illustrates the tempting trap of extreme automobile dependence. Perth became rich as a small transit-city in the early 20th century. But, like most Australasian and North American cities, it later neglected public transport as it grew. Generous road investments enabled traffic speeds to average almost 46 km/h in 1995 (see Table 2 to compare with other city types). As in all Australasian auto-dependent cities, driving is cheap in Perth: most parking outside the Central Business District (CBD) is free-of-charge; there are no road tolls; while fuel, vehicle ownership and vehicle purchases are all only lightly taxed.

In sum, the two seductive mobility desires have largely been met in Perth. What is the outcome? Perth has dispersed jobs and an extremely low population density. Most people live in single-family homes with sizable gardens. In 2005, private car use was more than 13,500 passenger km per capita (see Figure 2 to put this in perspective).

Such spaciousness and ease of driving might seem attractive. However, there are high hidden costs. Despite low motoring costs, long travel distances mean that, for low-income households with a car, the price of driving is often a burden. People without a car are disadvantaged because public transport has low service levels outside the rail corridors. Servicing low-density sprawl with infrastructure is also costly.

Cities like Perth are deeply locked into a high-energy transport system with high greenhouse gas emissions (see Table 3). Any attempt to moderate Perth's car dependence would be difficult, both politically and practically, since high car-use is embedded in technical systems, industries and institutions, parking space, lifestyles and habits, as well as

personal investments. An automobile dependence rate like Perth's requires a wealthy society, large investments in roads, and car-oriented planning regulations applied over many decades. It will also require strong political commitment and large scale investment in public transport, over a period of decades, to bring about change.

What of the Kuala Lumpur metropolitan area: a middle-income, rapidly developing metropolis of over 6 million people? Since the 1970s, when industrialisation began to take off, government policies have mostly focused on accommodating the increasing traffic and on keeping driving cheap.

Prolific expressway development has resulted in a dense network of highways and several more are either under construction or planned. The minimum parking standards applied to new buildings are among the highest in Asia. Street design became focused on motorised traffic, eroding the traditional multiple roles of streets.

Successive plans have sought to disperse traffic and limit the intensity of development in an effort to decongest the city centre. Planning standards encourage low-to-medium density peri-urban development in patterns that prevent efficient bus services. Urban density is low by Asian standards, but four to five times higher than in car-dependent cities.

Kuala Lumpur has not tamed congestion and finds itself in a vicious cycle of longer trips, traffic volume growth, more road capacity and erosion of the competitiveness of alternatives to private vehicles. Buses have become mired in traffic and steadily lost market share, with their users increasingly stigmatised.

Compounding these trends is a politically-opportune quest for affordable driving. Traffic restraint policies, such as congestion charges and parking restrictions, have often been proposed but were not implemented after opponents cited the inadequacy of mass transit. Instead, industrial policies in the 1980s and 1990s explicitly promoted cheap, locally-produced vehicles. Table 1 shows the resulting high levels of car ownership. Fuel price controls have kept gasoline cheap. Efforts to reduce the fuel subsidies have proven unpopular and, hence, slow. The generous parking standards result in cheap parking. However, road tolls aimed at recovering privatised road construction costs are now a significant motoring cost.

Kuala Lumpur has invested heavily in monorail and light rail to fight congestion © Tktktk

Kuala Lumpur has not tamed congestion and finds itself in a vicious cycle of longer trips, traffic volume growth, more road capacity and erosion of the competitiveness of alternatives to private vehicles

As a response to congestion, Kuala Lumpur has also channelled large investments into commuter rail, light metro, monorail, and an airport express since the mid-1990s and the city has begun constructing a metro system. The rail systems are popular in the major corridors they serve but remain inadequately integrated with the weak bus system. Decades of urban development geared towards roads has created dispersed and relatively low-density built environments in patterns that are difficult for public transport and other infrastructures to serve. Hence the rail investments struggle to have an impact on public transport's mode share (see Table 1).

Kuala Lumpur is now more car-oriented than many traffic-saturated Asian cities. However, it is still far from being as thoroughly automobile dependent as, for instance, Perth.

Arguably, aiming for cheap and uncongested driving has had disappointing and damaging results. Is there still time for cities like Kuala Lumpur to change direction?

The new transit city alternative

Does a transit-city model offer a better pathway forward to avoid or escape the vicious cycles seen in other traffic-saturated cities?

It is important to make a distinction between old transit cities and new transit cities. Old transit cities include Tokyo, London, New York or Paris. These had the advantage of being shaped by huge mass transit systems before the era of mass private car ownership.

However, newly-motorising cities in the Asia and Pacific region mostly lack significant mass transit systems. For such cities, the 'new transit city' concept offers a more relevant model to consider.

In the Asia and Pacific region, new transit cities include Hong Kong, Singapore, and increasingly also Seoul, Shanghai and Taipei. For examples of new transit cities elsewhere in the world, one could point to Bogotá and Curitiba in South America, as well as Munich and Stockholm in Europe.

Each of these new transit cities was actually traffic saturated not so long ago. Hong Kong and Singapore for example, lacked mass transit in the early 1970s when large-scale private car ownership began to emerge. What set new transit cities apart from other traffic-saturated cities was their policy response to such emerging traffic challenges. The Asian transit city category in Figure 1 and Tables 2 and 3 is a mix of both old and new transit cities but it still gives an idea of the characteristics to be expected of new transit cities: moderate to high (and increasing) public transport mobility; moderate private mobility; costly private vehicle use; low levels of negative traffic impacts per capita; and modest negative traffic impacts per hectare.

Evolving from traffic-saturated cities, most of today's new transit cities at first tried to accommodate rising car numbers. However, they quickly changed tack and began to restrict private motor vehicle growth. Private cars do have a role in these cities but, to varying degrees, cars are treated more as luxury items than a necessity.

Policy interventions that slowed traffic growth in the new transit cities were varied and multiple and included policies at both local and higher levels of government:

> Both Hong Kong and Singapore first began restricting private car use in the early 1970s, long before the construction of metro systems - Hong Kong's opened in 1979, while Singapore's metro opened in 1987

a) residential parking limitations (Hong Kong, in the 1970s);
b) CBD parking supply caps (Seoul and Stockholm);
c) unbundling residential parking costs (Hong Kong, Shanghai, Singapore and Taipei);
d) higher fuel taxes (Hong Kong, Republic of Korea and Singapore);
e) local fuel price surcharges (Bogotá and Seoul);
f) high taxes on vehicle purchase and/or ownership (Hong Kong, Republic of Korea and Singapore);
g) credit restrictions (Republic of Korea, until 1985);
h) quotas on vehicle sales or ownership (Shanghai and Singapore);
i) congestion charging (Seoul for two tunnels since 1996, Singapore since 1975);
j) license plate-based driving restrictions (Seoul);
k) workplace Transport Demand Management (TDM) (Seoul); and
l) motorcycle parking management (Taipei since the 1990s).

Most of these interventions were early reactions to the threat of escalating traffic problems. It is striking that they were not delayed in order to wait for mature mass transit systems. In fact, they set the scene for successful mass transit investments by enabling bus services to be expanded due to high demand, and by slowing the reshaping of urban fabric around cars.

For example, both Hong Kong and Singapore first began restricting private car use in the early 1970s, long before the construction of metro systems - Hong Kong's opened in 1979, while Singapore's metro opened in 1987. Similarly in Shanghai: by 2002, only 85 of the current 538 kilometres of subway route were in place when car ownership restriction through license plate quotas began and dramatically slowed car ownership growth.

Seoul's case is distinctive. By the mid-1970s, incomes among Seoul's middle classes reached levels that usually cause a surge in car ownership. However, national policies treated cars as a luxury good and strongly suppressed car ownership until 1985. This allowed the early stages of Seoul's mass transit system to be built in a context of very low car ownership. Its suburban rail line upgrading began in the 1970s and its first subway lines opened in 1974 and 1984/5.

Mass transit investments were very important but were not the only public transport effort. Most new transit cities also enhanced on-road priority for buses and reformed the business structures, regulatory frameworks, and key institutions of their public transport industries. Hong Kong and Singapore greatly enhanced their bus regulation in the 1970s by adopting area franchises with prescribed service standards. Seoul introduced comprehensive bus reforms in 2004 with network changes enabled by a greatly enhanced public planning and procurement system for its

privately operated bus services. In Latin America, both Bogotá's and Curitiba's Bus Rapid Transit systems saw strengthened procurement and supervision of private operators. In Hong Kong and Singapore, bus lanes were put in place in the 1970s. Taipei's extensive median bus lane network arrived in the mid-1990s. In the 2000s, Seoul greatly expanded its bus lane network using median bus lanes.

Most new transit cities implemented strongly transit-oriented urban planning or enabled market-led transit-oriented development, or both. Strategic plans in Hong Kong, Seoul and Singapore directed population growth to transit-oriented new towns. Most of these cities also enabled dense infill development within the existing urban area. Permissive zoning regulation combined with topographical constraints enabled Taipei to stay dense and compact with intense infill. Excessive minimum parking standards can also be a major barrier to density. So where they are kept low (or have been lowered) as in Hong Kong, Singapore and Taipei, urban densities could be more easily maintained or increased.

While high density is a bane for traffic-saturated cities where cars are too numerous, it is more of an asset for transit cities. This is because the space-efficiency of public transport which thrives on high urban densities contrasts starkly with the extreme space-inefficiency implicit to privately-owned cars.

Even new transit cities have not been completely immune from political forces that seek to simultaneously ease congestion and maintain cheap driving. Most of these cities could do even more to escape the influence of motoring lobbies, as well as the impacts of car-oriented urban planning standards (such as street width standards, building setback rules and parking requirements), and car-oriented transport planning tools (such as Level of Service and uncritical use of travel time savings in road project evaluations).

Alternative goals in new transit cities

The new transit cities offer important lessons about which mobility goals to pursue rather than focusing on making driving cheap and uncongested. The following goals have guided these cities towards more sustainable mobility trajectories:

1. Keep private cars optional rather than a necessity

Resist the idea that a car is a necessity, instead treat cars as a luxury and take strong steps to enhance other options. It can then become politically possible to implement the traffic-restraining policies mentioned above, to avoid a simplistic focus on easing traffic bottlenecks, and to resist pleas to make driving more affordable. Early action is easier than trying to turn the clock back once broad car ownership has established itself. Cars quickly reshape lifestyles and the urban fabric and become a perceived necessity for those who own them. Gaining public support for new transit city priorities is easier wherever car-owning households remain a minority.

2. Focus on space-efficient mobility

New transit cities have tended to face up to, or even embrace, their spatial constraints as key reasons to avoid space-consuming car-dominated development paths. As islands, Hong Kong and Singapore have obvious spatial limitations. Hong Kong has water barriers, while Taipei, has hilly surroundings. Simply being very large and dense already, as in Seoul and Shanghai, makes it difficult and costly to create much additional space for traffic. The alternative is space-efficient mobility, with the focus on moving people and goods, not vehicles.

3. Enhance ease of access rather than enabling fast driving

Enabling people to easily reach a wide range of destinations, without the need for long journeys, requires compact urban development patterns that allow all key destinations to be easily reached without a private car. This means fostering high density in the right places: throughout the core and along mass transit corridors.

4. Design transport to support urban liveability

Improvements to urban liveability also helps build public support for new transit city policy priorities, especially where they are clearly linked. Creating great urban places and streets has often been a popular pay-off from traffic restraint in new transit cities. Examples include pedestrianised areas in Bogotá, Curitiba, Munich, Seoul, Shanghai and Stockholm, and Seoul's Cheonggyecheon restoration project removed a highway section to create a 6 km public park.

In conclusion, focusing on easing traffic congestion and on keeping driving cheap are not the keys to sustainable urban transport. These are recipes for more traffic-saturated cities and, eventually, automobile dependence. Turning this scenario around becomes increasingly more difficult and expensive over time.

Instead, policymakers should concentrate on three key aims: Create cities in which all key destinations are easily reached without needing a car. Provide a rich array of mobility options so private cars are not a necessity. And establish a space-efficient transport system so that mobility for all can support a liveable, inclusive and low-carbon city for present and future generations.

*Independent Transport Policy Advisor

Chapter 3.
Urban Societies in Transition

Quick facts and policy points

- Urban societies are becoming more diverse and complex, posing new challenges for policymakers.
- Rising middle classes are driving shifts in consumption patterns, homeownership, mobility, services and urban environments.
- But the rise of the middle classes is not an inclusive process; the urban poor remain on the margins of recent growth, youth unemployment remains high, and migrants are often greatly disadvantaged with respect to their rights.
- As urban living costs rise, it is more difficult for the poor to access adequate housing and services. Widening disparities threaten to undermine social cohesion and consensus, and affordability is at crisis points in many of the region's larger cities.
- More balanced models of growth are needed so that the poor, older persons and those living with disabilities also benefit from urban development.
- Balancing competing demands and addressing disparities for a prosperous and inclusive urban future requires a renewed urban social agenda with significant investment in social policy.
- While the region's cities are mostly safe places, gender related violence remains a serious challenge and an impediment to women's full participation in urban life.
- Those cities best able to harness their diversity, create greater spaces for public engagement and participation, and invest in their quality of life will be better positioned in terms of their future competiveness and liveability.

The region's cities face a serious equity challange

Chapter 3.
Urban Societies in Transition

The emergence of an urban middle class of two billion people in Asia-Pacific is driving significant shifts in consumption patterns © Huating

3.1 People and Their Cities

Cities in the Asia and Pacific region are currently undergoing profound social change and transformation. In recent decades much discussion has focused on the chasm between the wealthy and the absolute poor. Nowhere is the urban divide more evident than in the juxtaposition of skyscrapers, gated communities and the proliferation of shopping malls alongside physical deprivation evident in the living conditions of the region's urban poor.

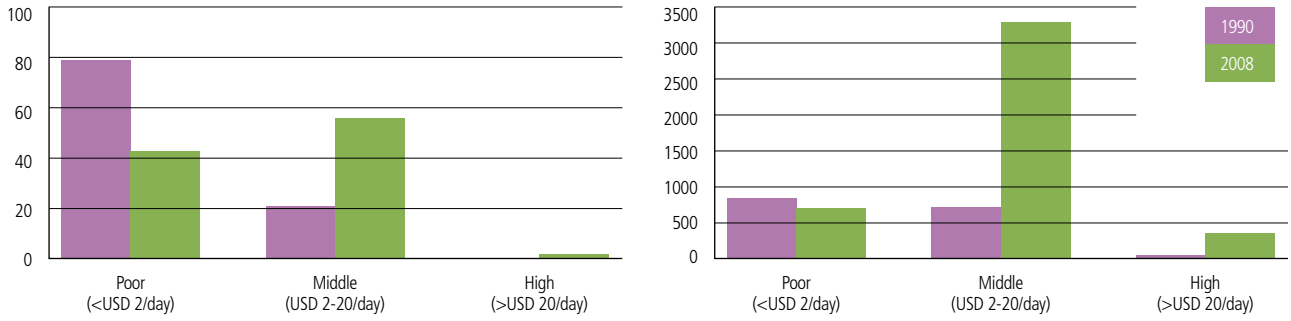
In recent decades this polarising image has become ever more complex and nuanced. Asia and the Pacific is now home to a truly burgeoning middle class – in fact, it is now the region with the largest middle class in the world. This is transforming cities in both positive and negative ways. On the one hand, cities continue to provide opportunity for social and economic advancement. On the other, however, this is creating enormous challenges for both the physical and natural environment through rapidly shifting consumption and production patterns as well as through growing competition for urban space, identity and resources. Cities in the region have never before been the site of such diversity and social change, nor have they been as complex to represent and to govern.

In urban contexts, diversity can provide opportunity. Where diversity and social difference have been harnessed, and where opportunities allow people to both express and represent diverse cultural norms and social relationships, cities have thrived. But that is not always the case and major challenges lie ahead for the urban areas of Asia and the Pacific, not only in managing inequality and eradicating poverty, but also in responding to rapidly changing urban social landscapes and rising expectations.

Burgeoning middle classes

As economic growth has spurred increased opportunity and prosperity in many Asia-Pacific countries, middle classes have grown rapidly over recent years and have now emerged as a defining

Graph 3.1 **Asia and Pacific population by income and annual expenditure in developing Asia (1990-2008)**



Source: ADB, 2010: 6.

characteristic of the region's cities. These middle classes comprise some two billion predominantly urban people in a range of economic strata - from those just above the poverty line to the financially secure (i.e. from USD 2 to USD 20 or more per person per day). In 2008, the combined Asia-Pacific middle classes in developing Asia had an aggregate annual income (or expenditure) of USD 3,285 billion, up from USD 721 billion in 1990 (ADB 2010:6) (Graph 3.1).

The emergence of a large urban middle class has profound cultural, economic and political significance. Through their demand for goods and services, changing mobility patterns, housing type choices, and expectations for a higher quality of life and effective governance institutions, the region's emerging urban middle classes will reshape its urban future. Through tax revenues, it will provide greater fiscal space for governments to respond to these demands.

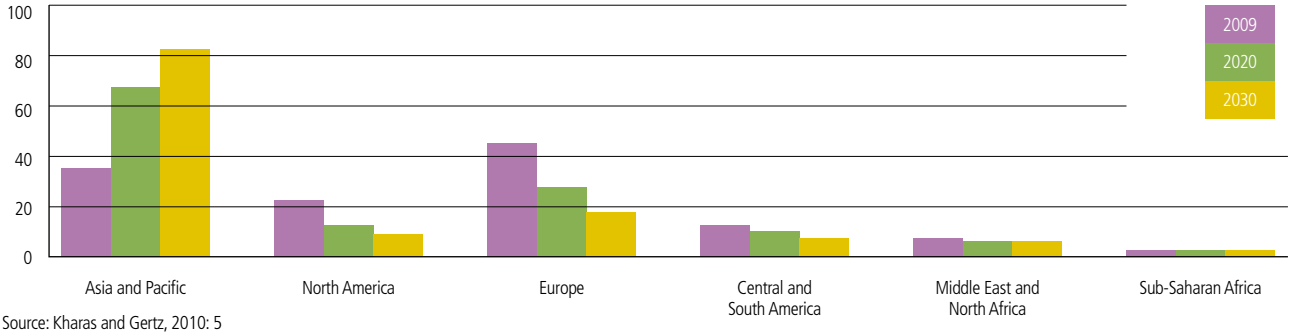
It is estimated that the region's middle class will grow to approximately 3.2 billion people by 2030 or two-thirds of the world's total number of middle class persons. This is a significant statistic not only numerically (Graph 3.2) but also in terms of consumption patterns, the demand for better and more services and the associated environmental impacts of changing lifestyles. These will reshape and redefine the physical and social urban landscapes of the region.

How will the middle classes reshape cities?

Advanced education, access to information, and awareness of global trends make the new middle classes an influential social and political force. Being largely urban-based, their choices and actions will have far-reaching impacts on cities. For instance, entrepreneurs and investors have started developing strategically positioned urban land into an amalgamation of functions, varying from housing to shopping malls, supermarkets, restaurants, cinemas and theatres to meet middle-class consumption.

Mobility demand by the middle classes has major impacts too. This has already led to rapid increases in the number of Asia's motorised private vehicles. This trend, not surprisingly, is expected to continue unabated in the foreseeable future as middle classes continue to grow. Between 2010 and 2030, the number of passenger vehicles in China, for instance, is projected to increase

Graph 3.2 **Size of world's middle classes (global percentage share)**



Source: Kharas and Gertz, 2010: 5

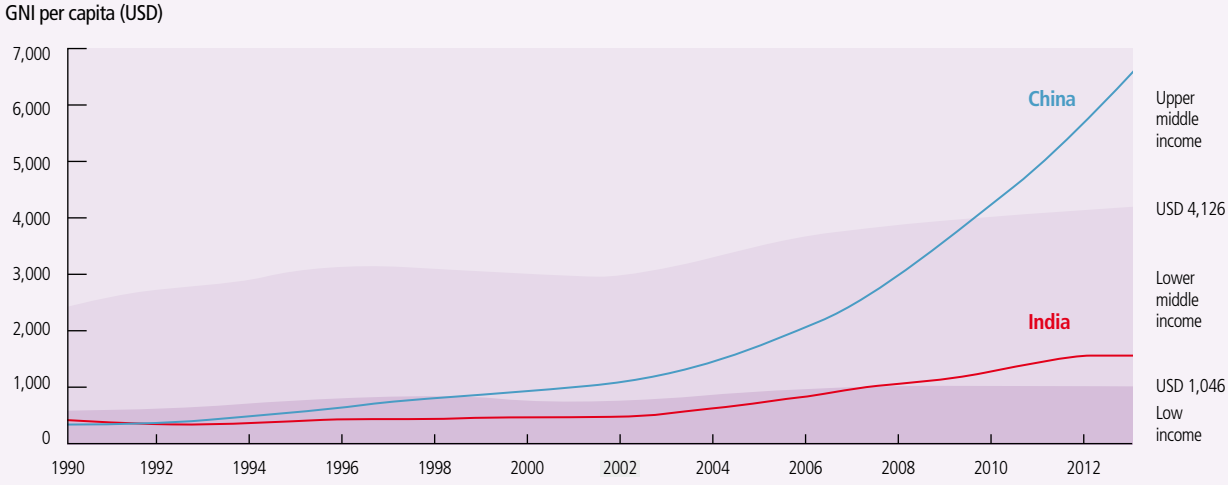
from 58 to 450 million and from 15 to 135 million in India (Dobbs et al, 2011: 37).

Growing numbers of cars require more roads and parking space. Local governments are often all too willing to accede to the powerful automobile lobby by building more roads or by widening existing ones at the expense of space for pedestrians and cyclists. More private cars, however, is rarely a solution and current urban mobility choices in favour of private vehicles already have shown their implications for congestion, air pollution and greenhouse gas emissions, which will only worsen in the future.

Urban mobility demand in the growing cities of Asia and the Pacific is one of the biggest infrastructure and social challenges facing local authorities, almost without exception. Nevertheless, emerging middle classes are also the present and future users of emerging mass transit systems and, in recent years, investments in subway and bus systems have been possible because of greater demand for and willingness of urban commuters to utilise on higher quality public transport options. Indeed, most large cities in the region would be better off if they developed urban and intra-urban mass transportation systems to improve mobility, reduce congestion and lower greenhouse gas emissions. The emergence of the New Delhi metro and the ever-expanding Skytrain system in Bangkok are but two examples of how the middle classes' mobility needs can be harnessed to shape transport systems in more sustainable ways.

Box 3.1 **Asian middle-income countries**

World Bank 2013 data on GNI/capita, released on 01 July 2014 (World Bank, 2014), highlights the highly divergent paths of China and India since the early 1990s. China's rapid average income growth reached USD 6,560 in 2013, up almost 15 percent on 2012 in US dollar terms. China is now well into the 'upper middle income' category and about halfway to the 'high income' threshold (USD 12,745). In contrast, India's 2013 average income reached USD 1,570 which, although 1.3 percent higher than in the previous year, is little more than a tenth of the way to the 'high income' threshold.



Source: World Bank (2014)

However, China, despite its upper middle-income status (World Bank, 2014), is still beset by considerable numbers of people living in poverty or even extreme poverty. World Bank data further show that the Kyrgyz Republic, with an average income per person of USD 1,200 in 2013, crossed the threshold to become a 'lower-middle income' country despite an estimated five percent of its people living in extreme poverty in 2011. Bangladesh, Cambodia and Tajikistan are nearing the middle-income levels, but all suffer from continued and significant extreme poverty. This suggests that 'middle income status' should be viewed with care since it can be a poor basis for making policy decisions about middle-income households as the national norm or if the 2030 goal of ending poverty is to be met.

Source: http://devinit.org/#!/post/middle-income-status-too-brand

Higher incomes have also led to raised expectations of the middle classes in terms of homeownership. Encouraged by enabling housing policies, private developers in many Asian and Pacific cities have responded by producing detached and row houses in residential estates and increasingly also large-scale high-rise condominiums. The gap between what a middle-income family can save and what private developers charge is mostly being covered by a rapidly expanding housing finance sector. Consequently, housing conditions for large sections of the Asian and Pacific urban populations have improved significantly over recent years. However, the emergence of gated communities is also increasingly fragmenting urban public space.

Where public infrastructure and services are lacking, or are unaffordable, the private sector is playing a much greater role than just housing provider. Their entrepreneurship goes well beyond housing estates and also includes privately operated toll roads, private security services, and the 'malling' of public space. As a result of the increased privatisation of services and space and, by extension, reduced public revenue streams, local governments may well miss out on revenues from these higher- spending citizens.

Despite the enormous wealth generated in recent decades, the region remains beset by significant and deep urban poverty and continuing growth of urban slum populations

Despite the enormous wealth generated in recent decades, the region remains beset by significant and deep urban poverty and continuing growth of urban slum populations. Unless there are far-reaching commitments by governments to provide services and mobilise land in some form to both the expanding lower-middle classes and the poor, Asian and Pacific cities will continue to fragment at scales that will become increasingly difficult to transcend.

3.2 Urban Poverty – A Persistent Priority

Increasingly, many Asian and Pacific cities appear to be oriented towards those aspiring to home and car ownership, with greater emphasis on facilitating (or, through the media, encouraging) consumption. But most cities in the region, despite their rapid economic growth, have yet to provide adequate responses to the needs of the poor, including their housing needs. The urban poor are a significant social class by their numbers. Paradoxically, the urban poor are increasingly made invisible and marginalised behind the modern facades of emerging global cities in Asia and the Pacific.

In the past, governments placed emphasis on constructing apartment buildings for low-income urban households, but often of a type or location that suited neither needs nor income. Local government budgets were woefully insufficient to meet the low-income housing demand, but that has been only part of the story. Lower-middle-class households constantly seek better housing too, but often cannot afford private-sector housing or suitable land. Usually better informed and connected than poorer households, these lower-middle-class households have tended to capture the subsidised urban housing intended for the poor. This has left the options of the urban poor restricted to informal markets and informal settlements. Responses such as slum regularisation and upgrading are perhaps effective in some cities, but they are by nature a reactive phenomenon that fails to add to the formal housing stock. Rather than attempting to address the housing needs of the poorest in a piecemeal manner, urban public housing policy should comprise far more systemic solutions that comprehensively address the housing demand by the extreme poor, the poor and the lower middle classes (the near-poor).

Box 3.2 A growing slum crisis

Although the United Nations Millennium Development Goals' Target 7D – *"by 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers"* – has now been met, the number of people living in slum conditions is growing (UN Millennium Development Goals Report 2014).

The global number of urban residents living in slum conditions was estimated at 650 million in 1990, rising to 760 million in 2000 and 863 million in 2012. The proportion of people living in slum conditions in urban areas was particularly high in sub-Saharan Africa (62 percent) and, to a lesser extent, in Southern Asia (35 percent), compared to 24 percent in Latin America and the Caribbean, and 13 percent in North Africa.

The overwhelming majority of people living on less than USD 1.25 a day is now found in two regions: Southern Asia and sub-Saharan Africa. In 2010, one-third of the world's 1.2 billion extreme poor lived in India alone. China, despite much progress in poverty reduction, ranked second, and was home to about 13 percent of the global extreme poor. More efforts are needed to improve the lives of the urban poor across the developing world, and to reverse the trend whereby the number of people living in slum conditions is increasing (UN MDG Report 2014).

Box 3.3 **Undocumented migrants in Indian cities**

The Indian Constitution recognises the right of free movement and there are no restrictions on entry into Indian cities. But migrants are not easily accepted as legitimate urban citizens. Subsidised food grains and access to a bank account to transfer money, for instance, are critical to urban in-migrants but require proof of a local address which they may not have because they live in unrecognised slum settlements. As a direct outcome of national and urban governments' attitudes towards the poor and their settlements, many of the poor reside in low-quality housing in marginal inner-city areas, on construction sites, on pavements or in the urban fringes (Agarwal, 2011: 14).

Ration cards sometimes serve as an unofficial citizenship documents and can give access to subsidised food grains. But if migration separates the household members, food grains are required in two different places. Urban in-migrants therefore often try to obtain a second ration card and, to that end, enrol again in the electoral register.

Recently entitlements have begun to be also extended to those without a clear urban address, including migrants, the homeless and destitute women, but obstacles remain. Introduction of a proposed biometric database may lead to improvements (Bhide, 2013: 10-11).

In closing housing gaps, those excluded from access often turn to the private sector. But many low-income and lower-middle income households end up in informal housing which meets the UN system's definition of what constitutes a 'slum'. The United Nations system defines slums as characterised by the absence of basic services, such as improved drinking water and adequate sanitation, along with insecure tenure, non-durable housing and overcrowding.

Residents of informal settlements are likely to face discrimination by public agencies, including the inability to register for public services. Rural-to-urban migrants might not be eligible an urban household registration in some Central Asian countries, China and Viet Nam are prime examples of how such migrants can thus be excluded from certain municipal services. Inhabitants of unrecognised settlements are often also excluded from the official urban statistics and their settlements may not even appear on any city map (Bartlett et al, 2012: 2, 6).

Inhabitants of unrecognised settlements are often also excluded from the official urban statistics and their settlements may not even appear on any city map

Box 3.4 **Invisible urban slums**

In 2013, **Hong Kong, China,** had 67,000 subdivided housing units accommodating 171,300 persons, mainly in old residential buildings. A subdivided unit was defined as one formed by the partitioning of what were individual living quarters into two or more rental units. The average area per capita was 6.3 m^2 and 53.3 percent were occupied by single or two-person households. There are serious concerns regarding the consequential overcrowding, health and fire hazards.

In **Mumbai,** it is not only high rental costs that force many people into cheap and poor quality housing but also because rent control legislation leaves building owners little money for maintenance. It is, therefore, not surprising that numerous buildings have been declared dangerous and unfit for human habitation. But still, they are often occupied way beyond capacity.

In **China,** construction workers often live in temporary, prefabricated huts or canvas tents on a building site, while many factory workers are housed in overcrowded dormitories without sanitation, heating or cooling (Li, 2008: 15; Gransow, 2012: 7).

3.3 Competing for Urban Land

As cities in the region transform and globalise, they have become more expensive places to live. This has inevitably led to more intense competition for urban resources and space – a trend which policymakers and urban managers need to address more effectively. Urban land is the issue over which the interests of the rich and the poor, of the formal and the informal sectors often come into conflict. When economic growth is sluggish and where development pressures on urban and peri-urban land are low, public and private landowners can demonstrate a benign neglect of squatting. In recent decades, however, as economic development has transformed cities and urban space, options for informally accessing urban land have become limited.

In cities where vacant land no longer exists, the poor are commonly forced to rent housing in high-density, low-quality structures. Often these are either dilapidated and subdivided formal buildings designated for eventual demolition or these can be informally

Construction workers in China often live in prefabricated huts on site

© Waihs

Box 3.5 **Local action**

Through strengthening local advocacy and increasingly linking local organisations to city or national networks, otherwise marginalised populations have enhanced their relative power in negotiations with local government, public agencies and landowners. In other cases, the urban poor undertake development themselves. The best-known example is Orangi in Karachi where the *Orangi Pilot Project* assisted communities in developing their settlements, including the construction of sewer lines to replace bucket latrines with flush toilets. Noteworthy and welcome as the latter initiative has been, communities can only develop the sewers within their settlement. Trunk sewers and wastewater treatment outside their settlements are beyond their means and reach. Collaboration with the authorities therefore remains a necessity to coordinate development works within the settlement with those outside.

In some cities, government has strategically partnered with civil society organisations to improve informal settlements by upgrading infrastructure and, where possible, to create more secure land tenure, including through negotiating with private landowners. *The Community Mortgage Programme* in the Philippines; Thailand's *Baan Mankong Secure Housing Programme;* and Indonesia's *National Community Empowerment Programme,* for instance, all aim at empowering the poor to negotiate better deals. Baan Mankong has been particularly successful in its dealings with public landowners, in part because the programme organised communities into city- and nationwide advocacy networks to facilitate the sharing of knowledge and experience. The networks also put pressure on local governments to develop citywide plans for housing the poor.

In Karachi, only middle and high-income households can afford private sector-provided formal housing © Imran Ahmed

constructed multi-storey buildings, such as the urban villages in Chinese cities or quickly erected buildings in Mumbai. Local government may prefer these types of housing for the urban poor, as they can achieve very high densities and since these are also much less recognisable as inadequate housing. But they may be unhealthy and unsafe, and are rarely serviced.

Widespread corruption in the housing sector is both adding to costs and resulting in poor quality construction. Complex regulations have led in some cities to collusion between builders and civil servants, contributing further to the chasm between housing need and affordability. Many developers cut corners by constructing multi-storied structures without proper design, building permits or construction supervision while using inferior construction materials. Spontaneous building collapses are therefore common across the region, at both places of residence and work.

As cities develop, land values rise and urban sites occupied by poor communities come under development pressure. This has in many cases led to forced evictions. There are five broad causes for forced evictions: 1) urban re-development; 2) infrastructure projects; 3) natural disasters; 4) mega-events; and 5) economic evictions for real estate development (i.e. gentrification). But whatever the stated eviction reason, there is often an element of discrimination that disproportionally affects certain groups, notably the urban poor, minorities, women and indigenous people (UN-Habitat 2011: viii-ix).

Major events such as international or regional sport competitions and conferences are also increasingly sought by cities for the recognition and status they bring. But these have often led to the loss of low-income homes and displacement. It has been estimated that, in the case of the 2008 Olympic Games in Beijing, for instance, close to 500,000 people were evicted from their homes for the construction of sports facilities, shopping centres, residential buildings and office towers (UN-Habitat, 2007a). Although the evictees were compensated and given alternative housing, many protested that the compensation was inadequate, while relocation sites were far from places of employment. Likewise, the 2010

Box 3.6 **Case studies**

Resettlement in Sahaspura, Colombo

The Sustainable Townships Programme was intended to resettle the urban poor in high-rise buildings, improving their quality of life and freeing up land for development. The programme was to take place simultaneously in several locations to offer the poor different location and housing type options. But as key public agencies were not prepared to make land available for re-housing, only one site could be developed. Eventually 651 families moved, 161 families declined and 52 families were relocated elsewhere. Many poor families, particularly those with somewhat higher incomes or regular jobs preferred their new housing over the old, but there were also many who were dissatisfied. For some, the design was insensitive to their culture; the space made operating a home-based enterprise difficult; it was impossible to expand the unit if more space was needed; paddy husk and firewood cannot be used as fuel in high-rise living; and some of the poor could not afford the higher utility costs. Because some families had refused to move and while others returned, the original sites could not be redeveloped, jeopardising programme financing. By 2010, some 100-150 families had sold their newly acquired apartments and had either moved to the suburbs or back to their original settlements (Wijayasinghe, 2010).

Dharavi, Mumbai

Dharavi, an informal settlement in Mumbai, has a population of between 600,000 and one million but also accounts for a great deal of economic activity, including recycling enterprises and industries producing garments, pottery, cutlery, soap and food. Authorities for some time have intended to redevelop the site and improve the living conditions of the residents at no cost to the government by involving the private sector. A company prepared a plan for 57,000 families. Each house *owner* would receive for free an apartment of 30 m^2 in a multi-storied building to be maintained by the developer for 15 years. Business owners would receive 25 m^2 of space for free. Renters in Dharavi, however, would not be compensated. An arrival cut-off date (first 1995, later 2000) was set for those eligible for re-housing. The developer promised to provide three million square metres of housing, schools, parks and roads and, in return, could build 40 million m^2 of housing and office space for sale (Patel and Arputham, 2007; Ramanathan, 2007).

Critics have feared that the developercould minimise the space and costs of re-housing the current residents and enterprises of Dharavi and maximise the space it can sell. They also worry that high-rise living will disrupt the livelihoods of vendors, shopkeepers and fishermen who all need ground level homes for their businesses or to store their boat. A survey in one of Dharavi's other sectors found that: a) 31 percent of the families had moved to Dharavi in 2000 or later; b) the sale of housing was a regular feature; and c) around one-third of the houses in the sector had changed hands since 2000. Such findings implied that many residents would not be eligible for re-housing (Giridharadas, 2006; Hindustan Times, 22 January 2011).

Rehousing the residents of informal settlements such as Dharavi in Mumbai can disrupt the livelihoods of vendors, shopkeepers and fisherfolk, who all need ground-level homes for their businesses or boats

Whereas high-rise living is often presented as the only way to achieve the densities demanded by high urban land values, research in Karachi has shown that flexible low-rise housing not only works better for the poor but can reach densities as high as that of apartment buildings

Commonwealth Games in Delhi led to the eviction of an estimated 200,000 urban poor (Mishra et al, 2011: 4).

Real estate development is another major source of evictions. Many of the rich in Asia-Pacific, both in the more advanced and developing economies, invest in urban real estate. Governments welcome these investments as part of their drive to establish a stronger revenue base but here too there are often consequences for the poor because such urban (re)development can be the cause of evictions and displacement. Even well-intended relocation and resettlement initiatives may not always adequately compensate for the displacement (see Box 3.6).

Indeed, projects in Colombo, Mumbai and Phnom Penh demonstrate that resettlement continues to be non-inclusive and can further impoverish many families. Apartments pose two basic difficulties for the urban poor: they cannot be adjusted to meet changing needs over time and they are unsuitable as locations for income generation. The latter affects particularly women, since they often must work at home while looking after children. Whereas high-rise living is often presented as the only way to achieve the densities demanded by high urban land values, research in Karachi has shown that flexible low-rise housing not only works better for the poor but can reach densities as high as that of apartment buildings (Hasan, 2010).

3.4 Urban Violence and Safety

While competition and inequality often characterise urban space in the region, on the whole, the region's cities remain relatively free from serious and unchecked violence. Although cities in the Asia and Pacific region appear to have many of the intrinsic urban safety and security risks, data shows lower levels of violence in this region than in others. That is possibly because formal

Box 3.7 **Housing, sectarianism and violence in Karachi**

In Karachi, only middle and high-income households can afford private sector-provided formal housing. Consequently, subsidised formal low-income housing for the poor is often captured by lower-middle-income groups and the low-income population has to rely almost exclusively on informal settlements on public land. The development and protection of these settlements requires frequent 'transactions' between local leaders and government officials who can act as protectors, or between local leaders and politicians, with the former often pledging electoral votes in exchange for support of the settlement. This gives informal settlements a commercial and political importance. The development of informal settlements in Karachi is organised primarily along ethnic lines, which often coincide with religious-sectarian and political affiliations. Since politics revolves around the same ethnic and religious-sectarian identities, informal settlements become intertwined with electoral politics. Armed defence against intrusion by competing forces is often the next step. Because residents seek protection in segregation and since each neighbourhood manages its zone of influence as a near autonomous area, Karachi is increasingly fragmenting into ethno-religious enclaves controlled by private militias (CSSR, 2005; Gayer, 2007; Bhudani et al, 2010).

and informal institutions as well as cultures stress harmony and hierarchy that tend to resolve conflict before it turns violent. Yet, while violence may not be characteristic of the region's cities per se, safety has been identified as an issue, particularly for women.

In some localities, the police and community organisations co-operate to maintain law and order. For example, informal settlements in Mumbai utilise the *panchayat* system, comprised of groups composed of one local police officer and ten community volunteers (seven women and three men) to police the settlement together. It helps resolve domestic quarrels or conflicts between neighbours over plot or house boundaries before these escalate into violence. It is a more accessible and acceptable mechanism than regular policing methods, both because it is responsive and because residents are more confident to register their complaints when they know the volunteers. Likewise in Papua New Guinea, where urban community courts have in the past effectively mediated land, ethnic and interpersonal conflicts and provided an important additional community-based dispute-resolution system (UN-Habitat/ESCAP, 2009).

While criminal violence in many cities of the region remains relatively low, other types of violence are not so uncommon. In the absence of effective mechanisms for labour and employers to negotiate wages and working conditions, for instance, workers are often forced to take to the streets to express their demands. Similarly, without agreed procedures to negotiate resettlement in a

Box 3.8 **Violence against women and girls**

In recent years, extensive media coverage of gender violence in Asian and Pacific cities has led to increased global attention and appeals that governments do more to stop violence against women and girls. Gender crimes require systematic and decisive policy attention because, unless vigorously addressed, they are likely to persist and escalate.

From 2010 to 2013, over 10,000 men in six countries across Asia and the Pacific (Bangladesh, Cambodia, China, Indonesia, Sri Lanka and Papua New Guinea) were interviewed as part of the UN Multi-country Study on Men and Violence. The study did not explore all violence against women but focused on violence against the intimate partner and non-partner rape. The analysis found that nearly half of the men interviewed reported using physical and/or sexual violence against a female partner, while nearly a quarter of the men interviewed reported perpetrating rape against a woman or girl.

A 2011 survey conducted by the Thomson Reuters Foundation showed that three Asian countries rank among the five "most dangerous countries in the world for women". They were Afghanistan, India and Pakistan. According to World Bank research, nearly half the countries in South Asia and more than sixty percent of those in the Pacific have no laws on domestic violence despite the widespread prevalence of this stark violation of women's rights. Even in countries where domestic violence laws exist, they are often not effectively implemented. Large numbers of women in the Asia-Pacific are among the four billion people who are globally excluded from access to justice.

Sources: *Why Do Some Men Use Violence Against Women and How Can We Prevent It? Quantitative Findings from the UN Multi-country Study on Men and Violence in Asia and the Pacific,* UNDP, UNFPA, UN Women, World Bank and UNV, Bangkok 2013; Thomson Reuters Foundation Factsheet, 15 June 2011, www.trust.org item/?map=factsheet-the-worlds-moast-dangerous-countries-for-women.

participatory and planned manner, informal settlers faced with imminent eviction from the land they have occupied for years may use the streets to voice their claims. In some cities, such protests have resulted in violent clashes between armed police and gangs hired by the owner of a company or the land. Lasting solutions to this kind of violence can only be found where the political will exists for establishing and enforcing policies and legislation that better protect the population from gross inequalities in access to fair working and living conditions.

Gender violence and the city

Gender safety and violence is a critical issue for the region's cities (Box 3.8). Women and girls can only enjoy the urban opportunities if they are free from violence and fear of violence in the spaces where they live, move and work. Lack of safety often denies women and girls the full range of rights to which they are entitled. An important part of addressing urban safety is to more effectively understand gender-related perceptions and experiences of urban space as shown in Box 3.9.

Gender violence has become a critical issue in India

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Box 3.9 **Gender safety in India**

In the wake of the horrific and globally publicised gang rape of a young woman on a bus in New Delhi in 2012, the Government of India has taken steps to improve women's safety with a series of actions that can be replicated throughout the region: A fast tracked commission overhauled the criminal law so that all aspects of sexual harassment are now an offence. At the city level, the Chief Secretary of the Government of Delhi works on making the city safer for women and girls through several initiatives. These include:

- Establishment of multi stakeholder collectives "*Awaz Uthao*" in low-income communities to address women's safety at the community level;
- A special 181 help line that connects directly to the office of the Chief Minister to provide support to women in distress, including linking them to the police and other support services;
- The introduction of standard protocols for responding to gender-based violence;
- Increased police patrols and a 'zero-tolerance policy' on sexual assault;
- The training of Transport Department staff on women's safety, more night buses and 26 'women-only' buses;
- A dedicated women-only coach in each train of the Delhi Metro Rail Company and safety audits of Delhi's metro stations; and
- Gender sensitisation in the curricula for teachers and safety audits in all schools, colleges and university campuses in Delhi.

As more women want and need to work outside the home, there is also necessity for safe transport. Some cities have introduced women-only buses and train compartments, but there is further need for accessible and safe transportation, including safe waiting areas

Poor infrastructure impacts on perceptions of safety and increases opportunity for violence. Streetlights tend to illuminate roads rather than sidewalks, leaving the latter dark and dangerous. Pedestrians rely on lights from shops along the road. Hawkers can provide some degree of social surveillance and reduce the likelihood of crime, but their frequent removal by the police 'to free space for pedestrians' actually makes streets less safe. As more women want and need to work outside the home, there is also necessity for safe transport. Some cities have introduced women-only buses and train compartments, but there is further need for accessible and safe transportation, including safe waiting areas.

As more women enter the workforce in urban areas, further attention is required for women's safety concerns. In Cambodia, for instance, women workers face insecurity and violence because of lack of infrastructure or poor factory layout. Harassment and sexual violence on the way to and from the factory and around the home are also major concerns. Women working night shifts are particularly at risk (ActionAid, 2011).

In Port Moresby, Papua New Guinea, donors are working through the *Safe City Programme* with local women to provide safer physical environments at the city's main market areas, as well as safe childcare facilities and a referral system for survivors of family and sexual violence. In a city in which 80 percent of the market vendors are women and where violence against women is prevalent, safer market spaces provide the prospect of positive health, safety and livelihood outcomes for women vendors – and provide benefits for the city as a whole (UNWomen, 2014).

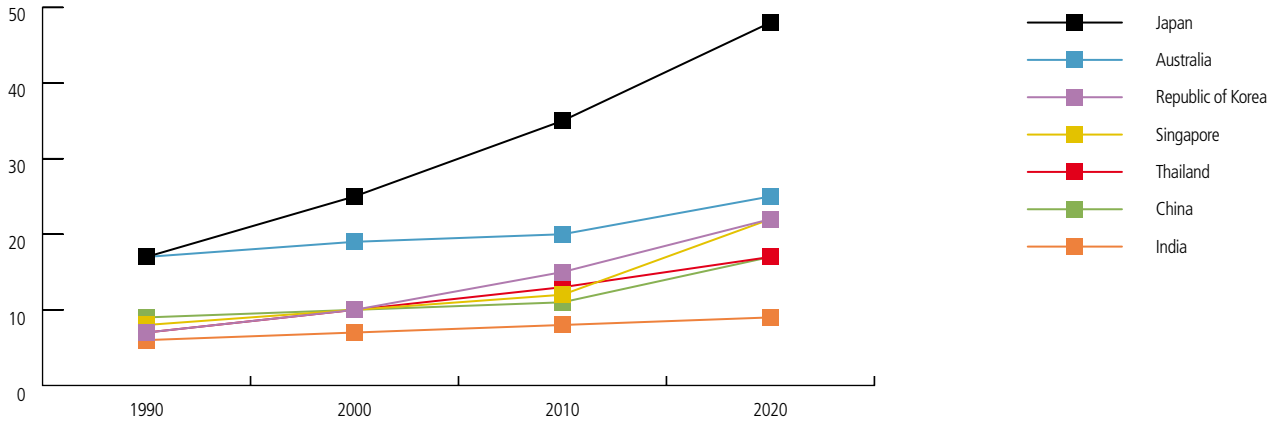
In the periphery of Bangkok, the presence of many women workers and their need for safe housing has led to the construction of multi-storied, women-only rental apartment buildings near industrial areas. To keep costs down and for safety, rooms are shared by four to six women, while security guards control access to the building. But these interventions focus on the symptoms rather than the attitudes behind gender crimes.

3.5 Ageing and the City

In most Asia-Pacific societies, the family and their community, rather than the state, are expected to support those in need. But traditions of familial obligation are eroding as household members become more urbanised, mobile and individualistic. For many couples it is now necessary that both work long hours to meet the increasing costs of urban living. This reduces the time spent with family members. Also, couples have fewer, if any, children which further impacts on the ability to look after the elderly through family arrangements.

Throughout the region, urbanisation is resulting in profound and long-lasting impacts on traditional living arrangements and family structures. Working in different localities or economic sectors is an increasingly necessary strategy to limit risks of unemployment and income loss. Typically, working-

Graph 3.1 **Old-age dependency ratio for selected countries (1990-2020)**



Changing dependency ratios: ratio of the population aged 65 or over to the population aged 20-64. The ratio is presented as the number of dependent per 100 working age (20-64).
Source: UNDP, 2011, Vol. 1: 457-479.

age household members at some point move to the city or abroad, even if temporarily, to exploit income opportunities. Since most labour migrants have neither the time nor the space to care for their young children or elderly parents in their new location, dependent family members typically stay behind in the village where the costs are lower. In China, for example, 58 million children were 'left behind' in 2009 – 80 percent remaining with their grandparents, 13 percent with other relatives, and seven percent without anyone to care for them (*China Daily*, 30 May 2012).

In most of Asia and the Pacific, the family nevertheless remains the key provider of social support and safety nets. Social expectations of marriage and obligations of intergenerational support remain strong. Whereas family support for the elderly is a core filial duty, it is becoming increasingly difficult in urbanising societies. The elderly are expected to take care of and raise the family's young children since the working-age parents increasingly prefer, for reasons of economic necessity or personal choice, to live on their own.

Demographic transition is also resulting in change and innovation in terms of housing access. In Japan, a government agency rents houses from elderly homeowners for the period of their remaining lifetime for subletting to younger households. It enables the older household to move to a smaller rental unit while providing them with rental income from the house vacated. Reverse mortgages permit older homeowners to borrow against the value of their house, with no repayment required until the borrower dies or the house is sold. Houses with separate self-contained units

Box 3.10 **Urban development for ageing societies**

Increasing attention must be paid to demographic ageing and its relationship to future urban development. Unless this receives more attention, the elderly could become the new urban poor in the Asia and Pacific region. In Hong Kong, China, those over 60 will represent at least one-third of the city's population in 2036. Redevelopment projects have for many years replaced low-cost and low-rise structures with higher-priced condominiums. Older persons, particularly poor elderly, have been most affected by these projects as their needs and often limited resources are rarely taken into account in market-led schemes. In response to this trend, the Hong Kong Housing Society has sought to create specific age-friendly estates to support 'healthy ageing' and 'ageing in place', and has also invested in retrofitting existing infrastructure, including transportation and services, to prepare for an ageing future. Across much of the region greater attention will need to be paid to future urban infrastructure and planning interventions that respond to the needs of ageing societies.

Source: Hong Kong Housing Society

In most of Asia and the Pacific, the elderly are expected to take care of and raise the family's young children since the working-age parents increasingly prefer, for reasons of economic necessity or personal choice, to live on their own

Labour migrants are often forced to leave their children behind with relatives. In China in 2009, 58 million children were "left behind", 80 percent of them with grandparents © Hupeng

By 2036, one-third of Hong Kong's population will be over 60. The needs of old people are not always being taken into account in market-led housing schemes © Kawing921

allow grandparents to live in the same building as their children and grandchildren, but such options are feasible for wealthy elderly only (Doling and Ronald, 2012).

Care for the elderly is becoming an acute problem as the population in many parts of the region is ageing – and in some sub-regions at significant speed (see Graph 3.1). Formal public health care systems and health insurance programmes could address some of the problems related to demographic ageing, but not all countries in Asia and the Pacific may be able to afford these because they "grow old before they grow rich". In such countries, the elderly must therefore rely on a mix of types and sources of support, with contributions coming from the family, the community and, increasingly, the State.

The elderly could become the new urban poor in the Asia and Pacific region

With demographic ageing, not only does the number of elderly persons increase but also those with disabilities. Persons with disabilities of all ages often remain unseen and unheard due to a plethora of barriers to their full participation in society. These barriers include negative stereotyping and discrimination, over and above physical challenges of accessibility and mobility. Accessible transport is crucial to allow the elderly and persons with disabilities to move around the city. The 'leaving behind' of large proportions of the urban population has both socio-cultural and economic implications. Women with disabilities, and especially widows, are particularly vulnerable. The perception that the city is inaccessible and unsafe confines the elderly and persons with disabilities to their home and limits opportunities for accessing services or meaningful employment (ESCAP, 2012).

There are both important social/inclusion and economic/workforce dimensions to demographic ageing and the city. Future cities must adapt housing and public buildings, transport and outdoor spaces to the emerging needs as these influence mobility, health, social participation, safety from injury and security from crime. Barrier-free and secure buildings, streets and neighbourhoods are essential to enhance mobility and independence.

3.6 Changing Urban Identities

Urbanisation and economic development open space for people to separate their personal identity from that of their family and community. Cities can generate income-earning opportunities outside the family sphere or ethnic or religious group. Cities allow for people to express individual choice outside the parameters, conventional roles and expectations of the family and community. That applies to women who postpone or choose not to marry or not to have children to pursue their studies or a career. It can also apply to lesbians, gays, bisexuals and transgender (LGBT) persons who can find the freedom to embrace their identity and lifestyle in the anonymity of the city.

Changing gender roles

In cities across the region, urbanisation is driving slow but notable changes in societal and family norms. The average age at marriage is rising in many Asian cities. Education plays a major role when women chose to delay marriage as more and more girls go to school and university. Once they complete their studies, women want to make use of their education and work. At times, this clashes with

Box 3.12 **Finding space to 'come out'**

Urbanisation and economic development enable members of the LGBT (lesbians, gays, bisexuals and transvestites) community to break with heterosexual relationships and develop alternatives to conventional family forms. Asian and Pacific societies have a particular and deep-rooted concept of what it implies to be a man or a woman. This is not so much related to sexual orientation per se but rather to assuming conventional roles. Men and women are defined by specific obligations to their marriage partner, to their family and to their community and are considered adults once they marry and have a child.

To maintain family ties and social harmony and to avoid confrontation and conflict, the outcome is often a balancing act of personal identity and social obligations (Ho, 2012: 15). Thus, identities are shaped according to the context: *Inside the park I am a gay.* (…) *Outside the park, I am* (…) *a married man with a good family* (Khan, 2001: 102-107).

Large cities may act as the centre for queer culture and the preferred destination of LGBT communities. Large cities tend to offer greater anonymity because they are by nature already diverse. Bangkok, Sydney and Tokyo are sometimes called the 'gay capitals' of the Asia and Pacific region, but smaller cities such as Penang and Surabaya also have sizable gay and lesbian communities despite social norms considering homosexuality morally wrong or while national laws forbid the practice (Baba, 2001: 146-154; Offord and Cantrell, 2001: 242).

both societal and family customs or norms. In Indonesia, for example, societal and family standards view marriage as obligatory and an unmarried person is considered 'incomplete'. If a woman is not married by her late 20s or early 30s, family and relatives will put pressure on her to get married. But the situation is changing. The number of unmarried women is increasing; particularly in large cities where the social pressure to marry is lower than in small towns and villages (Situmorang, 2005: 3, 15).

In Hong Kong, China, Myanmar and Singapore more than 10 percent of women in their late 40s have never been married (Jones, 2010: 6). In Indonesia, the share of never-married women aged 30-34 years more than tripled from 2.2 percent in 1971 to 6.9 percent in 2000 (Situmorang, 2005: 3). Many women forego marriage to avoid the multiple burdens of married life: a full-time job, raising children, supporting husbands, caring for the couple's aged parents and also performing most, if not all the housework. Moreover, in very few countries in the region do employers or the government make arrangements for working mothers. Rather, discrimination remains a barrier including re-entry into the workforce. Consequently, more and more women opt not to marry at all.

Table 3.3 **National and large-city fertility rates compared (selected countries and cities)**

Country	National total fertility rate [a]	Large city total fertility rate [b]
China	1.66	1.00 (Taipei)
Japan	1.39	1.09 (Tokyo)
Republic of Korea	1.29	1.01 (Seoul)

Source; a) WHO, Global Health Observatory Data repository (http://apps.who.int/gho/data/node.country.country-CHN?lang=en); b) Jones, 2003:19; Jones, 2011:14.

The rising number of unmarried women obviously reduces marriage opportunities for men. East Asian men who cannot find a partner are now more often seeking a bride outside their own country, causing rapid increases in female migration with the intention to marry from poorer countries or countries with a culture of migration (Viet Nam, Philippines, Central Asia) to the richer ones (Japan, the Republic of Korea and Singapore). In 2011, about 40 percent of the marriages in Singapore were between a Singaporean and a non-Singaporean. Marriage migration is common in both rural and urban areas (Jones, 2012: 10).

Those women that *do* marry now more often decide to plan their family and have fewer children because of lower infant and child mortality rates, but also because of the high costs of raising children in an urban environment. As a result, urban fertility rates are falling throughout much of Asia and the Pacific and this trend is now also spreading to rural areas. In large cities, total fertility rates are particularly low, even compared to already low national fertility rates (see Table 3.3).

Harnessing diversity and providing opportunity for all will be essential in the creation of inclusive and cohesive Asian and Pacific urban societies

The consequential rise in the number of one- and two-persons households also has an impact on housing demand and explains the increased need for small apartments in large condominium complexes close to urban central areas and other places of concentrated employment.

3.7 Harnessing Diversity for Social Inclusion

United Nations and World Bank projections show that, over the next 40 years, the number of urban dwellers in Asia-Pacific is expected to double. The region is projected to reach a demographic tipping point in 2018 – the year when its population is expected to become more than 50 percent urban. By 2050, a projected 66.2 percent of the region's population will be living in cities.

Local governments already face a multitude of challenges that will be compounded by ever more urban dwellers, diversity and complexity. Future urban development will need to be increasingly shaped towards middle class interests and patterns of living. Managing this change will require strong leadership and action from government in the management of land, housing, mobility, services and environmental impacts.

At the same time, if current trends persist, poverty will remain a critical and growing challenge as inequalities continue to widen. The juxtaposition of wealth and poverty, though now mediated by an emerging middle class, has never been as pronounced as today and is likely to further increase. Local authorities will therefore be confronted with demands to address the changing needs and expectations of ever-more diverse urban populations and changing urban identities. Harnessing such diversity and providing opportunity for all will be essential in the creation of inclusive and cohesive Asian and Pacific urban societies.

How national and local governments in the Asia-Pacific adapt to cope with such change is both one of the biggest challenges and opportunities of the region's urban transformation.

The Mardi Gras parade is celebrated by the gay community of Sydney every February. Urbanisation has enabled members of the LGBT (lesbian, gay, bisexual and transvestite) community to develop alternatives to conventional family norms

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Manila, Philippines: the contrast between the area of San Andres Bukld and the financial district of Makati. Low-income households are being physically pushed out of cities through rising housing costs and shifts in employment

The Contested Realities of Inclusive Cities

By Sheela Patel* and Diana Mitlin**

Towns and cities in Asia and the Pacific are facing challenges on many fronts. While economic growth continues to transform cities, substantial numbers of urban dwellers are excluded, both in terms of relative purchasing power and access to public goods and services. Low-income households are increasingly being physically pushed out of cities as they face continuing marginalisation through rising urban housing costs, commodification of basic services and changing trades and industries. Economic growth has, however, provided opportunities for new forms of social assistance, some social mobility and significant growth in markets in which low-income entrepreneurs and workers are active. But substantive problems remain: not enough is being done for those left behind, and what is being done – even if well-intentioned – is frequently ineffectual.

A more equal and inclusive urban future is possible, however, and quality of life can improve for all urban citizens. This requires a re-orientation of urban aspirations away from selectively governed and organised spaces towards a more inclusive city. There is need for reconceptualisation through partnerships and using win-win solutions that benefit the city at large without excluding its poorest inhabitants.

A divided urban future?

Asian and Pacific urban settlements are increasingly differentiated by both income and spatial development. There have been positive trends in sub-regions of Asia and the Pacific over the last 20 years, such as the expansion of

urban services and better access to improved water supply. Water services have been extended to at least some informal settlements. Despite some progress, lack of public investment in municipal and basic services generally continues to be problematic and throughout the region the urban poor continue to face several challenges.

One challenge is the impact of privatised urban services delivery. Commercial or market-based services delivery is designed for individual households and is unquestionably advantageous to those who can afford to pay for these goods and services. But it often results in the individualisation of state-citizen relationships which makes it more difficult to advance the public good through collective interventions.

A further challenge is that rapid economic growth and measures to facilitate land markets have increased urban land prices and, consequently, the vulnerability of the urban poor. Urban housing is increasingly costly and, with incomes already stretched, many low-income households have little option but to relocate to the edge of cities to find dwellings that are affordable.

A third challenge is one of transition. While economic growth increases the likelihood of new and alternative livelihoods materialising in new locations, adjustment takes time. It is, however, becoming more difficult for informal workers, especially vendors and informal transport providers, to access the better located and higher income central city areas, whether as an outcome of urban segregation, restricted access to public space or otherwise.

The current modalities of urban development are undermining the collective good, we argue, with negative implications for the city as a whole and, indeed, all urban citizens. We will all be poorer if urban living focuses more on individual accumulation than on collective well-being. City life improves when regular interaction takes place between neighbours, when public spaces are accessible and where voluntary activities are encouraged and flourish. Such collective interaction may also have political benefits through more cohesive societies, making it more likely that local authorities are held to account.

But today there is declining social interaction between different groups of urban citizens and, consequently, there are fewer opportunities for the urban poor. This can be addressed if local and national governments demonstrate that partnerships between the poor and local authorities can work for the good of the whole city, not just the poor.

What can change the game?

Drawing on experience, we posit that three practical actions can improve the situation described above:

1) acknowledgement that many poverty assessments fail to measure material poverty;

2) increased local government commitment to inclusive urban transformations; and

3) establishment of citizen-led information systems.

1. Urban poverty assessment is not about measuring poverty

The discourse at both international and national levels holds that the incidence of urban poverty in Asia and the Pacific is falling. But the actual experiences of the urban poor challenge this perception. Low-income households may have increasing incomes but they also face higher costs of urban living. The costs of urban housing, mobility, water and basic foods leave little if any margin for other spending and savings. The cost of non-food items in particular is rarely adequately acknowledged in establishing and measuring official poverty lines.

One recent report illustrates the paucity of assessment practices in Viet Nam (Thanh, Anh et al. 2013). Officially, urban (expenditure or income) poverty incidence has fallen to six or seven percent of the population. However, these figures do not consider adequately multi-dimensional poverty, such as lack of access to social security, to basic services (electricity, water, sewer connection and waste disposal services), housing quality and space, access to social infrastructure (schools and health care), physical safety and social inclusion. Without adequate poverty assessments, the true realities of urban poverty and inequality remain poorly understood.

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2. Local authority commitment to inclusive urban transformation

Without political commitment and effective interventions at the city level, inclusive cities cannot be achieved. Central government frameworks must provide support so that city governments with the responsibility to improve the quality of life of their citizens can deliver on this mandate.

Despite some partnership experiences across Asia and the Pacific, there have been a mix of attitudes and responses from city governments. Underlying the difficulties faced by low-income and disadvantaged citizens are three realities:

The Indian Alliance: From data to dialogue

The Indian Alliance—a partnership between Mahila Milan (a homeless federation), the National Slum Dwellers Federation (NSDF) and The Society for the Promotion of the Area Resource Centre (SPARC)—was established in 1986 with the task of stopping evictions, building community organisations in neighbourhoods that were facing evictions and developing community-based strategies for countering repressive anti-poor legislation. Communities originally felt that exploring dialogue with those who destroyed their homes was unacceptable, while city administrators initially found it hard to imagine that solutions could come from preventing evictions and demolition.

During this campaign SPARC reached out to Mahila Milan, meaning "women together", which was founded to protect Mumbai's female pavement dwellers. In order to make progress towards the final goal of obtaining land for the construction of housing for homeless people, NSDF was brought in to facilitate dialogue on a national scale, becoming the third partner in the fledgling "Indian Alliance". This collaboration sparked a broader strategy for tackling common challenges such as police harassment, evictions and water access. The process initiated partnerships and gave birth to governance practices between the urban poor and local authorities,

Dialogue began when the pavement dwellers in Mumbai, with support from SPARC, undertook a census of households living on sidewalks and produced the report *We the Invisible.* Some of the report's data stunned the city authorities. Half of the city's households had come from poor districts or villages (with no assets of any kind) within the state of Maharashtra over the past 10-30 years. Once in the city, they chose to live near their work place because the extremely low wages did not allow for any mobility costs.

The requests to the city and the national government were that: (a) land in the city be made available for relocation; (b) the national government support this process; and (c) most importantly, dialogue be started between the municipal authority and pavement and slum dwellers to establish procedures for development investments that provide them with access to basic amenities.

In 1995, a policy for market-based subsidies to build tenements for slum dwellers was announced and this led to the *Slum Redevelopment Act* (1997), with pavement dwellers included in relocation. In 2000, the first 500 pavement dweller households belonging to Mahila Milan were allotted land and, in 2005, the first households moved into their homes. Over 15,000 households have since moved to new homes. The advocacy process that began with a database remains the foundation of dialogue and discussion between the city and the poor.

A further example of government-community dialogue thanks to community-generated data, is when the Indian Alliance mapped settlements along Mumbai's railway tracks at the request of the city, as part of a World Bank funded transport development plan. Thanks to participative enumeration techniques resettlement took place without protest or conflict. Between the project start date in 1998 and 2005, 18,000 households voluntarily relocated to enable the upgrading and expansion of the railway.

a) Negative images of the urban poor are widespread and frequently exacerbated by local government. The urban poor are blamed for violence, criminality and clientelism. Such negative perceptions are reinforced by prevailing global images of the urban future. Among the high-rise buildings, multi-lane highways, high-tech businesses and environmentally friendly green spaces, there is little space for the majority of urban citizens and little acknowledgement of their essential contribution to urban prosperity.

b) There are few opportunities for low-income citizens to organise themselves at the city level. Moreover, local politicians may practice "divide and rule' or political patronage to strengthen their own political positions. Without collaboration it is difficult for the urban poor to apply political pressures and exercise their democratic rights so that their needs and interests are also taken into account.

c) Not only is information about poverty mostly unavailable, even basic information about cities is often missing. If city managers do not know how many of their citizens face tenure insecurity, lack access to services and infrastructure or experience acute health problems, then it is unlikely that they will able to address such problems.

3. Citizen-led information systems

Some groups of urban poor have discovered the power of data and statistics and are now creating their own 'data revolution' on urban poverty. Consolidating such information helps create new positive identities, identify new champions (e.g. UN-Habitat's 'I'm a City Changer' movement) and develop new partnerships.

One of the most important elements in moving towards more inclusive cities is comprehensive knowledge on informal settlements and their inhabitants. The creation of such data and the subsequent information has two important features: a) as local residents are drawn into the self-documenting data collection process, they

strengthen their identity and their organisational base; and b) it induces a political response from those willing to work with the urban poor to begin engagement.

The urban poor can gain legitimacy and authority through information on how long they have lived in the city, the contributions they make through their expenditure and labour, and the actual numbers of those exposed to appalling living conditions. This information and political aggregation, which takes place within and between settlements, consolidates the political identity of the urban poor, underpinning demands for political response and government accountability.

New partnerships between local government and organised communities

The Indian Alliance has been at the vanguard of community-led data collection (See text box "Community enumeration methods").

There are further examples across Asia of organised citizens coming together to negotiate alternatives that provide lessons for both communities and policymakers.

Vinh, Viet Nam: *in-situ* upgrading and housing improvement

In recent decades thousands of low-income families in Vietnamese cities have been pushed out of their homes when their neighbourhoods were redeveloped. Supported by the *Asian Coalition for Community Action* (ACCA), a programme managed by the Asian Coalition for Housing Rights (ACHR), communities in Vinh have developed a people-driven redevelopment model that does not involve eviction. As a result, local governments have changed policy on redeveloping run-down collective urban housing. Previously, the redevelopment was done by contractors, with the new units built to a set of standards beyond the affordability

The Indian Alliance has mapped settlements alongside Mumbai's railway tracks © Matyas Rehak

Community enumeration methods: Developing community awareness through data collection

The Indian Alliance has continued to pioneer different types of qualitative and quantitative enumeration processes whereby communities collect information from every household, house or individual, without the use of sampling or statistical techniques. Through these methods communities have become agents of their own inclusion in city life, and have been able to advocate and facilitate the development of urban policies around their needs.

Enumeration includes various methods which serve the dual purpose of fostering awareness and more active citizenship among urban poor communities formalising and enhancing relationships with government: Firstly, settlement profiles concentrate on the socio-economic and physical make-up of a settlement, such as location, titling, types of buildings, access points etc. This can be further improved by the mapping of these different characteristics. Secondly, a household survey is often used in the case of slum upgrading or resettlement, providing a snapshot of a household's situation that ensures equal treatment during slum improvements or relocation.

Finally, vacant land surveys, undertaken by local communities, strengthen the spatial awareness capacity of communities as this kind of information is usually monopolised by public bodies or private developers. A key challenge is how to manage this data in the information age: federations have slowly been able to aggregate data into databases through the participation of young computer literate members of the community while also using public domain maps such as Google Earth and basic GIS techniques to strengthen the use of their data.

Marginalised urban groups must be recognised as equal citizens and incorporated into city planning © Nan Li

of the former residents. Now the communities can rebuild their own housing and infrastructure and secure land titles. Costs are lower, people are not evicted, and the housing units are upgraded.

Low-income families in the Cua Nam Ward, one of 140 collective workers' housing areas in the city of Vinh, Vietnam, lived in dwellings of 15-23 square metres which, due to their deterioration, were scheduled by the provincial authority for demolition in 2007 to be replaced with social housing, doubling the size of the plots and houses. For both *in-situ* and relocation developments, the plans were top-down, state-planned, contractor-built housing with no community participation. New residents would pay for land-use rights, infrastructure and new houses built to expensive high standards.

The communities in Vinh had begun saving in 2006 and used funds made available by ACCA to establish a revolving fund for small infrastructure loans. By December 2009, they had provided 110 households with underground sewers and 40 households with a paved walkway. Total expenditures came to almost USD 60,000 with USD 9,000 from ACCA leveraged to USD 11,000 by local government and USD 40,000 from community members themselves. The strong savings network allowed a community under threat from eviction to address their needs and develop alternative housing.

The families in Cua Nam Ward decided to redevelop their own neighbourhood, widening lanes, laying drains and rebuilding their houses in an efficient layout of two-storey row-houses on plots of 45 square metres to provide 47 square metres of accommodation. The provincial minimum standard of 70 square metres, the community argued, was unnecessary. They used this redevelopment plan and the availability of housing loans from ACCA to negotiate with the city and provincial governments to begin construction in March 2010.

The project set an important new precedent in Viet Nam. This is the first case whereby urban poor people living in collective housing had won the right to redevelop their housing on the same site, with the support of both the municipal and provincial governments. This was also the first case of a collective housing community permitted to build housing units below the provincial government's minimum housing standards (and therefore far more affordable). This standard has now been officially sanctioned by the municipality for replication in 140 other dilapidated collective housing areas in Vinh. The city government was swayed by the cost effectiveness of the development.

Mumbai and Pune: From sanitation needs to citywide investments

By 1995, Mahila Milan was organising women living on the pavements to identify their own priorities and develop strategies to address their needs. Improved sanitation was a particularly pressing demand. Most women had very few options. There were few spaces where they could safely practice open defecation. Paying for public toilet use for a family of six took up almost the daily wage of a vegetable seller in 1995. The Indian Alliance began to demonstrate alternatives, with a design of a block of 12-15 toilets proximate to informal settlement dwellings – with separate provision for men, women and children – and with a community centre built on the higher floors. The centre generated some revenue and ensured that the toilet would be well kept. Local families paid a monthly fee for the upkeep of the toilet while guests and visitors paid a one-off charge that offered an income to a local caretaker maintaining the facilities.

Municipalities had budgets for toilet provision but these funds were withheld each year as

the authorities argued that such investments would encourage more rural-urban migration. Municipal commissioners were also concerned about lack of resources for maintenance. However, a large scale plan to improve waste management funded by both the Government of India and the World Bank provided an opportunity for the Indian Alliance. In 1996, the Commissioner of Pune invited the Alliance to undertake toilet construction in his city and a model for scaling up community-managed toilet blocks was developed.

By 2014, the Indian Alliance had constructed over 900 blocks servicing 865,000 people in the Mumbai Metropolitan Region and 134 blocks servicing 116,000 people in Pune (SPARC, 2014). In conjunction with other agencies, the Alliance began a national campaign against open defecation and sought to achieve minimal universal sanitation in all urban centres.

Sanitation, more than any other issue, forced local communities and the Alliance to work with municipal staff. Over time these officials began to understand how the Alliance worked. In Pune, the result has been an innovative upgrading programme in which Jawaharlal Nehru National Urban Renewal Mission resources have been used to assist hundreds of households to upgrade their homes *in situ*. The demonstration of how improvements can be achieved at scale helps to build a critical mass for more inclusive and equitable models of urban development.

These and many more instances demonstrate that the role of the urban poor in improving their living conditions is beginning to be understood and recognised by city and national governments. Most relationships take time to develop, because attitude changes and the building of trust occurs neither instantly nor automatically, but precedents are beginning to produce solutions that impact on the whole city and not just the "city of the wealthy".

Moving towards more inclusive cities is a major challenge. Indeed the trend is towards cities of the rich and middle classes in which low-income households are further disadvantaged as urban space becomes segregated and there is little support for new livelihood options for the lowest paid. These examples though demonstrate the immense potential for organised and federated shack and slum dweller networks to work with local authorities and other government agencies to develop inclusive approaches to habitat and livelihood for the cities of the twenty-first century.

There are many voices calling for more socially just and inclusive development models but unless and until there is large-scale demonstration of alternatives these will remain on the sidelines and opportunities for more progressive urban futures will not be realised. Choices regarding public engagement are important. Either the poor engage with local government and negotiate space for supportive and forward-thinking policies or they face multiple forms of disadvantage across economic, spatial, social and political dimensions. The urgent need is to scale up existing activities to the city scale and beyond. As relations between organised communities and local government deepen through joint engagement around data collection and exploratory solutions, then new solutions can emerge.

There are opportunities for policymakers to work with all citizens and engage with organised urban poor at the city scale. Collective solutions produced through co-production between organised citizens and local authorities has repeatedly shown the most cost-effective, efficient, effective and inclusive strategy for urban development when compared to top-down alternatives. A further benefit of collaboration is that excluded and marginalised urban groups are recognised as equal citizens and incorporated into city plans and processes.

Learning is critical. None of the solutions introduced above emerged immediately or automatically. Trust, and the building of effective partnerships takes time. If there is no systematic learning from experience then it is unlikely that appropriate policy and programmatic responses will be identified. Though many of the solutions and strategies outlined above are local, lessons learned can and should be shared within and between cities in the region.

Time and timing are critical and both communities and local governments need to promote long-term solutions for the urban poor as key partners in the region's urban future.

There are many voices calling for more socially just and inclusive development models but unless and until there is large-scale demonstration of alternatives these will remain on the sidelines and opportunities for more progressive urban futures will not be realised

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Chapter 4.
The Urban Environment and Climate Change

Quick facts and policy points

- The region's urban economies have developed through environmentally exploitative models. As a result many cities are now confronted with immense environmental challenges and an increasing number of cities face multiple crises of liveability.
- While some environmental challenges are newly emerging (e.g. climate change) and others are persistent (air pollution, poor sanitation etc.), numerous cities are struggling to simultaneously address these existing new environmental pressures.
- As major sources of greenhouse gases, cities in Asia and the Pacific need to urgently seek low-carbon economies, infrastructures and transport.
- Such new economic and urban development models must be based on investments in urban ecosystems and broad-based provision of environmental services.
- Traditional urban waste management practices have become untenable. Cities can achieve far more efficient resource use and waste processing through waste-to-resource approaches and promoting the 3Rs: reduce, reuse and recycle, as well as 'circular economy' concepts.
- The region's cities are highly vulnerable to natural disasters and the impacts of climate change, with poor and disadvantaged communities the most exposed. Urban vulnerabilities can be reduced by strengthening cities and their populations' capacity to survive, adapt and thrive in the face of stress and shocks.

Bangkok suffered its worst ever flood in 2011


TAXI-METER

Chapter 4.
The Urban Environment and Climate Change

While the urban water supply has improved in Afghanistan, only 26 percent of the urban population have access to piped water © UN-Habitat

4.1 Urban Environmental Challenges

It has been argued that environmental quality declines during the early stages of economic growth but reverses after countries reach a higher level of per capita income. In an urban context this has been reflected in various models which show a linear transition from environmental challenges brought about through poverty, to those of development. These are often provided as the basis of a model of urban environmental transition, as well as a framework for policy development (see Table 4.1). However, it is increasingly clear that cities face these environmental challenges simultaneously.

In the Asia-Pacific region, far from moving through discreet and clearly defined phases, these stages tend to overlap and new problems emerge even when existing challenges have not yet been resolved. Consequently, many cities must respond to the impacts of increasing consumerism, including expanding vehicle use and significant resource footprints of wealthy urban populations concurrently with the often intense and localised impact of degradation through poverty in the absence of infrastructure and services.

For local governments, simultaneously unfolding poverty, growth and lifestyle challenges can be overwhelming, both in terms of the range and complexity of the policy responses required and of the resources needed to support these. While many of the region's cities have met the water and/or sanitation targets of the Millennium Development Goals (see Box 4.1) or have made good progress towards achieving these, the overall environmental quality of life in the region's urban areas remains relatively low. Moreover, many Asia and Pacific cities must also address serious challenges which threaten their development achievements,

Table 4.1 **Major urban environmental challenges**

Problems	Typical issues	Causes	Impacts	Spatial dimension
Poverty related	Low access to safe water and sanitation, organic pollution of water bodies	Rapid urbanisation, lagging infrastructure	Sanitation-related health impacts such as diarrhea and infections	Local
Growth related	Air pollution, water pollution, industrial waste pollution	Industrialisation, low rates of emission treatment	Industrial disasters, diseases due to industrial pollution	Local and sub-national
Lifestyle related	CO_2 emissions, NOx concentration, significant waste generation	Mass-consumption lifestyles	Climate change and global warming	Regional and global

Source: Based on Bai and Imura (2000)

especially their vulnerability to disasters and those resulting from the impacts of climate change.

Gaps in water quality and delivery

In many of the region's countries, over 90 percent of the urban population had access to improved sources of drinking water in 2011, whether as in-house connections, nearby public standpipes or boreholes, protected dug wells and springs or through rainwater harvesting. Even in the Least Developed Countries of the region, less than 15 percent of the urban population now relies upon unimproved sources of drinking water, with the exception of the Lao People's Democratic Republic's 17.2 percent (see Table 4.2).

There is, however, a significant difference between having proximite access to an improved source of water and being able to access and consume safe water in sufficient quantities. In many cities, the total volume of water available is sufficient to meet the needs of the entire population but its distribution creates quality and quantity disparities (see Box 4.2). Poor urban areas in Karachi and Dhaka for instance have public or private taps connected to the water supply network, but water from these taps may be available for a limited number of hours only, often in the middle of the night, while the water supplied may be contaminated by sewage and liquid waste. The urban water crisis is clearly the result not only of unequal distribution, but also of poor water management. In fact, many cities could supply the entire population with sufficient water if they improved efficiency, eliminated leakages, theft and corruption, and protected water bodies from pollution (Biswas and Tortajada, 2011).

Where water from the municipal network is insufficient or contaminated, people are forced to tap into other sources, such as groundwater and rainwater harvesting. But urban groundwater is often brackish or contaminated by industrial pollution and thus unfit for consumption. Many cities experience rapid lowering of the groundwater table due to excessive pumping by housing estates and factories. In a number of Indian cities, where water through the piped network may only be available a few hours per day, private water supply companies extract groundwater legally or illegally or they buy water from farmers with little concern for its quality or environmental impacts (*Times of India*, 17 May 2012).

Besides negotiating access to public water supply services, residents of informal settlements increasingly seek alternatives to access services where they are absent as a public good. The simplest but more expensive option is to purchase these from the informal private sector. However, apart from the issue of cost, water from informal vendors is associated with a prevalence of diarrheal morbidity and infant and child mortality (Semba et al, 2009). This contributes, in combination with inadequate sanitation, to wide public health disparities among city populations.

On the positive side, city managers in the region are increasingly acknowledging the necessity of managing and valuing water more effectively. They too are looking at alternative water resources and rainwater harvesting

Box 4.1 **The MDG target 7C: Safe water and sanitation**

Progress has been reported from the region on achieving the MDG Target 7C – Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.

Eastern Asia, Southern Asia and South-Eastern Asia recorded the largest increases in the proportion of the population today using an improved drinking water source, with rises of 24, 19 and 18 percentage points, respectively. But on sanitation, in 2012, one billion people worldwide still resorted to open defecation; a practice most prevalent in Southern Asia, Oceania and sub-Saharan Africa that poses a huge risk to poor and vulnerable communities.

Source; UN MDG Report 2014.

Table 4.2 **Urban water supply in selected countries (2011)**

Country	Total urban population (x1000)	Improved (%)			Unimproved (%)		
		Total	Piped	Other	Total	Piped	Other
Lao PDR	2,154	82.8	58.1	24.6	17.2	16.0	1.2
Bangladesh	42,698	85.3	31.5	53.8	14.7	14.0	0.7
Afghanistan	7,613	85.4	26.5	58.9	14.6	10.9	3.7
Kiribati	44	86.8	65.5	21.3	13.2	13.2	0.0
Azerbaijan	4,990	88.4	77.6	10.8	11.6	9.5	2.1
Turkmenistan	2,487	89.1	77.1	12.0	10.9	10.3	0.6
Papua New Guinea	874	89.2	55.4	33.7	10.8	7.4	3.5
Cambodia	2,857	89.6	65.0	24.7	10.4	7.5	2.9

Source: WHO/UNICEF JMP, 2011 <www.wssinfo.org/data-estimates/table/>

Box 4.2 **Unequal water distribution**

In 2008, the total supply of water to Karachi was 2,500 million litres per day and the network of pipes reached every neighbourhood. But 15 percent was lost to systemic leakage. Private companies could legally fill tankers at nine hydrants to sell water on the open market, but they also siphoned off 1,000 million litres from another 160 illegal hydrants to sell to factories, offices and households. This left the poor with piped water for only a few hours every two to three days (Rahman, 2008).

In Dhaka, two-thirds of all households have access to piped water but supply is irregular. As water moves through the network, its quality deteriorates due to leakages or damage resulting from poor construction and lack of maintenance. Illegally installed pumps between the network and houses reduces pressure, damages the pipes, and increases the risk of contamination. As the authorities do not supply water to informal settlements, their needs are met by local vendors who illegally tap water from water mains (Hossain, 2011).

is now growing in importance. In India, for instance, the State of Tamil Nadu has made eco-efficient approaches compulsory for new buildings to reduce depletion of its groundwater. Not only do households use the rainwater as an alternative source of supply, but it is also used to replenish groundwater. In Chennai, the groundwater table has risen 3 to 6 metres since households began to use rainwater and reduced groundwater extraction. The absence of land tenure security and homeownership in informal settlements, however, can act as disincentive to installing equipment for systematic rainwater harvesting, as is the case in Hyderabad (*The Hindu,* 2009; Barenhoff, 2011: 42-43).

Improving sanitation

Access to safe drinking water is critical for a healthy life, but it cannot be separated from access to adequate sanitation. Poor sanitary conditions in high-density environments are common in many parts of large cities in the region. This facilitates the transmission of communicable diseases and the contamination of water bodies.

Central Asian countries have a history of greater service provision, but much of the infastructure is old and in poor condition. In Uzbekistan, the government has launched the *National Water Supply and Wastewater System Development Modernisation Plan 2009-2020* with the aim of making access to quality urban sanitation services universal. Major challenges include repairing the aged infrastructure and expanding a network that only provided access to centralised municipal sanitation services for 38 percent of the urban population nationwide (ADB, 2014: 38-39). In other countries, many cities lack a sewer system altogether and people rely on septic tanks, pit latrines or buckets. In others, as shown in Table 4.3, many households still have to resort to open defecation.

As with water supply, access to improved sanitation does not necessarily give an indication of the quality of the service delivered; even an adequate facility cannot improve health conditions without changes in behaviour such as hand washing. The quality of the facility depends on its proper construction, use,

maintenance and cleaning, as well as the quality of the underground network and the overall functioning of the system. A shared facility may be used by a dozen or more households. Unhygienic or broken facilities or an overflowing septic tank can pose greater health risks than no facility at all.

Women and girls are especially vulnerable in the case of inadequate, unhygienic or unsafe sanitation facilities. Defecation in the open, particularly late at night, can have implications for personal safety. Women and girls may find it difficult to leave the house and use a communal latrine if sharing public space with men is not considered appropriate or safe. Long walks to adequate facilities increase the risk of harassment, violence or rape. Adequate sanitation for girls has further been linked to better school performance and health at the time of puberty (WaterAid, 2013:11).

There are wide disparities in access to safe water and sanitation between income groups in Asia and the Pacific (ADB, 2013: 20). It may be obvious that the wealthy generally have better access to safe water supply and sanitation than the poor, but the most serious inequality is found in smaller and rapidly urbanising cities. There, local governments often lack the management capacity and the human and financial resources to meet demand for housing, leading to a proliferation of informal settlements with poor basic services, if any. The disparity is, however, not just a matter of capacity and resources. Since many local governments do not recognise informal settlements or do not have the resources to meet their needs, these are routinely excluded from public infrastructure plans.

The water supply gap left by the authorities is sometimes filled by the community (see also Chapter 3),

Indonesian children on Global Handwashing Day. Even adequate sanitation facilities cannot improve health conditions without behavioural change such as hand washing © Agoes Rudianto

Box 4.3 **Water provision: good practice in Phnom Penh**

In 1993, a reduction of unaccounted-for water became the first priority for the Phnom Penh Water Supply Authority, as only 3,400 of the 27,000 connections were metered. To recover its cost, the Authority needed to increase the tariffs. To this end, it first convinced its customers of the reliability of its service by rehabilitating the network and installing new pipes. Between 1993 and 2008, it increased annual production by 437 percent, its network by 557 percent, water pressure by 1,260 percent and its customer base by 662 percent. Unaccounted-for water losses declined from 72 to 6 percent.

To reach the poor, the Authority tried to sell water to community leaders for resale to the population at an affordable rate, but many leaders sold water at 10 to 20 times the rate they had paid. Now, the Authority subsidises the connection fee in line with the paying capacity of the customers. The paying capacity is assessed by a committee of the Authority with assistance from the local community. Households consuming a maximum of 7 cubic metres per month pay only 60 percent of the real cost of providing the water.

As it considered human resources development a priority, the Authority changed the work culture, enforced discipline in a fair and transparent manner and built a dedicated, competent and motivated staff. It also installed a computerised customer database to handle financial operations, with direct access to current and historical financial data and revenue collection status in real time (Biswas and Tortajada, 2010; Tep, 2010).

Between 1993 and 2008, Phnom Penh reduced unaccounted-for water losses from 72 percent to 6 percent

Table 4.3 **Share of urban population by sanitation facility, selected countries, 2012 (%)**

Country	Total urban population (x1000)	Improved	Unimproved			
		Total (%)	Total (%)	Shared (%)	Other* (%)	Open Defecation (%)
Afghanistan	7,105	46.8	53.2	20.9	32.3	0.0
Nepal	4,756	51.2	48.8	37.5	2.0	9.3
Kiribati	44	51.2	48.8	10.8	18.3	19.7
Bangladesh	44,644	55.2	44.8	29.8	14.8	0.2
Papua New Guinea	897	56.4	43.6	8.8	31.1	3.8
India	391,176	60.2	39.8	19.8	7.6	12.3
American Samoa	66	62.5	37.5	36.5	0.3	0.7
Vanuatu	62	65.1	34.9	33.4	1.2	0.3
Mongolia	1,943	65.3	34.7	31.7	1.6	1.4

***Other unimproved sanitation includes flush/pour flush to elsewhere, pit latrines without slab, bucket and hanging toilets or hanging latrines.**
Source: WHO/UNICEF JMP, 2012 <www.wssinfo.org/data-estimates/table/>

It may be obvious that the wealthy generally have better access to safe water supply and sanitation than the poor, but the most serious inequality is found in smaller and rapidly urbanising cities

as in Gresik (Surabaya) where residents built a deep well to supply water to a neighbourhood not served by municipal water supply (Taylor, 2013a: 10). Community-based participatory service provision can reduce short-term vulnerability and meet immediate needs. However, the approach has its limitations, as it cannot provide a systemic solution. Many communities lack the capacity to manage water as a resource and to develop a sustainable service. But governance structures also suffer from capacity shortfall and are often too fragile to respond to management challenges and conflicts. Partnership between the community, and the public and private sector may offer sustainable outcomes where governance voids prevent public services delivery.

Such partnerships are at the core of community construction contracts, an approach developed in Sri Lanka and now in use across the region to promote community-based solutions. In this model a government agency or a non-governmental organisation awards the community with a contract to undertake physical works identified as a local need through community action planning. The contract usually involves labour-intensive work that does not require specialised skills and is relatively easy to manage. It brings physical improvements to the settlement, whether housing units, access roads, paved footpaths, drains, culverts and small bridges, wells, water tanks, public toilets, small-scale sewer systems, community halls, schools or clinics.

4.2 Environmental Pollution and Degradation

Ensuring basic water and sanitation, however, is only a first step towards cleaner and healthier urban environments. Given their dense concentrations of population and economic activity, cities need environmental infrastructure (such as drains and sewers), urban services (such as solid and liquid waste management) and environmental regulations (to minimise pollution) to maintain a safe and sustainable environment. But, as the population and the economy grow and the built-up area expands, many local governments neither have the human and financial resources to expand environmental infrastructure and services nor to enforce regulations. Where infrastructure is expanded, maintenance problems often arise which, in turn, are compounded by gaps in financing and revenue collection.

Contaminated water bodies

Under the current interpretation of the Millennium Development Goals, a person has access to adequate sanitation as long as the wastewater is discharged from the house. In this respect, most Delhi residents have access to adequate sanitation, but the city discharges almost all its wastewaters virtually untreated into the Yamuna River. Yet, the treatment capacity available is underutilised because the sewers are old, damaged, heavily silted and not maintained (Biswas and Tortajada, 2011; Singh, 2008: 124).

Box 4.4 **Financing new infrastructure**

Meeting the huge costs of financing major new infrastructure in the region is of such need that a new development bank was formally launched. China has proposed the creation of a lending agency to complement the World Bank and the Asian Development Bank (ADB). It is to be called the "Asian Infrastructure Investment Bank" (AIIB).

In October 2014, India along with 20 other countries signed an agreement in Beijing to become founding members of the AIIB to support infrastructure development in the Asia region. The Articles of Agreement (AoA) were signed by 50 prospective founding members on 29 June 2015 and the ratification of the agreement has started. If this facility emerges as envisaged, the AIIB may become a major investment source for the region's urban infrastructure and provide much needed new financing.

Source: Reuters, *Indian Express and International New York Times* reports of 24 Oct. 2014

Table 4.4 **Countries with the lowest level of wastewater treatment**

Country	Wastewater Treated (%)	Country	Wastewater Treated (%)
Viet Nam	19	Vanuatu	0
Bangladesh	17	Tuvalu	0
Papua New Guinea	15*	Timor-Leste	0
Tajikistan	12	Niue	0
Nepal	12	Nauru	0
Myanmar	10*	Marshall Islands	0
Bhutan	10*	Maldives	0
Cambodia	9	Kiribati	0
Lao PDR	6	Cook Islands	0
Samoa	5*	Afghanistan	0

*** estimate**

Note: The percentage of wastewater treated is generally reflecting the conditions in the largest/larger cities in the country and rarely an indicator of conditions in the smaller urban centres of towns.

Source: ADB, 2013: 44, 100.

In India, untreated effluents have increased surface water pollution by up to 20 times safe levels

Box 4.5 **Pollution in riparian small towns and villages**

In 2013, the Chinese Government acknowledged the existence of 459 "cancer villages", mostly located close to small towns and cities, along major rivers and their tributary branches. Industrial pollution is seen as the main cause. The largest concentration of such villages is found along the lower reaches of the Yellow River, the Changjiang River and in the Pearl River Delta.

Companies may establish polluting factories in small towns and villages because the population is less likely than residents of larger cities to speak out about these polluting factories. New plants tend to have pollution-control facilities, but they are rarely used because environmental laws are not enforced. But even where the laws are enforced, factories would rather pay the fine, which is only a fraction of what they would spend on pollution control (Lee, 2010).

As shown in Table 4.4, wastewater treatment is woefully insufficient in some of the region's less developed countries. In China, matters are only slightly better with only 38 percent of municipal wastewater treated on average and often not to an acceptable level. As urban populations grow, the gap will increase despite treatment facility expansion plans (WRG, 2009: 59). The Chinese Ministry of Land and Resources which monitored 4,778 spots in 203 cities, listed underground water quality as "relatively poor" in 43.9 percent of the cases and as "very poor" in 15.7 percent. Relatively poor water can only be consumed after treatment, while very poor water should not be consumed at all (Xinhuanet, 22 April 2014). The problem of wastewater treatment is primarily one of will to invest. Sewer systems are expensive to build, do not generate revenue and have no immediately visible benefits. They are nevertheless indispensable, especially where and when cities grow.

Singapore, by contrast, has a distinctive and consistent perspective on wastewater, which it sees as an important resource due to lack of natural supply and environmental concerns. As Singapore is pursuing self-sufficiency in water, its most innovative strategy is the purification of wastewater into so-called "NEWater". Although its usage is mostly non-domestic, a small amount is used for indirect potable use (EIU, 2011: 29-30).

For a long time, many cities in the region relied on natural wastewater treatment by lakes and marshes. Today, wetlands are more often considered sources of water-borne diseases and space that could be better used for buildings and roads. Consequently, many cities fill their wetlands despite these areas' contributions to human well-being. Wetlands' useful roles go beyond wastewater treatment and also include food and freshwater supply, carbon sequestration, recreation, flood mitigation and groundwater recharge in addition to sustaining biodiversity (Horwitz et al, 2012: 1, 18-19).

Wetlands in Kolkata, for instance, have treated wastewater for years but are now increasingly being filled in to make space for urban development. Likewise the Boeung Kak Lake in Phnom Penh which, in recent years, has been reclaimed by 90 percent. The 2011 floods in Bangkok serve as an example of the possible consequences of reclaiming natural drainage systems. The floods were partly the result of wetlands reclamation and destruction of natural drainage systems to provide land for roads, housing estates and an international airport (Roachanakanan, 2012).

In many cities, storm water drains are supposed to discharge run-off water and liquid wastes after treatment. Although a septic tank or other types of treatment are usually required for any building, many structures either lack this facility or have a tank that is too small, incorrectly built or ineffectively operated. Therefore, untreated wastewaters flow into drains that discharge into water bodies. People also often dispose of solid waste in drains that is then washed away with the rainwater to pollute the rivers. More often, however, solid waste blocks the flow of water and causes flooding or overflowing toilets and drains, leading to contamination of surface and groundwater and the soil.

For a long time, many cities in the region relied on natural wastewater treatment by lakes and marshes. Today, wetlands are more often considered sources of water-borne diseases and as space better used for buildings and roads

The industrial sector is often a major polluter, whether by releasing untreated toxic waste into water bodies or through environmental accidents. In 2005, an oil company spilled toxic benzene in the Songhua River that supplies water to Harbin - a city of four million people. Likewise, Lake Tai, China's third-largest freshwater body, has been devastated by both agricultural and industrial pollution; the latter from 2,800 chemical factories located around the lake. In India, untreated effluents have increased surface water pollution up to 20 times the safe level in 22 critically polluted areas, while industry has polluted almost all Indian rivers. Whereas the major industries have treatment facilities, most small ones cannot afford the investments (Lee-Duffy and Emmons, 2012: 33; Lokhande et al, 2011: 13-14).

Table 4.5 **Municipal waste composition, selected countries**

Country	Municipal Waste Composition (percent)						
	Food	Paper	Plastics	Metals	Glass	Others	Total
Myanmar	73.3	2.2	17.7	0.2	0.5	6.1	**100.0**
Indonesia	63.0	11.0	10.0	1.0	1.5	13.5	**100.0**
China	49.0	16.0	16.0	2.0	1.0	16.0	**100.0**
Malaysia	47.0	15.0	14.0	4.0	3.0	17.0	**100.0**
Singapore	19.8	22.6	22.9	3.4	2.3	29.0	**100.0**

Source: RRC-AP. 2010: 9.

Box 4.6 **Decentralised solid waste processing**

ESCAP, in partnership with Waste Concern, is helping small and medium-size cities in the region to manage waste in a pro-poor, environmentally sustainable and economically viable manner through decentralised Integrated Resource Recovery Centres. These centres use simple technologies to recover value from waste at low cost by converting organic material into fertiliser and by valorising recyclable wastes and, in the process, providing livelihood opportunities to the urban poor. The centres can recycle up to 90 percent of incoming wastes, thereby significantly reducing the amount going to landfills and cutting associated costs.

In Matale, Sri Lanka, three plants have been installed with a combined capacity to treat nine tonnes of organic waste and four tonnes of recyclables daily. The plants handle all organic waste generated by the city and create employment for 20 people from among the urban poor. The centres also aim at changing attitudes towards waste by involving the community in its management and encouraging households, vendors, restaurants and other businesses to reduce the volume of waste generated and to separate at source the organic and inorganic wastes.

Source: www.waste2resource.org

A growing volume of solid waste

Cities in the region are also generating increasing volumes of solid waste. While the vast share of this still consists of organic matter, over time waste streams are becoming more complex, non-biodegradable and containing ever more toxic elements (including e-waste). Solid waste per capita increases as incomes rise, but even people in poor cities and in poor parts of wealthy cities are now producing more solid waste per capita than before (Table 4.5).

Urban areas in Asia and the Pacific, according to the World Bank, generate about 700,000 tonnes of municipal solid waste or approximately 2.7 million cubic metres, per day. By 2025, this figure will increase to 1.8 million tonnes or 5.2 million cubic metres daily (World Bank, 1999).

Cities in the Asia and Pacific region are under pressure to transform their solid waste management systems, bring the waste streams under control, and shift from 'collect-and-dump' approaches to 'waste-to-resource' (including waste-to-energy) models. Singapore and the Republic of Korea are responding to this challenge by testing public-private partnerships for establishing 'waste-to-energy' plants. Malaysia, the Philippines, Thailand and Sri Lanka are seeking to develop the regulatory frameworks to institutionalise Integrated Sustainable Waste Management.

But the reality is that most Asia and Pacific cities experience major difficulties managing solid waste in a cost-effective and environmentally responsible way. This is because municipalities lack the capacity, as well as the human and financial resources to deal with all the solid waste produced and to enforce regulations on its disposal. Since solid waste management consumes a large part of the municipal budget, privatisation is often a preferred option. But privatised solid waste management only tends to work for those parts of the city where residents are prepared to pay for the service. With privatised waste management, other parts of the city typically remain uncovered, unless local government enforces this in contracts and regulations.

Waste is increasingly understood, not least by local governments, as a potential environmental and health

Boys collecting cardboard in Baguio City in the Philippines. Informal waste pickers provide an important recycling service across many Asia and Pacific cities © Sjors 737

crisis. Open dumping is still the most common method of final waste disposal and can result in water and soil contamination and associated serious health problems. It can also lead to the release of methane - a powerful greenhouse gas that should preferably be captured and utilised as a resource. Open dumping is simply not a long-term option; landfills soon reach capacity and finding new landfill areas is becoming increasingly difficult both due to a lack of land and opposition by local communities. However, only 5 to 20 percent of the waste generated in cities of the region's developing countries in fact needs to be sent to the landfill. The balance could be recycled back into the economy.

One of the challenges for the region is that slum dwellers are unlikely to be included in public or private waste collection services. Consequently they have little option but to resort to burning waste, burying it in pits or dumping it in drains, rivers and streams. Much of it is simply left in the street or on vacant land. Some non-governmental and community-based organisations

Open dumping is still the most common method of final waste disposal and can result in water and soil contamination and associated serious health problems

engage local waste-pickers to collect, separate, recycle or dispose of solid waste. Thus, informal waste pickers provide an important recycling service across many cities in the Asia and Pacific region.

Greater efforts are now being made to promote separation at source to facilitate waste recycling. All the same, many recyclables still end up at landfill sites and waste dumps. Still, many recyclables still end up at landfill sites and waste dumps and such sites are often surrounded by the settlements of waste pickers, who earn a living by collecting items from the waste. Attempts to reduce the amounts of waste reaching landfill sites, or

Table 4.6 **Solid waste management and economic development**

	Level of Economic Development		
	Less-developed Cities	Rapidly developing Cities	Developed Cities
Solid waste generated	0.3-0.7 kg/capita/day	0.5-1.5 kg/capita/day	>1.0 kg/capita/day
Average Organic Fraction*	64 percent	54-59 percent	28 percent
Solid waste collection rate	<70 percent	80-95 percent	95-100 percent
Recycling	Informal	Formal and informal	Formal
Expenditures from municipal budget	15-40 percent	5-25 percent	1-5 percent

Source: Imura et al, 2005: 364. * World Bank (2012): 19.

Table 4.7 **Healthcare waste generation by income level**

National income level	Type of waste	Annual waste generation (kg per capita)
High-income countries	All healthcare waste Hazardous healthcare waste	1.1 – 12.0 kg 0.4 – 5.5 kg
Middle-income countries	All healthcare waste Hazardous healthcare waste	0.8 – 6.0 kg 0.3 – 0.4 kg
Low-income countries	All healthcare waste	0.5 – 3.0 kg

Source: UN-Habitat 2010: 8

interventions to convert waste to heat, electricity or fuel often pose a dilemma as they lead to income losses for the waste-pickers who are among the poorest of the poor. Programmes aimed at making waste management more efficient must include efforts to find new sources of income for informal-sector waste pickers and their families.

Solid waste has not only become more voluminous but also more toxic. Medical waste, for instance, has become a serious health hazard in many countries. Although the quantity of healthcare-related waste vary according to income levels (see Table 4.7), the World Health Organisation estimates that for all countries, generally, only 7 percent of medical care waste is infectious. But since many hospitals do not have a treatment facility, infectious and non-infectious waste are often dumped together, rendering the entire volume hazardous. Disposing mixed infectious and non-infectious waste at dumping sites in or near cities makes it freely accessible to waste pickers who become exposed to serious health hazards due to injuries from sharp objects such as needles. Electronic waste (e-waste) is also increasingly a burden on waste management systems and greater public awareness and more comprehensive regulatory frameworks are needed to deal with its volume growth and the associated health impacts.

Chronic air pollution

Air pollution is clearly a serious problem in many cities of the Asia and Pacific region and a major cause of illness and premature death. Dangerous air quality levels are frequently reached in parts of the year in several of the region's cities, especially in Beijing, New Delhi, Dhaka, Kathmandu and Ulaanbaatar. During the past decade, lung cancer rates in Beijing increased by 60 percent, although smoking rates did not. Pollutants have many sources, including construction sites, vehicles, power plants, factories, housing and waste incineration. Rapid economic growth has turned many cities into large construction sites. In Beijing, over 5,000 construction sites release about 40 percent of the airborne particulates. Lack of regulatory enforcement is part of the problem in many cities (*China Daily*, 2011a; *China Daily*, 2011b; NYT, 2013a). High levels of pollution not only affect health, but also the global ambitions of some cities in the region. As professionals become increasingly mobile and can find work almost anywhere in the world, severe air pollution drives talented domestic professionals away and discourages foreign professionals to come. As alarming reports on the health impacts of air pollution on children increase, companies in some cities pay their expatriate staff a premium to compensate them for the high level of air pollution (BBC, 13 March 2014).

Rapid increases in the number of new vehicles, the presence of many poorly maintained older vehicles, poor fuel quality and inadequate traffic management all contribute to degrading air quality. In 2008, Beijing had 3.25 million private cars and the number is expected to increase by 15 percent annually over the coming years. Between 2000 and 2005, private car trips increased by 6.6 percent. Those by public transport increased by 3.3 percent while those by bicycle declined by 3.3 percent (Zhao, 2011: 509-510). Cleaner fuel, such as natural gas (LPG), is gradually replacing polluting fuels while

light transit systems are being developed in some cities to slow the rise in private vehicle numbers. Beijing, Guangzhou, Shanghai and Tianjin are also limiting the number of new car registrations.

Traffic and industry are not the only causes of air pollution. Yellow dust from the Gobi Desert picks up particles from industrial pollution in urban centres and increases levels of particulate matter (PM_{10} and $PM_{2.5}$) in cities across East Asia. Many cities in the region are surrounded by agricultural land where burning of agricultural waste contributes to air pollution. Due to forest clearance, fires in Indonesia cause haze in Malaysia and Singapore that reduces visibility, disrupts traffic and leads to respiratory problems (Haq and Schwela, 2008: 4, 12-15).

Outdoor air pollution poses a major health risk and may be responsible for 520,000 premature deaths and over four million life-years lost annually in the developing countries of Asia (Haq and Schwela, 2008: 15). However, urban indoor air pollution is also a problem and affects particularly the poor, as a result of using biomass fuel for cooking. This affects women and children more than men, as they spend more time indoors in areas with poor ventilation (Kinney and O'Neill, 2005: 139, 144).

Table 4.8 **Urban household use of solid fuels for cooking, selected countries**

Country	Year	%
Lao PDR	2006	91
Cambodia	2005	69
Bangladesh	2006	62
Mongolia	2005	61
Nepal	2006	39
India	2005/6	31
Viet Nam	2006	26
Pakistan	2006/7	22
Indonesia	2007	22
Georgia	2005	18

Source: UNDESA, 2010: 235.

Towards integrated solutions

The unfolding rapid urbanisation of Asia and the Pacific entails the risk of widening various supply gaps, especially for water, energy, sanitation, land use and food. The fact that most municipal administrations and

Lung cancer rates have increased by 60 percent in Beijing in the last decade while smoking rates have not

Box 4.7 **Urban nexus: Integrated resource management in Naga City**

In the context of the project *Integrated Resource Management in Asian Cities: The urban nexus,* ESCAP and the German International Cooperation Agency (GIZ) help cities develop practical nexus initiatives and mainstream the interlinked approach into policies and governance arrangements.

Of all natural resources, energy, water and food are the most essential to sustain development efforts – but they are also the most vulnerable to future demand surges. Increasingly it is cities that are at the centre of these unsustainable and inefficient resource-use patterns, and therefore it is in the urban environment where the pressure, and opportunity, for change lies.

Managing resources in more integrated ways can be impeded by lack of policy coherence, weak governance, lack of capacity and limited financial resources. To address these challenges, enhanced cooperation between national and local governments has been highlighted as a critical step.

Urban nexus approaches can and should be embedded into planning frameworks, at both national and local levels, so they become normative. The enabling environment for urban nexus approaches to thrive would encompass empowering local governments; improving governance structures between national, sub-national and local levels; supported by enabling legislation and institutional frameworks.

The city of Naga, Philippines, for example, is adopting an integrated perspective to service delivery and environmental management. The municipality is designing a decentralised waste-to-energy system for its new housing project in the *barangay* (the smallest local government unit) of Del Rosario. The system will not only treat the liquid waste generated, but also produce biogas for domestic cooking, as well as organic fertiliser for use in urban agriculture. The project provides a good practice blueprint for future housing projects and the city has now also integrated the nexus approach in the formulation of its new comprehensive land use plan.

Other than problems of sanitation, pollution and waste, Asia and the Pacific is the region most affected by natural disasters. Vulnerability and exposure to calamities varies greatly across the region, but volcanic eruptions, earthquakes, flooding and tsunamis are known threats that strike regularly

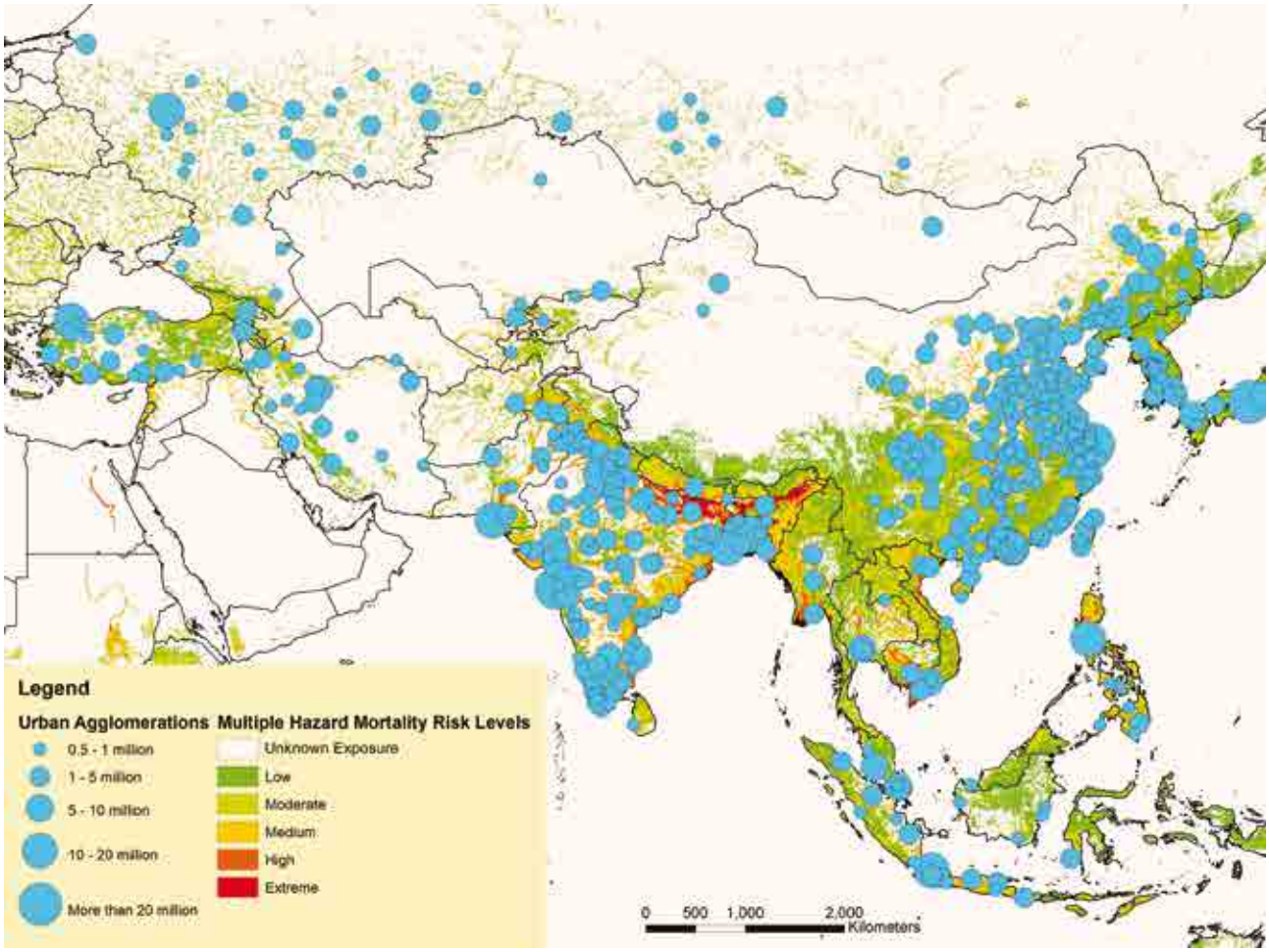
public utilities in Asia and the Pacific continue to plan and manage both along sectoral lines and exclusively within the municipal boundaries makes the challenge of managing scarce resources more problematic. Coordinated and integrated planning is rare and therefore the potential to fully utilise synergies between water, energy and food security is lost. Additionally, a lack of cooperation and planning across administrative boundaries affects the potential benefits and synergies of integrated resource management and planning for entire city regions.

Since the resource footprint of cities and ecosystems transcend urban administrative boundaries, coordination across actors, institutions and geographies is essential. Truly integrated planning increasingly requires multi-disciplinary, multi-level approaches to enable more effective and dynamic governance. Water, energy and food security are closely interconnected and provide opportunity for a 'resource nexus' that integrates urban planning and resource management within and across city boundaries. Integrated planning and management of the key sectors of energy, water and food security could contribute substantially to the long-term sustainable development of rapidly growing cities and their regions (see Box 4.7).

4.3 Cities at Risk

Other than problems of sanitation, pollution and waste, Asia and the Pacific is the region most affected by natural disasters. Vulnerability and exposure to calamities varies greatly across the region, but volcanic eruptions, earthquakes, floodings and tsunamis are known threats that strike regularly. A number of major cities are situated near seismic fault lines and, consequently, earthquakes have taken their toll. Several of the region's cities, including some of its largest, are particularly vulnerable to flooding because they are located in the flood plain of major rivers where inundation is a seasonally recurrent event. Numerous coastal cities are further exposed to seasonal cyclones and typhoons. As Table 4.9 shows, many cities,

Asia and the Pacific is the region most affected by natural disasters. Christchurch in New Zealand (above) and Kathmandu in Nepal (overleaf) were hit by devastating earthquakes in 2011 and 2015 respectively



Data source: UNEP/GRID (2014) Global Risk Data Platform and World Urbanisation Prospects: The 2014 revision, file 22

Table 4.9 **Mega-cities and natural hazards**

Rank	City	Population (millions)	Risk Level			
			Cyclone	Drought	Earthquake	Flood
1.	Tokyo	37.2	A	•	B	A
2.	Delhi	22.7	•	B	•	A
3.	Shanghai	20.2	A	•	•	A
4.	Dhaka	15.4	C	C	•	A
5.	Kolkata	14.4	B	A	•	A
6.	Karachi	13.9	C	A	•	C
7.	Manila	11.9	A	C	A	A
8.	Osaka-Kobe	11.5	A	•	B	B
9.	Istanbul	11.3	•	C	A	C
10.	Guangzhou	10.8	A	•	•	A

A: high risk (8-10th decile); B: medium risk (5-7th decile); C: low risk (1-4th decile); • = no hazard
Source: UNPD, 2012: 27

including megacities, are exposed to several of the above natural hazards.

Growing vulnerability and risk

In 2011, the Asia and Pacific region accounted for 212 million victims of various natural disasters, 86.4 percent of the number reported worldwide. It also suffered the most physical damage: USD 296.6 billion or 80.7 percent of worldwide losses (Table 4.10). The destruction in 2011 was much higher than the average over the period 2001-2010 due to the earthquake and tsunami that hit Japan in March 2011 (Guha-Sapir et al, 2012: 29-30).

Between 1970 and 2011, the region accounted for 1.9 million fatalities from disasters (Fig 4.1). South and South-West Asia suffered the most with 980,760 lives lost. East and North-East Asia suffered the most damage which amounted to almost ten times the losses of 2010. Economic costs tend to be larger in wealthy cities than in poorer ones, but lives lost are inversely related to incomes. As the region's cities develop, greater concentrations of population, infrastructure and other assets are exposed.

The impact of disaster on urban areas in the region can be devastating and far reaching. High urbanisation levels and urban poverty present increasing vulnerability patterns in developing countries of Asia and the Pacific. Urban agglomerations with high population densities are experiencing extreme and high

Table 4.10 **Economic losses from Asia and Pacific disasters, 2000-2009 and 2011, by subregion**

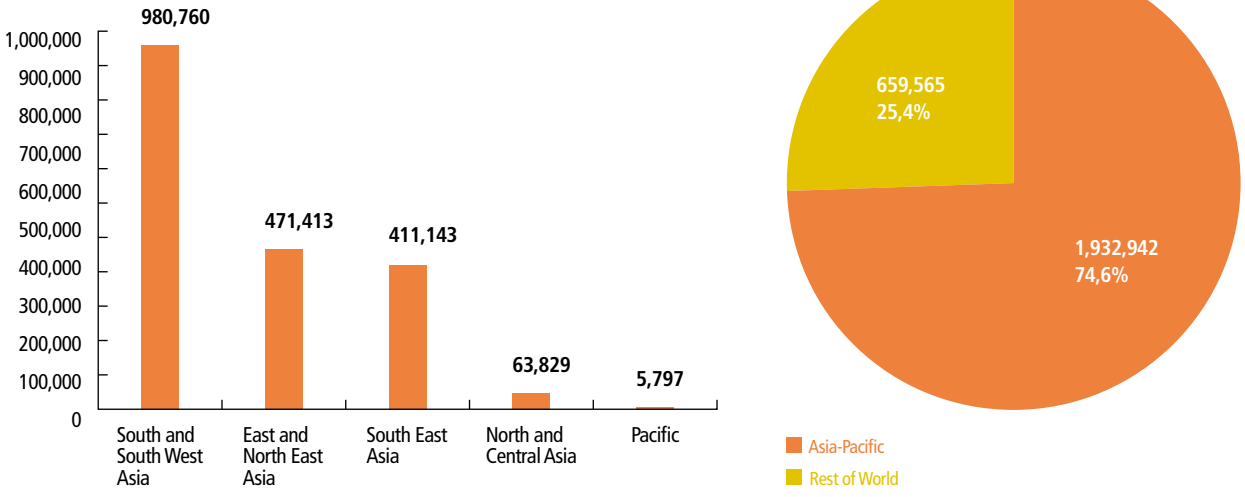
Subregions	Economic losses 2000-2009 (USD billion)	Economic losses 2010 (USD billion)	Economic losses 2011 (USD billion)
East and North-East Asia	280.1	23.75	227.0
South-East Asia	28.3	1.58	41.3
South and South-West Asia	44.9	11.85	6.9
North and Central Asia	2.1	3.91	0.1
Pacific	11.6	16.68	19.6
Asia-Pacific	366.9	58.00	294.8
Global	896.2	132.20	366.1

Source: UNISDR analysis based on data from the Centre for Research on the Epidemiology of Disasters, EM-DAT, the international disaster database, version: v12.07. Brussels: Université Catholique de Louvain. www.emdat.be (accessed 28 August 2012).

Kathmandu after the 2015 earthquake

© UN-Habitat Nepal

Figure 4.1 **Global and Asia-Pacific disaster fatalities, 1970-2011**
Number of people killed in the Asia-Pacific by subregion



Source: UNISDR analysis based on data from the Centre for Research on the Epidemiology of Disasters, EM-DAT, the international disaster database, version: v12.07. Brussels: Université Catholique de Louvain. www.emdat.be (accessed 28 August 2012).
Note: The hazards considered in this analysis are earthquakes and tsunamis (seismic activity), temperature extremes, floods, wet and dry mass movements, storms, volcanoes and wildfire.

Table 4.11 **Populations and land areas in LECZs, by region**

	LECZ population		LECZ land area		LECZ population (%)		LECZ land (%)	
	Total (millions)	Urban (millions)	Total (1000 km²)	Urban (1000 km²)	Total population	Urban population	Total land	Urban land
Asia	466	238	881	113	13	18	3	12
Australia and New Zealand	3	3	131	6	13	13	2	13
Small Island States	6	4	58	5	13	13	16	13
World	**634**	**360**	**2,700**	**279**	**10**	**13**	**2**	**8**

A low-elevation coastal zone (LECZ) is defined as the contiguous area along the coast less than 10 metres above sea level.
Source: McGranahan et al, 2007: 17, 24.

mortality levels. Out of the region's total of 305 urban agglomerations, 119 are located in flood-risk coastal zones and susceptible to sea-level rise.

The impacts of an urban disaster can extend far beyond the area directly affected and disrupt the economy of other cities and sub-regions. Thailand's 2011 floods interrupted important global supply chains and raised prices worldwide. The 2011 earthquake and tsunami in Fukushima not only reduced power supply in other parts of Japan, but also disrupted operations of manufacturers elsewhere in the region due to a scarcity of parts.

When disasters strike in the region's cities, social conditions and spatial patterns determine who are more affected. Urban populations in wealthy countries are generally less vulnerable. Children, the elderly and persons with disabilities are the most vulnerable, but gender is also a factor. In the 2014 tsunami that hit Aceh, women accounted for two-thirds of the dead or missing. Many died because they stayed behind to look for their children and other relatives, or because they could not swim or climb trees (Oxfam (2005: 2; Doocy et al, 2007: 276). In Myanmar, there were far more women than men

Box 4.8 **Small island developing states and rising sea levels**

In some small island developing states, over 50 percent of the population lives within 1.5 km of the coastline and in atoll environments rarely more than one or two metres above current sea levels. Urban development with its growing demand for land, energy, water and food is already placing serious pressures on local environments. Gradually, the population will also feel the impact of sea-level rise and increases in the frequency and intensity of storms, flooding and droughts. As a result, atolls and other low-lying areas are likely to experience freshwater contamination as seawater washes over islands or penetrates aquifers below the ground surface (Connell, 2013: 212). Sea-level rise may accelerate beach erosion and coral reef degradation, further threatening already vulnerable settlements, infrastructure and facilities that support the population's livelihood.

Most of the land in Kiribati, for instance, is less than two metres above sea level and some of its surrounding atolls are already disappearing. The government is exploring options to address the impacts of rising seas, including by relocating population to other countries. However, the increase of exposure of densely populated areas in Kiribati to calamities is also the result of the degradation of natural resources and the destruction of coastal systems. In many respects, the combination of both internal and external threats, especially the projected impacts of sea level rise, create an environmental 'perfect storm' for Kiribati and a number of other urbanising islands in the region (Storey and Hunter, 2010).

Over 80 percent of the land area of the Maldives is less than one metre above sea level with its highest point at 2.3 metres. The capital Malé, home to 35 percent of the population, is surrounded by seawater defence systems and infrastructure. As sea levels rise, low-lying areas will be submerged and saltwater may enter freshwater lenses which are the island's source of fresh water. The government envisages resettlement of population from the smaller to larger atolls and islands with better natural protection and coastal defences (Warner et al, 2009: 19; RoM, 2007: 14-16, 20).

In Fiji, storms and high seas regularly flood coastal villages and will provide a future significant threat to coastal towns and their populations. In many cases there are few options for relocation. Large-scale resettlement within the country is not a realistic option given strong attachment to land and lack of secure tenure outside one's village (ADB, 2012: 56-58).

Table 4.12 **Natural disasters and climate change, Pacific Island Developing Countries**

Country	Topography and Resources	Impacts	Key urban growth features
Papua New Guinea, Vanuatu, Solomon Islands, Fiji	Mountainous, fertile soils, rich in forest and minerals, good water catchment	Increased high-intensity rainfall, floods; sea level rise and coastal inundation, very high tide; increased frequency and intensity of extreme weather events, including cyclones; natural hazards including tsunamis	Low percentage of national urban share - highest overall urban population numbers to be impacted
Samoa, Tonga, Tuvalu, Cook Islands	Flat to low mountains, fertile soils, good water catchments	Increased cyclones; sea level rise; coastal inundation; growing water shortages; natural hazards including tsunamis	Low to high percentage national share; lowest overall urban numbers; much coastal urban growth; emigration opportunities
Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau	Atolls, low lying, poor soils, no minerals, limited agricultural potential, limited water resources, extensive ocean fishing resources	Sea level rise; coastal inundation; drought; increasing salinisation of water sources and heat stress	Highest percentage of national urban share; lowest overall urban numbers; low-lying urban centres

Source: ADB, 2012: 57.

among the dead and missing during the 2008 cyclone Nargis (TCG, 2008: 155-156).

Rising sea levels and urban flooding

The region is projected to face a wide range of climate change-related impacts, including warming, increased monsoon activity, rainfall variability, as well as more frequent and more intense cyclones and droughts. The most far-reaching impact is likely to be water-related: flooding and sea-level rise. In the Pacific, rising sea levels threaten not just cities but entire countries. Throughout Asia, cities such as Bangkok, Dhaka, Ho Chi Minh City, Jakarta and Kolkata, to name a few, are located in low-elevation coastal zones (LECZ) and will be affected by rises in sea level (Table 4.11). China has the largest population in LECZs due to its rapid and massive coastal urbanisation. Bangladesh may lose 17.5 percent of its urban areas if sea levels rise by one metre (McGranahan et al, 2007: 32-33).

In several coastal cities, the impact of sea-level rise is aggravated by land subsidence due to groundwater withdrawal. Subsidence in coastal parts of Jakarta, for instance, ranges from 9.5 to 21.5 cm per year. If such areas are on average two metres above sea level and subside at a rate of 10 cm per year, they will be below sea level in 21 years even when assuming zero sea level rise (Chaussard et al, 2013: 153, 158). Shanghai has always been flood-prone due to high river flows and typhoons, but this is aggravated by unregulated groundwater withdrawal that caused land subsidence of nearly three metres during the 20th century and significant increases in flooding incidence, actual flood depth and the extent of the area affected (Nicholls, 2006: 82, 105).

Sea-level rise can have major consequences for the global economy and international trade, as 38 percent of the world's largest port cities are in the region (Nicholls et al, 2008: 17, 29-31). In 2005, 17 million people and assets worth USD 729 billion were at risk of flooding in 10 large Asia-Pacific port cities. In case of sea-level rise, storm enhancement, land subsidence and continued population and economic growth, 75 million people and USD 14 billion worth of assets could be exposed in these cities by 2070 (Table 4.12).

Despite a higher probability of hazards, coastal cities will continue to experience rapid population and economic growth. This is not due to lack of information, random decision or moral hazard, but rather a trade-off between likely disaster losses and productivity (Hallegatte, 2011: 3). Coastal cities are more productive due to their access to shipping routes which encourages investment. Their location is their greatest asset but also their ultimate source of vulnerability.

Coastal cities are more productive due to their access to shipping routes which encourages investment. Their location is their greatest asset but also their ultimate source of vulnerability

Similarly, settlement by the poor in hazard-prone parts of the city, such as flood plains and steep slopes subject to landslides, is also a rational decision if these areas are near centres of employment. In Dhaka, Karachi and Yangon, for instance, people are building their houses in dry riverbeds, only to see them washed away each rainy season. It may be distressing to watch poor families return to the same site to rebuild their houses, knowing that the floods will return, but a site further away and outside the

Table 4.13 **Population and assets exposure of large port cities (2005 and 2070)**

	2005		2070*	
	Exposed population (x1000)	Exposed assets (USD billion)	Exposed population (x1000)	Exposed assets (USD billion)
Kolkata	1,929	32.0	14,014	1,961
Mumbai	2,787	46.2	11,418	1,598
Dhaka	844	8.4	11,135	544
Guangzhou	2,718	84.2	10,333	3,358
Dhaka	844	8.4	11,135	544
Ho Chi Minh City	1,931	26.9	9,216	653
Shanghai	2,353	72.9	5,451	1,771
Bangkok	907	38.7	5,138	1,118
Tianjin	956	29.6	3,790	1,232
Tokyo	1,110	174.3	2,521	1,207
Osaka-Kobe	1,373	215.6	2,023	969
Total	**16,908**	**729**	**75,039**	**14,410**

Assets refers to economic endowments in the form of buildings, transport and utility infrastructure and other long-lived properties. The unit for monetary amounts is 2001 US dollars (USD) using purchasing power parity (PPP).
***Projection**
Source: Nicholls et al, 2008: 11, 29-31.

hazard zone is simply not an option. Resettlement to safer locations would reduce vulnerability to natural disasters, but lead to loss of income or employment or prohibitive increases in daily mobility costs.

Heat and drought

Even without significant global climate change, cities alter the local climate as green spaces are replaced with impervious surfaces which retain more solar energy during the day and cool less during the night. This is widely referred to as the urban heat island effect which is increasingly recognised as a phenomenon with potentially severe impacts on human health and well-being. It is also contributing to surges in urban energy demand through increased use of air conditioning. Cities tend to undervalue the role of green space as the provider of shading, cooling, rainwater interception, storage and infiltration. Trees are cut to make way for highways and buildings; bio-diverse wastelands are redeveloped; and parks are paved to create parking space. The urban heat island effect (Table 4.14) raises temperature, but this is compounded by air conditioning, transport, heating, cooking and industrial processes (Gill et al, 2007: 116; Kovats and Akhtar, 2008: 116, 165).

Climate change will exacerbate the urban heat island effect, with implications for energy demand, air quality, morbidity and mortality. Many long-term effects of climate change are still unknown, but average minimum and maximum temperatures are expected to increase by 2-4 degrees Celsius over the 21st century and surface temperature to rise by 3.5–5 degrees Celsius at the end of the century. Higher temperatures will expand the areas where tropical diseases occur including places where mosquitoes that spread malaria, dengue fever and filariasis can survive and breed (Huq et al, 2011: 5).

Increased heat and drought will also have significant impacts in Central Asian cities and towns, causing water shortages and affecting hydropower outputs. Glaciers

Table 4.14 **Urban heat island intensity, selected cities**

City	Mean rural area temp. (°C)		Magnitude UHI (°C)	
	Day	Night	Day	Night
Tokyo	28.5	19.0	12.0	7.5
Beijing	27.5	19.0	10.0	5.5
Shanghai	30.0	17.0	7.0	3.5
Seoul	27.5	19.5	8.0	4.5
Pyongyang	27.8	16.0	4.0	3.0
Bangkok	29.5	21.5	8.0	3.0
Manila	26.5	21.5	8.0	3.0
HCM City	30.0	22.0	5.0	2.0

UHI (heat island intensity) magnitude: The difference between the hottest recorded urban and mean rural area temperatures.
Source: Tran et al, 2006: 41.

Sea-level rise is accelerating beach erosion in the Maldives where the government is using machines to replace sand to elevate land areas

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The recycling of waste in the informal settlement of Dharavi in Mumbai–here a man is shredding plastic–means the greenhouse gas emissions from such settlements can even be considered a net negative value

contribute to the runoff of major rivers in Central Asia which are critical to the Amu-Darya water basin, the principal source of water for Turkmenistan (Cenacchi and Fay, 2010: 72-73).

4.4 Remaking Cities for Changing Climate

Per capita carbon dioxide emissions, municipal waste, energy demand, and other indicators for the environmental impacts of consumption all show sharp increases for Asia and the Pacific. Emissions from energy use are projected to increase by 100 percent between 2007 and 2030, which could then make the region responsible for 45 percent of the global energy-related emissions, compared to 31 percent in 2007. Over the last 30 years, the region contributed 17 percent of the total transport-related greenhouse gas emissions worldwide which is projected to double by 2030 (ADB, 2011: 27). Cities in the Asia and Pacific region therefore must play an important part in mitigation through future emission reduction and capture. Since current efforts have been largely insufficient, it will be necessary to start re-thinking urban development and planning paradigms if cities are to both adapt to the projected impacts of climate change and lessen their contribution to the underlying drivers.

Vulnerable cities, vulnerable people

The effects of urbanisation and climate change are converging in dangerous ways. Cities are major contributors to climate change: although they cover less than two percent of the earth's surface, cities consume 78 percent of the world's energy and produce more than 60 percent of all carbon dioxide and significant amounts of other greenhouse gas emissions, mainly through energy generation, vehicles, industry, and biomass use, according to UN-Habitat research (UN-Habitat, 2014).

At the same time, cities and towns are highly vulnerable to climate change. Hundreds of millions of people in urban areas across the region will be affected by rising sea levels, increased or less precipitation, inland floods, more frequent and stronger cyclones and storms, and temperature extremes. In fact, many major coastal cities with populations of more than 10 million people are already under threat. Climate change may also negatively impact infrastructure and worsen access to basic urban services and quality of life in cities.

In addition, most of the vital economic and social infrastructure, government facilities, and assets are located in cities. The most affected populations are the urban poor – i.e. slum dwellers – who tend to live along river banks, on hillsides and slopes prone to landslides, near polluted grounds, on desertified land, in unstable structures vulnerable to earthquakes, and along waterfronts in coastal areas.

Despite these risks, many cities have not yet addressed climate change. The reasons include a lack of relevant city policies and action plans; outdated regulations on urban planning and environment which have not been adjusted to manage climate change; slow response to climate disasters due to lack of capacity and resources; and lack of public awareness on climate variability and climate change-induced hazard mitigation. However, when properly planned, capacitated, and managed through the appropriate governance structures, cities can be places of innovation and efficiency. Together with their local authorities, they have the potential to diminish the causes of climate change (mitigation) and effectively protect themselves from its impacts (adaptation).

In attributing responsibilities, it is somewhat prejudicial to consider the city as a whole, as emission levels differ significantly by income. In India, total per capita emissions are below two tonnes of CO_2 per year, but this average hides the significant carbon footprint of a relatively small wealthy class (one percent of the population) and 823 million poor with a very small carbon footprint

Hundreds of millions of people in urban areas across the world will be affected by rising sea levels, increased or less precipitation, inland floods, more frequent and stronger cyclones and storms, and temperature extremes

(Ananthapadmanabhan et al, 2007: 2). Inequalities further complicate the storyline. Many residents of Dharavi in Mumbai are not only poor and have low levels of consumption, but Dharavi is also a major centre of waste recovery, recycling and re-use. Their contribution to greenhouse gas emissions could even be considered negative, because reuse of waste for the production of goods reduces emissions (Satterthwaite, 2008: 546).

Mitigating climate change at city level

UN-Habitat research shows that more than half of the world's greenhouse gas emissions come from urban areas. A number of cities around the world have shown farsighted leadership in setting targets and devising and implementing plans to reduce these emissions. Cities can reduce their greenhouse gas emissions while simultaneously addressing other pressing local environmental problems such as air pollution, waste, and transport, besides local economic development challenges.

Table 4.15 **Annual mean PM_{10} and $PM_{2.5}$ levels, selected capital cities**

Particulate matter type		PM_{10}		$PM_{2.5}$	
City	Country	Annual mean, µg/m³	Year	Annual mean, µg/m³	Year
Delhi	India	286	2010	153	2013
Kabul	Afghanistan	260	2009	86	2009
Dhaka	Bangladesh	180	2013	86	2013
Ulaanbaatar	Mongolia	148	2010	68	2013
Beijing	China	121	2010	56	2013
Kathmandu	Nepal	114	2008	50	2013
Tehran	Iran	91	2010	30	2013
Hà Noi	Viet Nam	86	2009	39	2013
Colombo	Sri Lanka	64	2010	28	2013
Seoul	Republic of Korea	49	2010	22	2013
Metro Manila	Philippines	49	2010	22	2013
Jakarta	Indonesia	48	2010	21	2013
Bangkok	Thailand	38	2012	20	2013
Singapore	Singapore	27	2011	17	2011
Wellington	New Zealand	13	2012	6	2011
Canberra	Australia	12	2012	7	2012

Note: Recommended WHO standards for PM_{10} and $PM_{2.5}$ are 50 and 25 µg/m³ respectively.
Source: WHO, Ambient air pollution in cities database 2014, www.who.int/phe/health_topics/outdoorair/databases/cities/en/

Cities can reduce their greenhouse gas emissions while simultaneously addressing other pressing local environmental problems such as air pollution, waste, and transport, not to mention other challenges such as local economic development

The key therefore is to link climate change to local environmental and other developmental priorities. On the supply side, there are strategies that make certain alternative sources of energy more attractive to users than fossil fuels. On the demand side, a better planned city with reduced urban sprawl, greener buildings, and better public transport can reduce a city's carbon footprint while at the same time providing a better quality of life for its citizens and an environment that is more attractive for business (UN-Habitat 2014).

The difficulty of attributing responsibilities for greenhouse gas emissions, however, cannot be a justification to postpone the introduction of mitigation measures. Some contributions and responsibilities are clear and many measures do not only mitigate climate change, but can also save costs or improve local environmental conditions. However, many local governments in the region have limited control over urban development, which is driven, formally or informally, by a multitude of decision-makers at local, national and global level in the public and private sectors and civil society. Moreover, local authorities rarely have the finances to act or the power to compel alternative forms of production. Still, local governments can seek to mitigate climate change within their local control and initiate good examples, as explained below.

Buildings are a major source of greenhouse gas emissions, both during construction and in their operations. Fossil fuel energy is consumed for the production of building materials, their transport to the construction site, during construction and eventual demolition. However, most energy is used during operations: up to 80 percent of GHGs are emitted to meet energy needs for space heating, cooling, ventilation, lighting etc. Therefore, retrofitting by local governments of public buildings can serve as an example for privately owned buildings to follow suit.

Retrofitting can make buildings climate neutral and energy positive (UNEP, 2009: 9-10). In the Lao People's

Box 4.10 **Reducing transport-related emissions in Delhi**

Delhi has high levels of greenhouse gas emissions and air pollution. Although its subway has reduced emissions and provided affordable transport to many locations, it needs a feeder system and many streets are too narrow for buses and cars. The solar power rickshaw (Soleckshaws) was introduced in one area of Delhi in 2008 to deal with transport demand in narrow streets. Soleckshaw are battery-powered, pedal-assisted tricycles. Pedalling is not required, but the vehicles have more power if pedalled. The design reduces the workload of the drivers, who are known to suffer exhaustion and disability, due to the physical demands of pedalling. When batteries run out, the driver swaps the depleted cells for fully charged ones at solar-powered charging stations. Recharging costs less than USD 1 and low-interest loans and micro-finance are available to promote the use of these vehicles (TERI, 2011: 14-15).

Democratic Republic, Mongolia, the Philippines, Thailand and Viet Nam, governments are retrofitting public buildings for energy efficiency with support from the ADB (2011: 18-19). However, this may not convince private building owners. These are often reluctant to invest in such energy efficiency measures, because they do not benefit from the interruption of a building's operations for retrofits; energy costs form only a small portion of the operating costs; and the investment has a long payback period. Investors in energy efficiency and beneficiaries of energy savings are usually also not aligned and there is little or no incentive for owners to invest in energy efficiency that reduces tenants' energy bills (World Bank, 2013: 23).

Retrofitting street lighting with energy-efficient technology is another measure adopted by local governments, as it both reduces emissions and electricity costs, and serves as an example for private companies and households. In Quezon City, some 45,000 street lamps are alight at night, generating high electricity bills. Energy-efficient technology could

Rickshaws powered by batteries or solar power (soleckshaws) have been launched in India reducing urban emissions and pollution © Rezwan

potentially result in energy savings of up to 20,000 MWh per year (WBI, 2011).

The integration of natural processes in urban development (green urbanism) is gaining recognition and support in the region. Urban forestry and other greening of spaces capture and store carbon and cities should aim for 60m^2 of green space per inhabitant to promote public health and enhance urban biodiversity (Aldous, 2010). However, as cities tend to maximise land values through commercial development, much of the green space is under threat. Ho Chi Minh City may be an exception, since its local government has planted one million trees on an area of 600 ha in all 24 districts. It will further plant another 250,000 trees along rivers and canals to prevent erosion and use vacant land to create 250 ha of parks. These green spaces will potentially serve as habitat for native bird species and thus contribute to maintaining biodiversity (*Viet Nam News,* 2013), as well as reducing the urban heat island effect.

To make the provision of infrastructure services more efficient, some municipalities seek to increase densities and reduce urban sprawl. Transport-oriented development aims at creating residential and commercial areas around public transit stops to limit private vehicle use, but implementation requires close coordination and cooperation between different government agencies that is often lacking (Singapore being an exception). Much depends on the interests of the private sector, particularly real estate developers, and the demands of their consumers. To keep the city competitive, many local governments are reluctant to burden the private sector with regulations and standards.

Despite the dramatic increases in private vehicle use across the region, today many larger cities in Asia and the Pacific have a functioning subway, light-rail or tram system while their construction, improvement and extension are underway in many others. The Delhi subway is the first railway network to earn carbon credits for helping cut GHG emissions by 630,000 tonnes per year. It earned USD 9.5 million in credits annually for seven years (BBC, 2011). Whether elevated or underground, mass transit systems can be expensive to build in existing urban fabric. Also, to make a bus system more effective, the city may need to limit the road space for private vehicles; an intervention that usually generates political opposition from private-vehicle owners.

Despite the dramatic increases in private vehicle use across the region, today many larger cities in Asia and the Pacific have a functioning subway, light-rail or tram system while their construction, improvement and extension are underway in many others

For the urban poor, mobility requires a trade-off against residential location, travel distance and transport mode (Mahadevia and Joshi, 2009: 5). In many cities, the poor depend on public and human-powered transport modes, but these are increasingly marginalised in favour of private vehicle use and the infrastructure that supports it. The shift towards mass transit systems will only make a difference for the poor if charges are low enough, but this poses problems for cost recovery especially if infrastructure has been secured through public-private partnerships. Among all public transport options, enhancing pedestrian accessibility is the most equitable approach, but this requires that the urban poor find residential space near their place of work. To live close to work, they often end up in environmentally degraded and disaster-

Box 4.11 **Carbon trading in urban Asia-Pacific**

In 2010, Tokyo launched the world's first city-level 'cap-and-trade' programme. It covers 1,340 buildings (factories, public and educational institutions and commercial buildings) and aims by 2020 to reduce emissions by 25 percent from 2000 levels. The programme benefits from a cooperative environment and high levels of technical and financial management capacity in both the public and private sectors. Its success can be attributed to: (i) the mandatory reporting of emission sources, (ii) incentive-based voluntary schemes, (iii) leadership by Tokyo's Governor who made emission reduction legally binding, (iv) frequent interaction with all stakeholders, (v) appropriate timing for each step of implementation, (vi) a simple reporting system, (vii) an appropriate and responsive programme design, and (viii) third party auditing (World Bank, 2010).

China wants to use carbon trading to cut emissions at the lowest possible cost. In 2013, it established city-level carbon trading markets in Beijing, Guangdong, Shanghai and Shenzhen; other cities will follow. The markets allow polluters whose emissions fall below a certain limit to sell the difference to other polluters. The latter must decide whether it is cheaper to reduce emissions or pollute above their limit by buying allowances at a price set by the market. Guangdong's carbon market is expected to become the world's second largest after the European Union. There are, however, concerns that profits may outweigh the cost of flouting the law and that corruption will weaken the system.

Sources: Reuters, 2013; Bloomberg, 2013a; NYT, 2013b).

prone areas, and potentially isolated from public transportation systems.

As cities assume responsibility for climate change mitigation, sharing experiences and good practices can contribute to the development and spread of effective and innovative approaches. In 2005, the Mayor of London convened a meeting of megacity mayors to pursue cooperation on the reduction of GHG emissions. The outcome was C40, a network of the world's megacities committed to cooperating on reducing emissions and providing leadership in this endeavour. Today, over 75 cities around the world, including 22 from Asia-Pacific, participate in C40.

Adapting cities to climate change

For most cities in developing countries, the pressure to adapt to climate change is mounting. The measures needed to help cities cope with climate change vary considerably depending on political, cultural, historical, and climatic conditions, according to UN-Habitat. Such measures can range from "working with nature" (e.g., placing a greater emphasis on coastal resource management or protecting mangrove and natural reef ecosystems), to a concerted "climate-proofing" of infrastructure, including storm-drainage systems, water supply and treatment plants, as well as protection or relocation of energy or solid waste management facilities. Some coastal cities may need to plan for investments related to a rise in sea level. In regions where droughts are more likely to occur, on the other hand, improved water saving and water management measures may be required.

Of equal, if not greater importance to such physical and infrastructural adaptations are a broad range of measures that can reduce vulnerabilities and increase community resilience to climate change. These include: local economic development strategies; community early warning systems; better shelter options and participatory in-situ slum upgrading; relocation of urban populations to appropriate or improved locations when in-situ upgrading is not feasible; improved public health interventions; and urban and peri-urban agriculture that takes into consideration a changing climate (UN-Habitat 2014).

Local governments will need to learn to live with uncertainty and strike a balance between the costs of climate change impacts in the distant future and the demand for solutions to immediate problems (Fuchs et al, 2011: 19-20). Selecting what would be the most appropriate adaptation measures and who is responsible for its implementation is complex and may be motivated by political as much as economic factors. Politicians tend to select "hard" engineering measures (dikes and sea walls) rather than "soft" measures (planning and regulation), even though hard interventions may not be the best option or provide a false sense of security among those they are supposed to protect. Voters tend to reward officials for easily visible interventions. Hard infrastructure may also be an important source of income for the private sector. Politicians can locate infrastructure in their own constituency, award contracts to their key supporters and may even benefit privately (Fuchs, et al, 2011: 22; Keefer, 2009: 10).

Also, combatting climate change does not always have to involve technological solutions - especially for cash-strapped small cities. Chiang Rai, a small northern Thai city, has taken important steps by introducing low carbon initiatives such as urban ecosystem programmes which cover mixed deciduous forest, organic farming, lichen cultivation and wetlands development. Chiang Rai received the UN-Habitat's Scroll of Honour award for urban biodiversity conservation in 2011.

'Soft infrastructure' solutions may provide broader benefits, but are not always effective. The need to regulate land use, direct future urban growth to less vulnerable areas and locate new infrastructure in low-hazard zones seems self-evident, but land ownership among the rich and the need to live close to income opportunities for the poor are often more powerful drivers for urban development than sound plans, regulations and standards. In much of the region, the market, political power and corruption are the real determinants of urban development. In addition, the urban poor who cannot afford compliance with plans, rules and regulations simply build wherever and whatever they can.

Box 4.12 Adaptation to climate change in Makassar

Makassar, a city of 1.35 million in Sulawesi, Indonesia, has a large number of informal settlements due to rapid urban expansion over the past decade. Storm surges, strong winds, tidal floods and droughts are all common, but climate change will increase the risks of such events. The population of the informal settlements has taken individual and collective measures to reduce the impact of the climatic events. People have reinforced their houses with wire and rope to prepare for strong winds and built small concrete walls or raised their homes on stilts to avoid damage by storm surges and tidal flooding. Fishermen use SMS as an early warning system on weather conditions to communities on-shore. Parts of the city already face water shortages and climate change will result in higher temperatures, more evaporation and intrusion of seawater in the coastal aquifers. Therefore, many households have started to harvest rainwater from roofs (Taylor, 2013b).

Box 4.13 The Cities and Climate Change Initiative

UN-Habitat's Cities and Climate Change Initiative (CCCI) seeks to enhance the preparedness and mitigation activities of cities in developing and least developed countries. It emphasises good governance, responsibility, leadership and practical initiatives for local governments, communities, and citizens.

Building on UN-Habitat's experience in sustainable urban development, the Cities and Climate Change Initiative helps counterparts to develop and implement pro-poor and innovative climate change policies and strategies. CCCI is also developing a suite of tools to support city leaders and practitioners in addressing the impact of climate change (adaptation) and to help reduce greenhouse gas emissions (mitigation).

To these ends, UN-Habitat is working closely with a diverse range of partners: donors, government at all levels, other UN agencies, non-governmental organisations (NGOs), community-based organisations, institutions of research and higher learning, capacity building and training agencies, land and property organisations, and private sector entities, among others.

Source: UN-Habitat 2014.

Another challenge is the need to tailor adaptation strategies to the specific conditions of the city. Vulnerability, hazard risk and degree of exposure typically differ for each part of the city, each economic actor and each population group. Thus, each needs to develop its own adaptation strategy taking into account its particular situation. But if each stakeholder implements its own measures without coordination, problems may be passed on from one to the other. After the 2011 floods in Bangkok, for instance, some industrial estates decided to build a floodwall to keep future floodwaters out, but this increases the risks of flooding in surrounding housing estates. Private adaptation measures are also likely to accentuate inequality in already divided urban societies, as those with knowledge and resources will adopt the most effective strategies in protecting their own assets (Adger et al, 2006: 12). Fragmented, and therefore less effective strategies are likely to be the outcome of uncoordinated interventions.

Given their limited budget and the wide range of possible climate change impacts, cities must prioritise their adaptation. Damage to economic assets in coastal cities can set back development in the region for many years. But the urban poor are the most vulnerable to the impacts of climate change and without recognition of informal settlements, protection against natural hazards will likely overlook the urban poor. An adaptation response could be to move the poor to safer places, but most governments see urban land as too valuable to house the poor and resettlement to a safer location will be even less possible when values of hazard-free land rise rapidly as a result of rising sea levels.

4.5 Towards Resilient and Inclusive Cities

There are, of course, limits to adaptation. As a concept and planning tool adaptation is primarily passive and does not address the underlying factors driving vulnerability. In recent years resilience has emerged as a more comprehensive approach to both addressing underlying vulnerabilities and dealing with a range of uncertainties. Resilience is both a process, involving addressing risks

Box 4.14 The importance of mangrove restoration

Ecosystem-based adaptation utilises functions found in nature to help cities adapt to climate change. Typhoon Haiyan that hit the Philippines in 2013 was one of the strongest ever to make landfall. The town of Tacloban, near the open sea, was badly hit. Mangrove regeneration north of Tacloban, however, helped minimise damage to other towns, as the trees reduced the impact of the waves generated by the storm. After the 2004 tsunami, it was found that 30 coastal trees per 100 m^2 could reduce the flow of a tsunami by as much as 90 percent. Mangroves also help low-lying coastal areas adapt to rising sea levels by increasing sedimentation, while its above ground roots act as carbon sinks. Unfortunately, mangroves in the Philippines have been lost at an annual rate of about one percent. Drawing lessons from the 2004 tsunami, Yagasu (a Medan-based conservation group) has sought to restore 5,000 ha of mangrove forest on the northern coast of Sumatra to protect communities from tsunamis (Bloomberg, 2013b).

As cities have continued to devise ways to adapt to climate change, approaches to mangrove restoration are expanding. UN-Habitat's Cities and Climate Change Initiative utilised experts from UN-Habitat and UNDP to assist local leaders from Lami Town, Fiji, in conducting a vulnerability assessment of the town to determine different approaches to reduce risk and become more resilient to the threats of climate change and natural disasters. Scenario-based exercises led all participants to understand the benefits of ecosystem adaptation, like mangroves and coral reefs, and promoted not only their preservation but also mangrove replanting and expansion (UN-Habitat, 2012).

Chiang Rai, Thailand, was awarded the UN-Habitat Scroll of Honour in 2011 for urban biodiversity conservation © Xin Hua

and vulnerabilities, and a goal, in which a city and its populations seek to be safe and prosper in the face of change and uncertainty.

Urban resilience can be defined as the capacity of cities (individuals, communities, institutions, businesses and systems) to survive, adapt and thrive in the face of stress and shocks, and transform when conditions require so. As a city's resilience is shaped by the behaviours and capacities of multiple sets of actors, including local government, the business sector, civil society and communities, a resilient city is one with inclusive governance and one that addresses the vulnerabilities and risks affecting all populations –not just those of the few (ESCAP, UN-Habitat, Rockefeller Foundation, 2014).

Box 4.15 **Resilient cities are pro-poor cities**

The urban poor are affected disproportionately by climate change due to a combination of factors, such as vulnerable physical location, poor quality housing and an often limited capacity to prepare for, cope with and recover from extreme weather events and slow-onset impacts of climate change. In fact, climate variability and change threatens to interfere with, and even reverse, hard won poverty reduction and development gains. Given the significant overlap between climate change vulnerability and urban poverty, poor communities should be actively supported in efforts to strengthen resilience. Urban poor communities can do much to reduce their vulnerability, especially when local government and other key urban actors understand their needs and are ready to support them. At the very least, their needs should be considered in any climate change related intervention, in order to not exacerbate vulnerability. The main goal should be to pro-actively integrate poverty reduction efforts with climate change related interventions. This is not a trade-off. Pro-poor approaches to urban climate resilience that are holistic, flexible and participatory are also an effective way to foster inclusive and sustainable urban development.

Sources: ESCAP, UN-Habitat, Rockefeller Foundation, 2014.

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Tianjin Eco-city, which is being constructed in China

A Green Urban Development Agenda for Asia-Pacific

By Steffen Lehmann* and Hongxing Xie**

Resource efficiency and greenhouse gas (GHG) emissions pose fundamental challenges for cities. Traditional urban planning methods and practices based on functionality and land use patterns are proving inadequate and unable to cope with rapid economic change and the demands of urbanisation. To optimise resource use and renew planning approaches, it is necessary to better understand and integrate the relationships between water, waste, food, energy and transport.

While it is impossible to stop rapid urbanisation, we must and can lessen its negative impacts. Policymakers in the Asia and Pacific region will need to identify new approaches and development models to guide future urban growth. They will need to look at the risk of 'cities as usual' to development and the complexities of making the necessary paradigm shift to low-carbon cities. Cities urgently need a new urban development agenda which implements the principles of green urbanism and transforms future urban development so that it is underpinned by sustainability and the realisation of eco-cities.

Some of the best opportunities for future sustainable urban development are to be found in small to medium-size cities. This is because although they are transforming fast, their growth patterns can still be influenced. We believe that the holistic concept of green urbanism offers systematic solutions to tackle the growth and complexities of cities. It could be used to transform these cities into more sustainable urban settlements that maximise their use of resources while reducing emissions, pollution and waste.

One of the most intensive urbanisation processes in the Asia and Pacific region is currently unfolding in China. The urbanisation level in China is predicted to increase from 54 percent in 2014 to 69 percent in 2030. Currently around 21 million people are moving into cities annually. Chinese cities are, therefore, expected to swell by another 240 million residents by 2030 (WUP 2014). Growth rates are highest in peri-urban areas, leading to the loss of productive agricultural land and biodiversity.

The dramatic scale and pace of urban growth and change in China has become a defining feature of the early 21st century, with profound implications for people globally. This makes China an interesting case study in regard to urban policy for eco-cities, and therefore a focus for this article.

Urbanisation in the Asia and Pacific Region

The projected growth of cities and towns in Asia and the Pacific over the next two decades means that there is a need for urban planning approaches that will facilitate socially just, environmentally sustainable and economically prosperous cities (ESCAP, Lehmann and Thornton 2014). This is especially important if we are to avoid the collapse of contemporary systems, which has been predicted by researchers due to our obsession with economic growth and excessive use of finite resources (Ahmed 2014; Beddington 2009). Achieving this requires us to change our urban development models towards greater sustainability.

But what does this mean for policymakers and urban stakeholders? One of the problems is that there are numerous perceptions of the notion of the 'sustainable city' or 'eco-city', which makes it difficult to compare and analyse existing concepts, models and proposals (see Figure 1). In this discussion, the terms 'eco-city' and 'sustainable city' are used interchangeably). What is needed are holistic concepts that can integrate new ideas into achievable policy opportunities. This article advocates 'green urbanism' as one concept that moves us closer to that goal.

The principles of green urbanism

There is now substantial scientific evidence that global warming will disrupt food and water supplies and cause irreversible damage to ecosystems (IPCC 2014). As a result we can expect hotter cities, more heatwaves, rising sea-levels, food and water shortages, and loss of biodiversity. This will cause drastic changes to natural systems and increase urban vulnerability.

The anticipated growth of cities and towns over the next two decades means that there is a need for urban planning that will create socially just, environmentally sustainable and economically prosperous cities in the Asian and Pacific region. This can only happen if our economies and societies move away from high-consumption, fossil fuel-dependent and wasteful 'business as usual' urbanisation models. We must investigate new concepts and approaches that generate wealth, jobs and development without damaging the environment and ecosystems (Berners-Lee and Clark 2013).

The concept of green urbanism shows that this is possible.

Green urbanism comprises a set of 15 holistic principles that provide a way to plan for prosperous and sustainable eco-cities that function in harmony with their environment (see Figure 2). Introducing a practical post-fossil fuel urban agenda and shifting urban planning paradigms to green urbanism is urgent and essential – and it is possible, as explained below.

Towards resource-efficient cities

It is important for Asia and the Pacific to develop new patterns of urban development which encourage density and connectivity, along with enhanced services, infrastructure

Figure 1: **The search for the ideal model for tomorrow's sustainable city has many names. This diagram illustrates the many aspects of the 'sustainable city' for a more integrated approach to urbanisation**

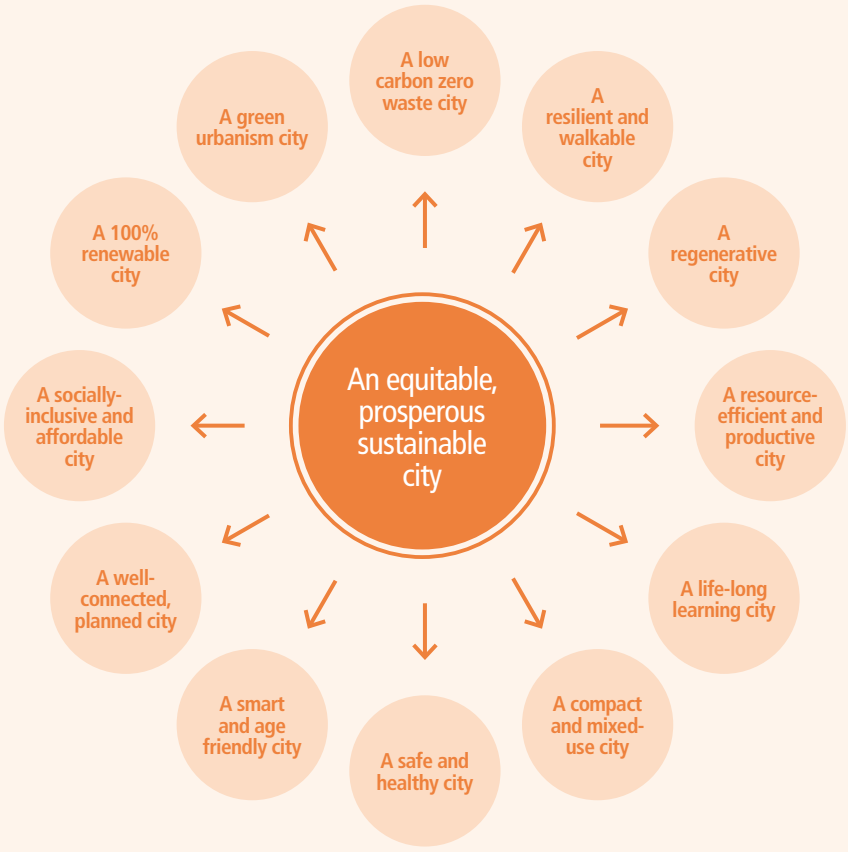

Figure 2: **The green urbanism wheel shows the 15 principles grouped into four sections. The principles are interconnected and holistic: they need to be applied simultaneously, not individually, and adjusted to changing contexts**

and employment, and that put a brake on increasing urban footprints. Urban sprawl makes cities more car-dependent, less efficient, less resilient and therefore less competitive. Compact and mixed-use urban development makes much more sense because it facilitates integrated and efficient low-carbon public transport (e.g. light railway or metro); it enables low-carbon or carbon-free mobility, such as cycling and walking; and it promotes car sharing or car-pooling, all of which can dramatically reduce urban GHG emissions (John, Lehmann and Sivam 2013).

Densification through urban infill can bring smaller environmental footprints and greater potential for well-serviced, walkable areas to live in while avoiding the costs of sprawl. There is now ample evidence that low-density suburbs account for more GHG emissions per household than compact urban areas where residents tend to live in smaller homes, use more public transit and produce smaller carbon footprints.

A rethinking of urban planning and management to avoid inefficiencies is critical in the context of rapidly increasing consumption and production patterns. The most important factors influencing consumption – income, vehicle ownership and home size – all tend to be greater in the suburbs. Transportation, typically responsible for 30 to 40 percent of overall household emissions in industrialised cities, is the most important factor in the emission differences between suburbs and core cities. Suburban transport emissions from cars can be as much as 2.5 times higher than urban ones.

Urban policymakers must also pay greater attention to scale. Even in the region's largest cities, the local environment is an essential building block for future urban development. It is critical that the focus of sustainable urban development shifts from individual buildings and projects to the larger neighbourhood and precinct scale, which will facilitate the integration of a new generation of infrastructure and decentralised technologies. The higher densities common to Asian and Pacific cities allow for the implementation of decentralised and more efficient urban systems and infrastructures (e.g. co-generation, energy and waste infrastructure, storm-water storage and re-use) and facilitate a more compact, walkable urban form that influences any precinct's resource consumption patterns.

Sustainable infrastructure for the 21st century must be holistic and seek to integrate services, infrastructure and employment at the local scale: including through smart grids, interconnected solar roof tops, cycling path networks, light rail, wastewater recycling, local resource recovery stations and community gardens – all as decentralised parts of an urban system operating at the scale of the community or neighbourhood.

Lessons from China

In 2010, China had 85 cities with over one million inhabitants. It is projected that almost one billion Chinese will be urban by 2030 when China will likely have 148 cities exceeding one million inhabitants (WUP 2014). By 2050, China plans to complete its urban modernisation process in which the development of mega-urban regions and urban clusters will play an important

role. It is expected that new urban populations will aggregate in eight to ten coastal multi-nuclear mega-urban regions, each exceeding 40 million inhabitants and with residential densities of up to 8,000 people per km^2 (McKinsey & Company 2009).

The dramatic scale and pace of urban growth in China has profound global implications. The emerging Chinese middle classes will have consumption aspirations, the implications of which are already felt around the world. Worldwide, cement and steel prices, for instance, have risen because of Chinese demand. Therefore, if we can identify practical and successful solutions for China's urban sustainability, these will be of global benefit, especially if replicable.

China's urban transformation requires strategic interventions, innovative policies and actions implemented at the local level, because cities will be the key actors in achieving sustainable development. It is particularly important for China to assess the impact of urban development policies on air and water quality, because these have emerged as major problems. Today, for example, air pollution is driving many related environmental efforts in China, including sustainable urban planning, energy efficiency, renewable energy and low-carbon development.

China's pathway to sustainable urban development

Urbanisation has been one of the major facilitators in China's phenomenal recent economic growth. A key driver in this growth has been rapid expansion of energy-intensive industries (Urry 2013; Li 2014). As a result, energy consumption has increased six-fold over 30 years, with coal accounting for around 70 percent of China's total energy mix. Perhaps not surprisingly, China now accounts for over a quarter of all global GHG emissions (EPA 2014) and has major air pollution problems. In 2010, over 1.2 million premature deaths were attributable to outdoor particulate pollution (HEI 2013). In some Chinese cities, air pollution has been recorded at 30 times the WHO recommended upper limit. In January 2013, China experienced severe pollution levels in an area of 1.43 million km^2 and reached dangerous levels in 71 of 74 examined cities, negatively affecting health and productivity.

While China's 12th Five Year Plan (2011-2015) included important emission reduction targets, severe air pollution, rapidly rising consumption levels and rising emissions remain serious challenges. Air pollution is now the strongest driver to curb China's highly energy-intensive urbanisation, which leaves little space for any growth in coal consumption. Although China has already increased its use of natural gas, its gas resources are quite limited and unevenly distributed. With Chinese cities expected to swell by another 350 to 400 million residents in the next 25 years, a post-fossil fuel urbanisation agenda will be essential to re-thinking spatial planning (China National Statistical Bureau 2012).

China's strategy of urban transformation entered a new period around 2013 in an attempt to leave behind a singular focus on growth targets, rapid expansion and increased consumption. China's government has recognised the environmental and social problems caused by 'disorderly and inefficient urban developments, imbalanced urban-rural and regional development and unharmonious social development' (Wei 2013).

Creating sustainable and liveable cities is now an important part of China's modernisation goals. But rapid urbanisation can easily overwhelm municipalities, landscapes and communities, and not only in environmental terms. The social challenges in times of rapid change are also immense, including affordability of housing and provision of age-friendly neighbourhoods. There is now an increasing awareness of socio-economic inequality and the need to base the economy on innovation and knowledge rather than simply exploitation of low-cost labour and the environment. Now that the need to protect agricultural land is also being acknowledged as important to future cities, urbanisation models have started to move away from Western models based on suburbanisation and towards new models of sustainability.

But whether China is innovative enough to meet the challenges of rapid urbanisation, air pollution and renewable energy remains a major question. In order to support change, governments and municipalities throughout China will also need to develop stronger participatory models to involve their communities. There must also be a concerted push to implement incentives that encourage people to move to public transport and provide a community stake for ecosystem management and renewal.

In some Chinese cities, air pollution has been recorded at 30 times the WHO recommended upper limit. In January 2013, China experienced severe pollution levels in an area of 1.43 million km^2 and reached dangerous levels in 71 of 74 examined cities, negatively affecting health and productivity

The 15 principles of green urbanism

The 15 principles of green urbanism	Sample recommendations and measures
Principle 1: Climate and context All urban development must be in harmony with the specific characteristics of its location.	Plan for development that works with the urban climate and bio-regional context. Improving the urban comfort conditions and air exchange rate at pedestrian level, through maintaining ventilation corridors and control of wind velocity through adequate massing.
Principle 2: Renewable energy for zero CO_2 emissions The city should be a self-sufficient on-site energy producer, using decentralised, district-based energy systems.	De-carbonise the energy supply. Increase solar power to 10 percent of the energy mix by 2020. Install smart grids and make solar hot water mandatory. Generate at least 50 percent* energy on-site using precinct-scale renewable sources.
Principle 3: Zero-waste city The zero waste city is a circular, closed-loop ecosystem that limits the volume of materials from going to landfill or incineration.	Implement "zero-waste city" ideas and plans. Increase resource recovery rates towards 100 percent and stop waste landfills.
Principle 4: Water security Ensure water security and sensitive urban water management.	Use solar-powered desalination and recycle wastewater. Aim at keeping fresh water consumption below 125 litres per person per day.*
Principle 5: Landscaping, gardens, green roofs and biodiversity Maximise urban biodiversity through landscape strategies for productive open spaces.	Continue to increase tree planting programmes. Constructing wetlands to purify and recycle grey water can improve landscaping and biodiversity.
Principle 6: Transport and public space Anticipate future uses of public space so that these can become more than simply places to transit.	Invest over 6 percent of GDP in public transport;* expand tramlines and introduce free hybrid buses. Improve streets by giving greater priority to pedestrians and cyclists.
Principle 7: Local materials Use regional materials in construction and apply pre-fabricated modular systems.	Use engineered timber construction systems and make recyclability and re-use of construction elements compulsory.
Principle 8: Density and retrofitting Retrofit districts, encourage urban infill.	Continue street upgrading and introduction of bike lanes. Make public space more useful with natural elements designed for active living.
Principle 9: Green buildings and districts Apply deep green building design strategies for all new buildings using passive design principles.	Re-introduce passive design principles and demand higher ratings. Promote energy-saving building designs and full home insulation. Offer better housing choices and more diversity in urban infill.
Principle 10: Liveability, healthy communities and mixed-use Emphasise affordable housing, mixed-use programmes, and a healthy community; including urban design being appropriate for children and an ageing population.	Include minimum 25 percent affordable housing in every development* and use modular prefabricated construction systems. Reduce taxation of inner-city housing. Increase retrofitting and adaptive re-uses.
Principle 11: Local food Create a local food supply, with high food security and urban agriculture.	Introduce urban farming in at least 20 percent of public parks.* Maintain urban hinterland for food production.
Principle 12: Cultural heritage A safe and healthy city, which is secure and just.	Consult and involve communities to ensure genuine commitment.
Principle 13: Governance and leadership Apply best practice for urban governance and sustainable procurement methods.	Create public–private partnerships to facilitate change, involve community groups and NGOs.
Principle 14: Education, research and knowledge-sharing Provide education and training in sustainable urban development.	Invest minimum 3 percent of GDP in research and innovation*. Facilitate sustainable behaviours and provide incentives for long-term behaviour change by positively influencing values to reduced consumption.
Principle 15: Special strategies for cities in developing countries Harmonise the impacts of rapid urbanisation and globalisation.	Cities require adjusted strategies appropriate for the developing world, e.g. mass housing typologies.

*All suggested figures are benchmarks derived from current best practices.

Towards green urbanism and eco-cities in China

By adopting new approaches to urbanisation, China can assure more balanced investment, address a major source of debt and clean up the country's environment. Today, 'master plans' are increasingly seen as inadequate as they are too inflexible to deal with the speed of change. Instead, more flexible and adaptable frameworks that can accommodate transformation are needed (Roseland 1997; Satterthwaite 1999).

There are two types of eco-city initiatives in China: newly built eco-city projects such as the Sino-Singapore Tianjin Eco-city and Qingdao Eco-park, and the eco-remodelling or retrofitting of existing cities (e.g. Wanzhuang and Huainan). However, because of the scale of the task, eco-city efforts are at risk of being just a drop in the ocean of China's rapidly looming environmental crisis, and a lot more needs to be done than completion of a handful of projects.

While China is working hard to create its sustainable future and to enhance the well-being of its urban citizens, actually implementing the various eco-city projects and overcoming barriers has sometimes proven difficult. For instance, Tianjin Eco-city, currently

under construction and thought to be the most advanced of China's eco-cities, is widely seen as too conventional in its plan and energy supply and lacks genuine green ambition, not living up to its early expectations (Girardet 2010; ICLEI 2012).

Other visionary eco-city projects across China have seen little progress when faced with the harsh reality of investment decisions and lack of policy continuity. The pioneering green city project of Dongtan near Shanghai, for instance, stalled in 2008 after political leadership changed. Other projects have only been realised as ordinary real estate developments and greenfield developments, or even as gated communities for high-income households, in conflict with true eco-city principles.

But there are also good signs: Ningbo City is planning an eco-park in an industrial zone in the Zhenhai District, with a large constructed wetland which will purify polluted water and reduce the amount of run-off. A wastewater treatment plant releases treated water into the wetland, where plants, microbes and soil will absorb the organic waste and heavy metals in the run-off. The factories will re-use the water from the park. Zhenhai District has already significantly invested in five forest areas to separate the industrial from the residential zone with a 200 metre wide forest belt with a total area of 10 km^2 and 1.5 million trees.

Policy approaches for eco-cities

Cities have an important role in showing what is possible, not only in terms of reducing emissions, but also in terms of creating low-carbon prosperity. The capacity to formulate strategic urban policies, the unique decision-making capabilities of municipalities and the operational scale at the community level all ensure that cities are well placed to innovate in sustainable urban development and make well-informed integrated decisions. Yet while cities are key actors in sustainable development, they also require supportive partnerships and adequate funding to fulfil the high expectations for a post-fossil fuel urban development agenda that implements the principles of green urbanism.

Asian and Pacific cities need new visions to turn them into eco-positive powerhouses of dynamic innovation and models of green urbanism. The aim is to better understand the drivers and barriers to (and consequences of) change in Asian and Pacific cities. There is growing agreement that urbanisation has to be shifted onto a more sustainable pathway to address pollution and climate change challenges at the same time. The principles of green urbanism provide a conceptual model and map for that pathway.

Behavioural change has been recognised as a key factor in the transition towards low-carbon cities and the acceptance of new low-carbon technologies and urban planning approaches; it will be important to integrate this understanding into the formulation of new urban policies

Understandably, the sheer complexities of resource transformations to support green urbanism will be immense, posing a huge challenge to break away from unsustainable pathways. China's experience shows both the promise and the challenges of implementation.

Concrete action is a matter of urgency, collectively and individually, to bring the benefits of sustainable urban development to all Asian and Pacific cities. Behavioural change has been recognised as a key factor in the transition towards low-carbon cities and the acceptance of new low-carbon technologies and urban planning approaches; it will be important to integrate this understanding into the formulation of new urban policies. Pro-environmental behaviour requires a change in values and mindsets, and the engagement of all urban stakeholders.

Urbanisation is a force that must change our way of thinking and acting regarding our use of space, our lifestyles, our social and economic relations, and our consumption patterns. If we want to avoid collapse of our current urban-dependent economic systems we need to revise and rethink the city and our urban future in keeping with the principles of green urbanism. This new urban agenda can encourage innovation, harness the transformational powers of cities and achieve sustainable development.

Clearly, innovation is the key to better urbanisation models: utilising urban data and new technologies. However, beyond the technological solutions and applications, economic, political and social innovations are essential so that people can participate in creating the healthy and sustainable future all of us want and future generations need. Integrated models of participatory planning are a promising way forward. We know that being more resource-efficient and less carbon-intensive in production, and more equitable in distribution, are the only viable ways forward for our citizens, our cities and our planet.

The question is: Do we have the will to act upon it?

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Chapter 5.
Urban Governance

Quick facts and policy points

- Asian and Pacific cities are still grappling with how best to manage their rapid growth and economic transformation, growing social complexity and fragmentation, and environmental impacts.

- In managing urban transformations governments at all levels must recapture their primary responsibility of providing governance for all. But given the complexity and growth of cities and their regions, governments should not try to do everything. Rather they should play a strategic role in partnership with other key stakeholders.

- A number of the region's larger cities are characterised by urban sprawl and fragmentation. Urban growth is increasingly transcending and blurring boundaries between the public and private, formal and informal, and state and civil society sectors. In addressing the needs of urban development it is essential that new forms of collaborative governance emerge, supported by national urban policies.

- Neither centralised or fully decentralised models offer a panacea to effective urban governance. Greater attention must be paid to the development of institutional arrangements which work in specific urban and national contexts.

- Achieving greater transparency in public decision-making and establishing institutional accountability should be essential objectives. More responsive and effective local institutions are essential to the creation of effective partnerships, and in mobilising the support and participation of urban citizens.

- In managing such challenges national and local governments have a critical responsibility in driving and managing processes of change. But they can only do so supported by coherent national guidance and policies. Many Asian and Pacific cities are managed with legal and regulatory frameworks, and through institutional arrangements, which are outdated.

- There is a need to address the power-sharing gap between local and central government; the financing gaps in local government budgets and investment; and the capacity gaps of local governments in promoting strategic and future-oriented urban planning.

Metropolitan Government Building, Tokyo

Chapter 5.
Urban Governance

Cities in Asia and the Pacific are often centres of public protest–including on national matters

5.1 Closing the Gaps

Urban managers in the Asia and Pacific region face the daunting task of balancing two linked but contradictory facets of urbanisation. On the one hand, cities contribute to the prosperity of countries and their people, while, on the other, cities are home to concentrated poverty, growing inequality, social exclusion and inequitable service provision. Cities are also areas of concentrated environmental pollution and significant contributors to climate change. The urban governance challenge therefore is to concurrently create conditions which continue to attract economic activity, maintain competitiveness and ensure equitable access to opportunities to a better life for all urban citizens while balancing this with reduced negative impacts on the environment. While future prospects of Asian and Pacific cities are often discussed in terms of the three dimensions of sustainability, governance is a critical fourth dimension.

While Asian and Pacific cities have undergone substantial social, economic and physical transformation over recent decades, urban management and financial capacities have mostly not followed suit. The political and policy contexts of public governance have significantly changed with economic deregulation, privatisation of state assets, democratisation and the evolution of the role of the state from 'provider' to 'facilitator and regulator'. Today's conditions are, therefore, very different from the basis on which the laws, regulations, procedures and institutions for managing cities (i.e., the governance modalities) had been designed in most countries. In other words, many Asian and Pacific cities are managed with tools, laws, regulatory frameworks and institutions that are unsuitable for their current, let alone future challenges.

As many cities in the region are unable to deal with the multitude of existing and new challenges, their managers have turned to *laissez-faire* approaches. Where

Box 5.1 **What is Governance?**

Governance consists of the traditions and institutions by which authority in a country is exercised. This includes: a) the process by which governments are selected, monitored and replaced; b) the capacity of the government to effectively formulate and implement sound policies; and c) the respect of citizens and the state for the institutions that govern economic and social interactions among them.

Source: *World Wide Governance Indicators,* http://info.worldbank.org/governance/wgi/index.aspx#home

public authority and resources fall short, markets – formal or informal – have been tacitly allowed to fill the governance voids. Although this has generated short-term advantages and gains, it has also largely ignored cities' longer-term strategic planning, fiscal viability, sustainability and societal equity.

The private sector in Asia and the Pacific has increasingly been allowed, and in some case encouraged, to assume roles that are normally considered functions of public governance. The private sector has thus emerged as a powerful force in delivering large-scale land development and infrastructure by providing the resources and investments required. While this has been beneficial to many cash-strapped cities, privatisation has generally led to the weakening of public regulation and in this manner contributed to urban fragmentation and mounting inequality – notably in the access to urban land and basic services.

Consequently, there is now an urgency to return to more effective roles for the public sector, both through direct intervention and regulation, as well as through strategic partnerships which re-adjust roles for the private sector and civil society. New and renewed public sector governance practices are now needed to redirect urban policies and make room for more balanced and inclusive urban development.

City managers need to be more responsive to the voices of their communities and civil society groups. They need to engage in more participatory urban governance by involving those likely to be effected by changes in policy or planning. In recent years, several Asian and Pacific cities have seen and continue to experience outbreaks of public protest; some sustained over extended periods. These protests may have different causes, but they all represent expressions of societal disagreement with 'business as usual' and seek to address the increasing social fragmentation and exclusion from the political, economic and social benefits associated with economic growth and increasing urbanisation.

Cities are natural locations of political innovation, transformation and social change. But cities can also be localities of mass protest and incubators of social unrest, as recent experience in the region has shown. City managers or central authorities who fail to correctly interpret calls for societal change and greater space will invite further social discontent and potentially greater discord.

Opportunities for change lie in tapping into the prosperity of cities and in decentralisation that embraces the formal and informal sectors, but especially in mobilising citizens in the governance of cities. The key processes of new and reformed governance frameworks should be driven by long-term visions of sustainability that guide short- and medium-term development interventions based on collaboration, coordination and negotiation between multiple stakeholders.

Reform is needed, because the recent focus on Asian and Pacific cities as the 'engines of globalisation and growth' had somewhat shifted debate away from urban diversity and the significantly unmet needs of many urban communities. Promoting economic growth has received far more attention than equity and sustainability, or the plight of less-prosperous cities, small towns and economically disadvantaged neighbourhoods within cities. Urban governance approaches once more need to take account of urban diversity and foster perspectives of broad popular access to better living conditions and economic opportunities – not just economic growth (ADB, 2013).

City managers need to be more responsive to the voices of their communities and civil society groups. They need to engage in more participatory urban governance by involving those likely to be effected by changes in policy or planning

5.2 Shifting Powers

Over the years, various methods of managing cities have emerged in Asia and the Pacific with the national, provincial and local levels all playing distinctive roles within the logic of prevailing political ideologies and governance systems. The 1990s, for instance, saw greater recognition of the role of cities as drivers of national development. Consequently, attention was directed to the need for better management to deliver on promises of growth and prosperity. Under the decentralisation trend, the local level became entrusted with the prime responsibility for urban management. Since multi-level division of governance

responsibilities, powers and resources already existed to some extent in the region, decentralisation also became a matter of political and economic opportunity - as and when it presented itself - in the search for strategies to better manage urban development.

Decentralisation in Asia and the Pacific has close links with the shift to market-led systems and liberal democracy. These two facets are not necessarily divergent but striking the right balance remains a key governance challenge and opportunity. What is increasingly urgent today is assessment of the effectiveness of power shifts and the new balances of control and responsibility that have emerged. Not all change has shown to be effective and greater attention needs to be given to understanding which governance arrangements are most likely to be successful in managing the region's current and future urban dynamism. There is no single model to follow and even the most effective institutional arrangements may need to change over time

More decentralisation or less?

Decentralisation across much of Asia and the Pacific over the past two decades has seen mixed results, partly because it was often driven by competing interests and voices, including overburdened national governments, disenfranchised local governments and marginalised social groups. Nevertheless, regardless of whether a country had a multi-party democratic, socialist or military regime, almost all have made significant strides towards establishing a framework for decentralisation in their national constitution and national and state laws and statutes (Nickson et al, 2008).

India, Indonesia, Nepal and the Philippines provide good examples of such reforms. The Philippines' decentralisation process has been described as one of the most far-reaching in the developing world (Bruckner, 2011). It allowed local governments to retain many of the revenues generated within their jurisdiction. It also granted relatively high levels of autonomy over local development agendas and they increased local expenditure as a result of improved capacity among urban institutions to deliver responsive local change (World Bank and ADB, 2005). In Indonesia,

In Indonesia, extensive decentralisation emerged in 1999 with local governments benefitting from regional decentralisation legislation that devolved most powers and resources directly to sub-provincial administrations

Jakarta, Indonesia: powers have been extensively devolved from the capital to sub-provincial administrations © Asiantraveler

extensive decentralisation emerged in 1999 with local governments benefitting from regional autonomy legislation that devolved most powers and resources directly to sub-national administrations (Miller, 2013).

In India, although democratic decentralisation reform since the early 1990s has produced flourishing participatory discourse and civil society engagement in development programmes, only negligible funding and policy authority have been devolved below the state level. That has severely curtailed the ability of local governments to independently address the needs of their communities (Rao and Singh, 2003; Fraschini, 2006) and most Indian municipalities therefore remain fiscally weak and incapable of delivering upon the newly devolved responsibilities.

Bangladesh, Pakistan and Thailand have experienced cyclical movements between periods of decentralisation and re-centralisation. The region's member countries of the Organisation for Economic Co-operation and Development (Australia, Japan, New Zealand and the Republic of Korea) have also been committed to decentralisation reform with priority put on improving services (Campbell, 2008).

China and Viet Nam have adopted decentralised strategies within the context of strong centralised political systems and economic restructuring. Yet, whereas the Chinese model has worked effectively in raising the productivity level of major cities, the Vietnamese system still has to result in generating significant urban autonomy and wealth.

The Central Asian countries Kazakhstan, Uzbekistan and Turkmenistan have opted for a more centralised model, although the countries Kyrgyzstan and Tajikistan have cautiously started on a path of greater decentralisation (CER, 2013). The Pacific Island States, particularly Fiji and Solomon Islands, have, over the last decade, initiated reforms to strengthen local governments. Their main challenge remains the balancing of modern government structures and customary institutions (ADB, 2012; UN-Habitat, 2012, 2012a).

The principle of subsidiarity is implicit in decentralisation and has gained new importance in Asia and the Pacific in debates about the division of power between different levels of government, as well as in the relationships between state and non-state actors. Subsidiarity entails that lower level government agencies should be given more responsibility and resources to perform their tasks.

However, in the Asia and Pacific context, decentralisation has often meant transferring responsibilities to local level institutions, but rarely facilitating the creation of new institutions or the devolution of the fiscal autonomy required for responding to the new and additional responsibilities.

As in the past, many urban governments still depend to a very large extent on (usually insufficient and unpredictable) fiscal transfers from higher government levels, affecting their budgeting and investment planning capabilities. Consequently, after two decades of decentralisation, the capacity of many local level institutions to perform their mandated tasks has not always been significantly enhanced (Yap, 2010).

This is important, since a large proportion of the Asian and Pacific urban population lives in small and medium-sized towns which, collectively, are growing faster than larger cities (see also Chapter 1). Despite their growth and increasing significance, most do not have the human, financial and organisational resources to make decentralisation work for them. In the case of some Pacific Island States, there may be no more than a handful of trained urban planners, and even those may be working in other areas of the bureaucracy, while central government and higher tiers of local government often shed responsibilities to lower governmental levels without decentralising the required funds or fund-raising authority. In Central Asian countries, the resources previously transferred to cities by higher levels of government are now no longer being provided, leading to deteriorating infrastructure and housing conditions (CER, 2012). Under this model of decentralisation, local government units lack power and remain mostly dependent on the centre for resources, which may or may not be available (Laquian 2008). In an effort to address these challenges, local authorities in the region are now looking to share experiences and knowledge, as well as gaining opportunities through collective voice, as explained in Box 5.2.

To pursue their economic objectives, local governments in China rely heavily on the main resource available to them: public land. Since all land belongs to the state, central government has passed laws relaxing its control over land to enable tapping land values as a productive asset

China's urban development clearly shows the relationships between economic development and decentralisation. To pursue their economic objectives, local governments in China rely heavily on the main resource available to them: public land. Since all land belongs to the state, central government has passed laws

United Cities and Local Governments Asia-Pacific (UCLG ASPAC) brings together mayors and local government officials from across the region to share experience and knowledge through biannual meetings of its members

Box 5.2 **Local government forums**

An increasing number of local governments, mayors and other city leaders are gathering on a regular basis to manage towns and cities more effectively through the sharing of experiences and good practices. These networks may be particularly important for the region's secondary and smaller cities, as they often provide opportunities for access to finance and additional expertise. Some of the notable associations in the region include:

- **The Commonwealth Local Government Forum** (CLGF) held its third Pacific Local Government Forum (PLGF) in May 2014 in Port Moresby, Papua New Guinea. It brought together over 100 representatives from government ministries, local government associations and capital cities across eleven countries in the region: Cook Islands, Kiribati, Marshall Islands, Papua New Guinea, Solomon Islands, Samoa, Tonga, Tuvalu and Vanuatu as well as Australia and New Zealand;

- **CITYNET** was officially established in 1987 with the support of ESCAP, UNDP, UN-Habitat, the City of Nagoya and 27 members (currently 81 full members and 42 associate members). CITYNET promotes cooperative links and partnerships throughout the Asia-Pacific region to improve urban sustainability. Current activities focus on such topics as climate change, disasters, infrastructure and MDGs;

- **The City Mayors Forum** of the Association of South East Asian Nations (ASEAN), which first met in 2011 in Surabaya, Indonesia, brings together some 70 mayors and officials from ASEAN cities;

- **The United Cities and Local Governments Asia-Pacific** (UCLG-ASPAC) with its headquarters in Jakarta is a key knowledge management hub on local government matters in the region. It is the largest of the eight sections of UCLG with linkages to more than 7,000 local governments. It represents well over 3.76 billion people - more than half of the world population - and incorporates economically fast developing countries such as China, India and Indonesia; and

- The **C40** network of the world's megacities, taking action to reduce greenhouse gas emissions. With a unique set of assets, C40 works with participating cities to address climate risks and impacts locally and globally.

Box 5.3 **Citizens' Charters and Report Cards**

The success of Citizens' Charters in cities in the Indian states of Andhra Pradesh and Karnataka is largely attributed to: a) rigorous advocacy and monitoring by civil society groups; b) widespread use of informal technology in institutions; and c) people-friendly grievance redress and service mechanisms that use mobile phones and e-service centres. Andhra Pradesh cities showed significant improvements in service delivery and citizen satisfaction as an outcome of the Citizens' Charter.

An increasing number of cities in the Philippines are also held accountable through charters. Naga City launched its Citizens' Charter in 2001 with step-by-step procedures for availing each service, setting response times for delivery, and providing the names of staff responsible for the service. The Charter is available both on-line and in print. A mobile texting service "TextServe" has been set up for lodging complaints, with an assured response time of 24 hours (UNDEF, 2012). Similar public accountability mechanisms have been put in place in a number of other Philippine cities, such as Marikina City in Metro Manila.

The Citizens' Report card (or Scorecard) is an example of organised citizen feedback widely used to rate user satisfaction with services provision. They have uncovered service delivery problems; created public awareness and opinion; and led to enhanced responsiveness by service providers.

In 2002, the Colombo Municipal Council collaborated with a local non-governmental organisation to introduce a citywide report card to assess municipal service delivery in low-income settlements. It used a card developed by the *Urban Governance Initiative,* a regional project supported by UNDP. The resulting document, *Poverty Profile – City of Colombo,* became advocacy material and the base document for prioritising settlement improvement (Jayaratne, 2004).

The Solomon Islands Development Trust, with a mission to improve quality of life in human settlements, conducted citizens' report card surveys from 1989 to 2003. Although the findings created widespread awareness about gaps in service delivery and institutional shortcomings, they did not result in service improvements as these outcomes were rarely taken up by politicians. This shows that evidence itself does not necessarily result in governance change or more responsive institutions.

Sources: Arroyo and Siker, 2005 and http://naga.gov.ph/experience-naga/services/naga-city-citizens-charter/.

and regulations relaxing its control over land to enable tapping land values as a productive asset. Land was offered on long-term leases to private enterprises as part of the contribution of the state to public-private joint ventures towards building massive additions to the housing stock and setting up enterprises.

The question of how to decentralise and to what extent is country specific and depends greatly on national demographic, social, economic, political and environmental characteristics, as well as political priorities. Increasingly, urban governance across the region takes place in multi-level and multi-sectoral frameworks and involves complex processes of negotiation over power, authority and resources. Actual decentralisation may ebb and flow over time, whereby the following areas have emerged as key challenges: (i) attracting investments while at the same time promoting equity and inclusion; (ii) opening institutions to wider civic participation; and (iii) increasing public trust in (local) government.

Transparent and accountable local government

Achieving more transparency in public decision-making and establishing institutional accountability also remain important urban governance challenges in Asia and the Pacific (UN-Habitat, 2010). Although there are often clear laws and procedures for accountability and transparency, strong opposition from vested interests tends to render them ineffective. Since corruption and blurred accountability remain impediments to good governance in parts of the region, more rigorous decentralisation could, in principle, provide solutions because decentralisation takes urban institutions - and therefore public scrutiny - closer to citizens. In this respect, the Asia and Pacific region has many experiences to share from which much can be learned.

Citizens' Charters, for instance, have emerged as an effective mechanism for holding urban institutions accountable in India, Malaysia and the Philippines. Such charters represent a compact between citizens and local government (or other services providers) about the quality, quantity, response time and the staff responsible for services delivery, as well as outlining the responsibilities of citizens to look after those services (see Box 5.3).

Access to information is critical for social accountability systems and for enabling civil society to work in closer partnership with local government. To provide such access, laws enshrining the right to information have been put in place in several countries. The *Right to Information Act 2005,* for instance, guarantees the right of any Indian citizen to apply in writing for any information relating to the affairs of the state or local authorities. In Pakistan, the *Freedom of Information Ordinance* was promulgated in 2002 and for Bangladesh in 2009. In Afghanistan, Maldives and Nepal, the right to information is guaranteed by the constitution.

Box 5.4 **The importance of leadership**

The Asia-Pacific region continues to progress in terms of citizens' representation and participation in local governance. The diversity in incomes, cultures, religions, power dynamics, preferences and priorities among city dwellers, however, can give different meaning to participation and representation even within the same city. Invariably, the importance of strong and visionary leadership comes to the fore. Local leadership plays a critical role in identifying problems; in engaging the community; in defining priorities for action, approaches and solutions; as well as in mobilising resources to deliver outcomes (Roberts and Kanaly, 2006).

Cities as diverse as Matale in Sri Lanka, Solo and Surabaya in Indonesia, and Surat and Suryapet in India owe their success to leaders who could cut across the diversity of interests and deliver results. In some cases local leadership is even transforming national politics. In 2014, Indonesia elected the former Mayor of Solo City to the Presidency, Joko 'Jokowi' Widodo. This was seen as the emergence of a new generation of leaders, whether from Indonesian cities or among young politicians from less traditional power bases.

New forms of decentralisation and local governance now potentially offer options for more responsive services delivery, for better targeting the poor, and for new opportunities for citizens' participation in local decision-making

New forms of decentralisation and local governance now potentially offer options for more responsive services delivery, for better targeting the poor, and for new opportunities for citizens' participation in local decision-making. In other words: political space has been created for participation and inclusion where there was less before. In this context, a growing number of good practices are emerging from the region, especially where local leaders have acted on the new powers and processes resulting from decentralisation. In countries where the roles of non-state actors are not strongly embedded in policy, however, participation in governance depends significantly on local leadership and the attitudes in the bureaucracy.

Participatory budgeting

Although participatory budgeting is still in its infancy in Asia and the Pacific, examples from Pune, India, and from ADB pilot projects in Indonesia and Pakistan show enhanced awareness of resource allocation and budgeting among citizens, with some successes recorded in popular involvement in budgeting (UN-Habitat, 2010). Of significance, some models of participatory budgeting have been replicated across the region. Ulaanbaatar, for example, has implemented a model for the engagement of urban *Ger* (indigenous housing) communities, based on lessons derived from Solo City, Indonesia. A number of other measures also improved financial accountability and allocation of funds. Social audits, for instance, can help involve the community in scrutinising public projects and the amounts spent. They further help government departments plan, manage and measure non-financial activities, as well as monitor the impacts of their social and commercial operations.

Analyses of budgets have also been used as advocacy material for steering the priorities more in favour of disadvantaged citizens. In Indonesia, the Bandung Institute of Governance Studies analysed the impacts of housing policy and budgets on slum dwellers, while the Coalition for Women focused its budget advocacy on women's concerns. In Marshall Islands, a joint government-civil society initiative - *Gender and Youth Sensitive Public Expenditure Management* - aims at increasing the budgets for sectors affecting women and youth. Such financial literacy programmes enable scrutiny of otherwise non-transparent budget allocations (Arroyo and Siker, 2005).

Governing beyond the city boundary

Rapid urban population growth has resulted in the territorial expansion of cities of all sizes. In the Asia and Pacific region such expansion is often led by public investment in roads or special economic zones, providing opportunities for formal and informal private investments in land development. But such settlement and economic activities frequently transcend urban administrative boundaries and the authority of a single jurisdiction. This means that urbanisation is often occurring beyond the reach of a city's governance, service provision and planning mandate, including land use planning. Peri-urban human settlement and land access have therefore emerged as highly-contested aspects of urban management, often comprising some of the most degraded environments and highest levels of poverty and informality.

Some new local initiatives, like the establishment of a Planning and Urban Management Agency in Samoa to holistically deal with urban and peri-urban issues, represent a significant step forward in integrated urban governance. By focusing on environmental and climate change, this agency addresses erosion, land use, land degradation, bio diversity and solid waste and drinking

Box 5.5 **E-governance**

The emergence of online governance systems (e-governance) has enhanced transparency and accountability and improved urban management efficiency for several cities in Asia and the Pacific. Likewise, e-procurement, initially introduced by the Korean Public Procurement Service (Republic of Korea), is now widely used across Asia and the Pacific to render public purchasing more transparent, competitive and efficient. More than 25,000 Korean public organisations are now required by law to place procurement and bidding information on the Internet to shortlist suppliers and standardise product information. The public can consult the sites to compare prices offered by different suppliers. This now makes it much more difficult for private bidders to collude with government procurement officers. Several cities are using online systems also for various permit applications and the decisions on such applications.

The Metropolitan Government of Seoul has developed what it calls *Online Procedures Enhancement for Civil Applications.* Known by its acronym "OPEN", it enables people to monitor details of their applications in real-time. They know the names and contact details of the officials dealing with their business and are informed on-line about the review procedure and approval.

In India, computerised kiosks have been setup for more than 100 public services, such as applying for permits, paying taxes and utility bills, buying railway tickets, lodging complaints amongst others. By digitising these transactions, the government eliminated layers of middlemen and reduced corruption. The remaining challenge is to make these services also user-friendly for India's illiterate and computer illiterate citizens.

For more than 30 years, Hong Kong, China, has had one of the most-user friendly and efficient tax payment systems in the world. There are strategically located tax offices and kiosks throughout the city where 'citizens can go and ensure in just a few minutes that their tax affairs and payments are in order. The government has made e-tax easy: citizens can pay electronically using a telephone, the Internet or even an ATM.

water supply for both urban and peri-urban areas and, even more significantly, includes both formal and informal (village leaders) representatives. By involving the local population in identifying problems and solutions it provides a path for forging new partnerships among municipal authorities and village leaders. This helps lift peri-urban communities out of the margins of political, economic and social life (PUMA, 2013).

Although decentralisation policies in India, Indonesia, the Philippines and Thailand note the need for coordination with neighbouring areas, provisions are

Joko "Jokowi" Widodo's election as President of Indonesia in 2014 was seen as the emergence of a new type of leadership © US Embassy, Jakarta, Indonesia

mostly informal, if any. The extension of administrative boundaries to legally capture the urban catchment area beyond the city limits is a time-consuming procedure and most often contested by the territorial unit whose land is being infringed upon. Lack of data on rapidly expanding developments in peri-urban areas makes any kind of intervention even more difficult. Under conditions of rapid growth, the demographic and functional boundaries of metropolitan regions become increasingly fluid and make holistic governance a constant challenge (Sellers, 2008). Existing institutions may cover only part of the metropolitan territory, such as the Municipal Corporation of Greater Mumbai, for example, which covers only 67 percent of Metro-Mumbai's 18 million population.

Coordination of integrated policy setting, planning implementation and services provision is therefore a major challenge for many Asian and Pacific cities. Furthermore, institutional roles are typically highly fragmented over governmental departments providing for limited coordination. This governance fragmentation is as true for cities in the region's advanced economies - such as Brisbane, Australia - as it is for cities in the emerging economies, like Semarang, Indonesia (Minnery et.al, 2012) (See also Box 5.6). Attempts to provide more coordinated and holistic urban management and governance across administrative boundaries has, as of recently, become more common, albeit with varying success.

Box 5.6 Urban planning shortfalls in Sri Lanka

In Sri Lanka, urban planning is hampered by the division of responsibilities among the Urban Development Authority (UDA), provincial councils and Urban Local Authorities (ULAs). A UDA is mandated to prepare development plans for areas it declares suitable for urban development. However, such UDA-declared areas are not an integral part of the planning of the core city for which the ULA is responsible, but a UDA can only exercise limited planning and enforcement functions because of capacity constraints. In addition, there are no land use controls in non-UDA-declared areas which have urban characteristics but which are rural in administrative terms. Limited coordination among specialised infrastructure development agencies further aggravates the fragmented nature of Sri Lankan institutional responsibilities for urban planning (World Bank, UN-Habitat, 2012).

Within the city, outside the system

For cities it is important how local government sees the various urban features within its jurisdiction, especially slums and other informal settlements. One of the main obstacles to the urban poor obtaining basic services, for instance, is that many city governments do not recognise informal settlements and fail to meet their needs effectively. Not only is information about them typically inadequate, cities often also face legal constraints, either because this population segment does not pay taxes or because informal settlements have limited or no legal status.

Impractical and outdated regulations about minimum plot size and housing standards can prevent legal redevelopment, regularisation or provision of services and infrastructure in informal settlements. As a result, municipalities often adopt an attitude of benign neglect, but may forcibly clear such settlements once opportunities to develop the land (and raise revenue) arise.

Many city governments do not recognise informal settlements which is one of the main reasons the urban poor lack basic services © Samrat35

The experience of Indian cities is somewhat different where, under local democracy, it is possible for poor groups to make demands for infrastructure improvement and regularisation through elected councillors. The latter either represent these demands in the council or exert pressure on administration and planning institutions to recognise the local realities. The poor lose this political advantage however when para-statal or private providers assume control of municipal service delivery and land development functions, since neither are mandated, and may be reluctant, to intervene in areas where residents have no verifiable legal tenure (HRDC, 2002).

5.3 Urban Planning and Urban Realities

It is often said that planners design cities, while people build them. Urban planning is an important prerequisite for guiding the development of cities and fostering prosperity and inclusion. But there is a growing gap between planning and the business of city development. Most of Asia and Pacific follows the practice of preparing a Master Plan as the statutory basis for development. Often, these plans are neither accompanied by infrastructure and land development plans nor supported by budgets and longer-term financial plans. Furthermore, by the time master plans are formally approved, many are already outdated given the ever-fluid urban developments on the ground. In addition, the exclusionary nature of planning has all too often exacerbated uneven development outcomes and in many cases furthered the marginalisation of entire population strata from the decision-making process.

Cities are critical to the implementation of the broader sustainable development agenda. But at the implementation level, significant institutional and capacity shortfalls exist. Changing the way Asian and Pacific cities function will require new forms of planning and urban governance (ESCAP, 2014). Even though recent reforms may have brought about improvements in planning practices, major weaknesses such as lack of implementation strategies and long-term financing remain. Serious bottlenecks also persist in fragmented institutional structures that make it difficult to agree upon responsibilities, address local governments' low capacity to implement plans, and their limited political will to plan cities for a distant future (UN-Habitat, 2010a).

Almost all Asian and Pacific cities have outgrown their original municipal jurisdiction and today's city planning and service management systems typically neither cover the full urbanised area nor the resource and economic hinterland of the city. Consequently, different level plans may overlook or contradict each other. But strategic plans to define cities' investments for addressing social, economic, and environmental issues in an integrated manner are critically important.

Most cities in the region also do not have the mechanisms in place to analyse current trends, to develop strategies, or to plan, structure and finance investments to operationalise these strategies. Compounding the situation is the fact that many cities approach their problems with little sense of urgency because urban managers are overwhelmed and the city appears "ungovernable". This cannot continue. Failure to act now risks economic, social, and environmental disruption on a significant scale in the longer term (ESCAP, 2014).

It is therefore a matter of urgency for governments at all levels to foster governance and urban planning reforms to facilitate:

a) coordination mechanisms (both multi-stakeholder and cross-border) for better strategic planning and holistic management of city regions that are integrated across jurisdictions and sectors;
b) enhanced financial structures to upgrade the fiscal viability of city region authorities and improve mechanisms for financing infrastructure and services;
c) capacity-building across administrative and jurisdictional boundaries; and
d) greater community and private sector participation in urban decision-making.

Integrated planning models are currently being applied in many countries in the region. However, exemplars of good practice and systems used in Singapore and Japan, for example, are not always altogether appropriate for much of Asia and the Pacific. A better approach – comprehensively addressing the flexibility, responsiveness and resources issues – would be to mandate a combination of high-level

Box 5.7 Indian urban planning changing course

In India, mandatory urban reforms under the flagship *Jawaharlal Nehru National Urban Renewal Mission* (JNNURM) comprised promoting public-private partnerships in real estate and repealing the *Urban Land Ceiling and Regulation Act* to free up land for private development. The newly-formed NDA government, however, announced it will discontinue the JNNURM and re-launch it under a new name and focus on creating 100 Smart Cities across India, while introducing GIS-based planning and improved waste management for cleaner cities. These new programmes will build upon recent urban planning gains, but will also focus on major infrastructure development such as highways and waterways (Hindustan Times, 25/06/2014).

Mumbai's rehabilitation scheme has seen 600,000 families moved out of informal settlements into formal housing © Adrian Constantinescu

Box 5.8 **Slum rehabilitation in Mumbai**

The Slum Rehabilitation Scheme implemented in Mumbai since 1995 by the Slum Rehabilitation Authority offers either formal housing free of cost to slum dwellers on the land they occupy or relocation to sites agreed with them. The Slum Rehabilitation Authority makes it profitable for the private sector to build for slum dwellers' co-operative housing societies by providing an incentive Floor Space Index. This can be used on the plot within the permissible Floor Space Index in the area after housing all the cooperative members and converted to Transferrable Development Rights for building in other parts of the city or trading in the market. High land values and the present low Floor Space Index regulation provide sufficient incentives and ensure profits for developers and land owners even after providing slum dwellers with rehabilitation tenements free of cost.

Even though more than 600,000 families have benefited from access to formal housing over almost two decades, progress has not been as rapid as anticipated because of land market fluctuations and imprecise land records. A major drawback of the scheme is that it results in patchy, plot by plot re-development, and it is only feasible in areas that are commercially viable. Thus, it bypasses slums in areas of lower land value and in the poorest pockets inside large slums.

The approach also makes it difficult for city infrastructure to be upgraded and match the higher plot level densities. The recently-launched Rajiv Awas Yojana programme for instance, is supporting Indian municipalities to map their urban slums with the participation of local communities. The breakthrough here was actual recognition of the large scale incidence of urban informality and a consequential move from individual projects to city-wide approaches for improving informal settlements' living conditions. The programme actively encourages partnerships between local government, non-governmental organisations, the private sector and community groups to promote both slum upgrading and prevention of new slum formation. Capacity building among community groups to enable them to act as equal development partners is a key strategy (Government of India, 2011).

'strategic sustainability planning' and effective investment planning. The high-level plan does not set out detailed land use zoning but rather provides the overall directions and principles on which development approvals will be given while prioritising the infrastructure that underpins these strategic planning directions. The city development plans undertaken for the *Jawaharlal Nehru National Urban Renewal Mission* (JNNURM) in India, for instance, constitute an example of such investment plans.

The focus on institutions and systems can at times overshadow the purpose of these organisations or whom they are intended to serve. New ways and means should be elaborated that create additional space for participation by civil society in key decisions on urban infrastructure investments. If more accessible relevant information and appropriate incentives are given, citizens will typically not only support the initiatives but often become able to support local-level actions through sweat and other equity.

Land lies at the heart of all planning processes. Land is a deeply contested resource because of the high demand for ever-expanding urban activities and for accumulating wealth and power. Therefore, poverty, patronage, as well as political and financial power often determine land development choices rather than the technical guidance of master plans. Weak enforcement structures and limited negotiation options by the urban poor underlie the large scale of informal settlements in Asian and Pacific cities, like those of, for instance, Melanesian states, Ulaanbaatar in Mongolia, Dhaka in Bangladesh and of many small towns in India. Paradoxically, the same applies to indifference towards planning regulations by the wealthy, some of whom accumulate urban land for speculation and whose exclusive condominiums and gated townships are often realised by influencing or ignoring zoning regulations.

In Mumbai, India, high land values are used to advantage for slum redevelopment, applying the urban planning instrument known as *Transferable Development Rights* as an incentive for private developers (Banerjee, 2014). These rights programmes seek to preserve land asset value by moving the right to build from a location where development is prohibited or discouraged (sending areas) to a location where development is encouraged (receiving areas). The key is to transfer part of the purchase price for land in a location where development is encouraged to a landowner in a place where development is prohibited.

One of the dangers of "entrepreneurial planning" is that it neither considers long-term planning horizons nor holistic visions of how cities should develop. Although private sector-realised, it depends on the public sector for the development of city- or region-wide transport networks and trunk infrastructure because these matters remain in the domain of conventional planning, along with public parks, preservation of environmentally sensitive areas, as well as protection against pollution and natural hazards. This approach is basically a collective of short-term strategies and decisions with potentially deleterious effects on long-term planning and good management.

5.4 Financing Urban Transformations

Funding city development

The recent global wave of decentralisation has assigned many responsibilities to lower levels of government often without fiscal decentralisation, because fiscal systems in Asian and Pacific countries have remained highly centralised. Revenues are collected by central government and then shared through internal revenue allotments, grants and various types of subsidies to provincial, urban and rural institutions. The revenue sources of local governments are usually insufficient to meet the large, long-term financing needs of infrastructure and other capital investments since local budgets are often already hard-pressed to finance basic revenue expenditures.

The more extreme financial shortfall cases are found among small and intermediate-size towns across all countries in the region. These smaller towns depend on (often uncertain and insufficient) fund transfers from higher levels of government for both capital and revenue expenditures, leading to chronic shortages of services and skilled staff besides negatively affecting their budgeting processes. Small towns in Central Asia are completely dependent on transfers from higher levels of government and do not have budgets of their own resulting in weak capacity (CER, 2012).

The revenue sources of local governments are usually insufficient to meet the large, long-term financing needs of infrastructure and other capital investments since local budgets are often already hard-pressed to finance basic revenue expenditures

Cities with well-performing local authorities and a sound tax base usually can manage without central government transfers. The bulk of Mumbai's local resources, for example, comes from *octroi* – a taxation of commercial goods brought into the city (UN-Habitat, 2010). But this revenue-generating tax good practice is only applied in the state of Maharashtra in India.

The Prutt-Igoe housing project in St Louis, US, built according to Modernist planning concepts, was demolished just 18 years after construction © Lee Balterman/getty images

Box 5.9 **Modernist-like urban concepts in Asia and the Pacific: A lesson from history?**

The Congrès Internationaux d'Architecture Moderne (CIAM), founded in 1928, was an association of Western avant-garde architects seeking new visions to address the crowded and unhealthy conditions which had emerged in many Western cities during the 19th and early 20th centuries. The now legendary 4th session of CIAM, held in 1933 on the theme The Functional City, lay at the basis of a new "scientific" approach to city planning that became known as "Modernist Planning".

Modernist city planning theory argued that urban outcomes hinged on how four key city functions (housing, work, transport and recreation) were spatially organised (Somer, 2007). The Modernist School was deeply influenced by then contemporary social management theory, especially the Fordist principles of specialisation, standardisation and mass production. Consequently, Modernist planners promoted strict segregation of urban functions in specialised urban zones. This produced single-use central business districts, housing-only neighbourhoods and dispersed zones dedicated to shopping and recreation, all connected by infrastructure.

The citizenry, according to the Modernists, needed to be accommodated in the suburbs in standardised apartments within mass-produced high-rise residential blocks placed at widely-spaced intervals to free up land for parks and other communal green spaces (Sennott, 2004). Streets also became specialised areas because, in the Modernist view, the multiple street functions of the past, combining child play, community socialisation, pedestrians, cyclists and vehicles created obstacles to speedy traffic flows. In the Modernist perception the street was a conduit for cars, not people (Nastrasony and Aklexander).

The Modernist planners had noble intentions. They wanted to address chaotic urban growth, land-use conflicts, and the unhealthy conditions that affected so many cities at that time. The concept of social housing was essentially an outcome of Modernist efforts to provide poor urban citizens with affordable, healthier residential environments.

The Modernist architect-planner's task was to develop a comprehensive plan for the city and deliver more functional spatial relationships between work, housing, shopping, recreation and mobility. However, in their attempts to decongest city centres, the Modernists helped create the conditions for today's car-based urban developments and urban sprawl.

The influence of the Modernists was immense and its legacy is still felt today in cities around the world. The Modernist city planning concept was, for instance, adopted wholesale in Europe's post-WWII rebuilding because it presented an apparent answer to the need for rapidly providing large low-cost housing schemes in this war-ravaged continent. However, many of the original CIAM ideas were compromised by tight financial constraints, poor understanding of the underlying concepts, or by sheer popular resistance. The re-planning of postwar Dresden along the Modernist formula, for instance, was rejected by its citizens as an "all-out attack on the city" (www.ciam4.com).

Whereas the rapid construction of cheap and standardised residential tower blocks may have seemed practical to quickly ease Europe's postwar housing shortages, already in the 1950s

and 1960s, some CIAM members had doubts about the skewed interpretation and implementation of the Modernist planning vision.

In Canada and the USA, Modernist concepts also became popular in the postwar period as a means of addressing: a) the housing needs of huge numbers of immigrants; b) the escalating urban social problems; and c) the ubiquitous lack of control over the built environment. But there too, the Modernist vision would soon prove less than practical.

In the Soviet space of the 1950s and 1960s, however, the Modernist-induced ills then unfolding in Europe and North America were far less evident. The different organisation of Soviet societies, with state-provided housing that offered neither free choice nor differentiated housing supply options, as well as a public sector servicing and maintaining shared facilities was, perhaps, somewhat better suited to the Modernist vision.

To amelioratethe severe postwar housing shortages, the Soviet leader, Nikita Krushchev, declared quick low-cost residential solutions one of the USSR's main objectives. The outcome was the *khrushchyovka:* a standardised and mass-produced five-storey multi-family urban residential block. The *khrushchyovka,* however, never reached the number of floors of flats in Europe and North America since elevators, a requirement for structures exceeding five floors, were simply too expensive.

By the late 1960s and early 1970s, many urban planners and social scientists in Europe and North America began to realise that Modernism's lack of human scale sapped vitality from communities and the community collective. Large residential blocks, surrounded by shared but disassociated public areas for which no individual felt personally responsible, were hard to identify with. Rather, deteriorating quality of public space, individualism, alienation, vandalism and high crime incidence all appeared to be fostered by this type of mass housing.

Modernist housing estates therefore became associated with localised social problems, particularly when economic down-turns rendered these high-rise living environments hot spots of segregated, unemployed and disenfranchised societal groups. In many cases, these problems took on such proportions that authorities were left with little option but to dynamite these flats and replace them with other housing types.

By the 1970s the construction of cheap, uniform tower blocks was discontinued in many European countries and in North America. Deep social problems also emerged in similar housing estates in cities of the USSR and its satellite nations. These problems escalated especially rapidly after the transition from centrally-led to market-based economies, when unemployment and lack of maintenance of shared public facilities became commonplace.

Today's urban planning, in some Asian countries, may not necessarily follow Modernist urban planning concepts per se, but they lead to very similar urban spatial specialisation, standardisation of housing and promotion of infrastructures. Admittedly, the speed of urbanisation in Asia and the need to respond at scale and in a short time to huge urban residential demand almost inevitably pushes urban planners towards concentration of citizens in high-rise urban housing estates. The so-called "Smart City" concepts applied in some Asian nations today also display traits that are very similar to those of the Modernist. Although tailored social interventions and spatial adaptations may help address some of the Modernist errors, urban planning history is likely to repeat itself in Asia and the Pacific.

Given the experiences in different localities around the world and under different socio-political systems, the countries currently applying planning practices that focus on single-use urban areas and mass housing in high rise apartments should, perhaps, take to heart the lessons from history. It may, therefore, be prudent for Asia-Pacific urban managers to start thinking about the answer to the question:

What comes after current urban planning interventions in our cities?

Sources: Somer, K. ed., *The Functional City - The CIAM and Cornelius van Eesteren, 1928 - 1960,* Nai Publishers, 2007; Sennott, R. ed., *Encyclopedia of 20th-century Architecture,* Fitzroy Dearborn, 2004, Vol.1, A-F, p.87; S. Natrasony, S. and Alexander, D., *The Rise of Modernism and the Decline of Place: The case of Surrey City Centre, Canada,* Vancouver, www.newcity.ca/pages/surreycentre.pdf; www.citylab.com/design/2012/11/evolution-urban-planning-10-diagrams/3851/; www.ciam4.com/.

Applied information technology (and GIS in particular) can also dramatically improve tax revenues. Quezon City in the Philippines, for instance, increased property tax collection threefold between 2005 and 2008 by computerising tax rolls, by making payments easier, and by eliminating corrupt middlemen (UN-Habitat, 2010). A number of Indian cities have improved their property tax information and assessment by transferring property tax records to databases linked to GIS-based maps. This, along with simplified payment options has shown good results.

All city authorities possess land, fixed assets and infrastructure, and often these are underutilised as elements in their funding strategies. After valuation and proper registration, these assets could be used as collateral for loans (Roberts, 2013). This approach was used successfully for raising funds through municipal bonds by the Ahmedabad Municipal Corporation in India (Mathur, 2009). The use of urban land as a local revenue resource has indeed gained importance recently. The highest potential lies in countries where land is owned largely by the State. Chinese coastal cities have drawn global attention for raising as much as 81 percent of the resources for their urban development by leasing public (state-owned) land for private development (World Bank, 2013).

The Chinese model is an outcome of pressure on cities tto meet economic growth targets. Strategic plans

Box 5.10 **Development planning in Armenian secondary cities**

Gyumri, Vanadzor, Dilijan, and Jermuk, four secondary cities in Armenia, have prepared city development and investment plans with technical assistance from the Asian Development Bank as part of the country's *Sustainable Urban Development Investment Program.* Initiated in 2011, the plan seeks to finance priority urban projects. The investment plans focus on the key development and policy challenges, including urban transport, water supply and sanitation, solid waste management, district heating and lighting, housing, local economic development, logistics and tourism. The plans span a 10-year period and specify and prioritise a list of urban investment projects and improvements (ADB project 45415-001).

for cities have guided infrastructure development and rural land conversion to suit real estate plans. This model, however, cannot easily be replicated in other countries or even other parts of China. While China's economic success underscores the importance of achieving at least moderately efficient urbanisation for economic growth, it has also brought significant environmental costs and social inequality (World Bank, 2013).

Conditional funding

Conditional funding can act as a lever for performance improvements and reform in local government. It can also serve as a competitive mechanism between cities, with higher performers earning the benefit of additional funding. The latter is not too common in the region since it tends to work against weak municipalities that are in greater need of funds. Currently, conditional funding is being practised in India and in the Philippines (See Box 5.12) where a portion of public transfers comes from a "performance challenge fund". These practices point to ways in which fund transfers to cities from higher levels of government can serve as levers for improving performance, rather than inducing a state of complacency in municipalities, as is often the case (Roberts, 2013).

Finally, through public-private partnerships, private sector participation can reduce the financial burden of public institutions. Pricing and tariff setting are complex, and the regulatory environment in most countries is still insufficiently strong to guarantee success, except in the power, transport and telecommunications sectors. The absence of rigorous project development criteria and methodologies for developing bankable projects, unclear laws and political uncertainties add to the difficulties. Privatisation of water delivery in Jakarta and Metro Manila has shown that certainty in policy and legal regulation and long-term planning are essential in attracting investment and creating joint working approaches.

Box 5.11 **Including the poor in urban financing**

Financial inclusion of the poor can be conceived in two ways: 1) the poor become taxpayers; and 2) enabling the poor to raise funds from formal financial institutions. Two donor-funded programmes in Asia and the Pacific stand out for their approaches in this context:

The Governance and Development Support Programme, funded by the Canadian International Development Agency and implemented by UN-Habitat, aims at an integrated community-based approach to improving the living conditions of about 100,000 low-income informal settlement inhabitants in Kandahar City, Afghanistan. In addition, towards the provision of water, sanitation and roads it has used plot regularisation as a means of creating legalised urban properties that can be subjected to municipal taxes.

Sustainable annual collection of property tax to increase municipal revenues can only be achieved if the taxes are re-invested through area-based programmes and public works projects; i.e. when taxpayer see how these revenues are used for immediate local improvements. With sustainability built into the property taxation, improvement of living environments has been achieved (UN-Habitat, 2009).

The Community-led Infrastructure Finance Facility (CLIFF) was conceived in 2002 as an innovative financing facility to enable poor urban communities to test and demonstrate their own solutions to slum improvement; set precedents to influence policy; and allow for scaling up and risk management, as well as provide learning and capacity building. The facility was set up to deliver bridging loans, guarantees and technical assistance; to work with CBOs in delivering urban rehabilitation; to leverage commercial and public sector funding; to provide a rolling finance facility; and to empower organisations of the urban poor. Donor funding of about GBP 10 million was channelled through the Cities Alliance.

CLIFF has been implemented in India and Pakistan (besides Kenya) and successfully assisted organisations of the urban poor to finance and undertake community-driven infrastructure, housing and urban services initiatives. It experienced difficulties, however, in bridging the gaps between informal community-led processes and the requirements of donors, banks and governments for formal systems to demonstrate transparency and financial probity (WSP, 2009).

Box 5.12 **Conditional funding in India and the Philippines**

The Government of India has attempted to meet urban infrastructure challenges through the *Jawaharlal Nehru National Urban Renewal Mission*. It encourages urban local bodies to access market-based financing and form private-public partnerships for urban infrastructure projects funded by the Mission. Government funding is used as a catalyst for reform and investments with the objective of strengthening decentralisation and to develop and promote mechanisms for market-based financing for urban infrastructure in India (Vaidya & Vaidya, 2009).

In 2009, the Development Budget Coordinating Committee in the Philippines approved the *Performance Based Incentive Policy,* which provides incentives to rationalise domestic intergovernmental transfers towards improving local authority performance. It links the incentives to achievement of performance targets. Under the policy, the *Performance Challenge Fund for Local Government Units* was set up to provide counterpart funding to high-impact capital investment projects The fund aims at: a) promoting good governance performance; b) encouraging alignment of local development investments with national development goals and priorities; c) boosting local economic development; and d) complying with the *Philippine Disaster Risk Reduction and Management Act* and the *Climate Change Adaptation Act* (http://www.dilg.gov.ph/programproject.php?id=6).

In India, computerised kiosks have been set up for over 100 public services including paying taxes, applying for permits, buying railway and tourist tickets and lodging complaints © Danielal

The Republic of Korea is an example which stands out for making public-private partnerships work with appropriate legislation, third party regulatory bodies, and capacity building of public institutions. Public-private partnerships for large projects such as railways and highways are forged with the national government. Local government public-private partnerships are smaller, such as development of parking lots and culture and tourism projects (see Box 5.13).

5.5. Who is Ultimately Responsible for Cities?

Closing the governance gaps

Cities are increasingly engaged in competitive wealth production facilitated by globalisation. At the same time, cities are becoming more fragmented – economically, politically, physically and socially. One of the main challenges of urban management in the Asia and Pacific region is to move towards more socially inclusive and environmentally sustainable cites while, at the same time, ensuring that they remain competitive and create opportunity. There is ample evidence to show that this will neither happen automatically nor as an outcome of market forces alone.

The larger Asian and Pacific cities that have emerged as the factories, offices and tourist destinations of the world are still grappling with the impacts of their rapid growth, social fragmentation, poverty and informality, environmental degradation, as well as climate change problems. Almost all small and medium-sized Asian and Pacific towns struggle with high rates of poverty, infrastructure deficiency and low or unrealised economic potential. This has shown that the trend of cities ever more plugging into the global economy requires different incentives beyond mere production of goods and services.

Despite some recent failures of public policies and initiatives, and despite the view that governance encompasses important non-governmental actors, national and local governments must remain the central elements in driving, managing and regulating processes of urban change. Mismanagement of cities and urbanisation in the Asian and Pacific region exists as much because of the vacuums created by less, rather than more government intervention. This certainly does not mean governments should try to do everything. Rather, governments should play an active and strategic role in orchestrating and regulating urban development to realise social, environmental and economic sustainability. This multiple role can neither be performed by the profit seeking private sector nor by civil society.

While local governments have key responsibilities in managing the needs of the citizens, national government remains a critical facilitator for effective urban management. It is only through national urban policy frameworks that inter-city and regional development dilemmas can be resolved, like the development of small and medium towns or further promoting mega cities. Asian and Pacific national governments should therefore focus on greater policy coherence between national economic and urban development policies.

Box 5.13 **Public-private partnerships in the Republic of Korea**

The Republic of Korea legislated and promulgated a PPP Act in 1994, subsequently amended in 1999 and 2005. Its main features are:

- The Public and Private Infrastructure Investment Management Centre was set up and has developed guidelines and toolkits to ensure transparency and objectivity in PPP project implementation, provide professional support and conduct research on PPP policies.
- A government-financed Credit Guarantee Fund provides credit guarantees for PPP project finance. Through a Minimum Revenue Guarantee, a part of the annual revenues is guaranteed when the actual revenue falls considerably short of the projected revenue.
- Under a special procurement scheme called Build-Transfer-Lease (BTL), a special purpose company builds a facility, transfers ownership to a public entity, gets operational rights in return, and leases the property to the public entity to get returns on investment.
- Tax incentives to the private sector include exemption from land acquisition, registration taxes and value-added tax on construction services; and
- The maximum construction subsidy is fixed at 30 percent for roads and 40 percent for metro rails. Land compensation is usually borne by the government. For a profitable project, private parties are made to bid with donations.

Source: Park (2009)

Seoul's modern metro system was designed through a public-private partnership made possible by enabling legislation and appropriate capacity building of public institutions © Filedimage

One important role of the state is one of creating the frameworks that facilitate the markets to perform, rather than direct intervention. But the enabling role of the state extends beyond simply handing decisions over to the markets. It must provide mediation between different actors towards social and environmental sustainability and create the conditions for equitable inclusion of vulnerable groups or people in the development processes. Especially where markets fail to provide for all, there is a need for central government interventions towards finding the right power-sharing modalities to address the gaps that have emerged. Strengthening and reforming governmental urban planning through national level support could make interventions more responsive to both the current and future needs of cities.

Far more coherent national guidance and policies are also required to ensure effective management of local government capacity building. If the region's urban future is to be prosperous, sustainable and inclusive, there needs to be greater collaboration amongst all stakeholders. Closing rapidly emerging governance gaps is also required to manage the trans-boundary nature of urban growth. Development of national urban policies which recognise the critical role of all urban stakeholders is an important step towards these goals. In sum: the cities in Asia and the Pacific require more dynamic, transparent and proactive public governance, not less.

In sum: the cities in Asia and the Pacific require more dynamic, transparent and proactive public governance, not less

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Mumbai raised USD 1.2 billion from auctioning land in the new financial centre

Financing our Urban Future

By Michael Lindfield*

Asian and Pacific cities are the engines of their national economies, but many local governments struggle to finance their mandated tasks. Most cities in the region - even some megacities - are overly dependent on (usually inadequate) transfers from higher levels of government. As a strategic priority, cities should be enabled to mobilise most of the revenues needed to meet their funding and institutional challenges. Such capacities are critically important not only for the development of national economies but also for countries whose development approaches a stage which is known as 'the middle-income trap'.

In a very real sense, the fate of the planet depends on whether Asian and Pacific cities succeed in their drive for environmental sustainability. To this end, cities need to invest in more resilient economies and sustainable development. That not only requires cities to tailor their institutions and interventions, but also that they find new ways of raising revenue. For that to materialise, current institutional gridlocks, which prevent vital investments, must be resolved. Cities cannot do that by themselves.

Arguably, the most important priority for many Asian and Pacific governments is to foster efficient and competitive cities but, with surprisingly few exceptions, this has not resulted in prioritising the funding of urban development.

Rapid urbanisation has been among the key drivers of the region's dynamic growth and

the significant poverty reduction that has resulted. The economic successes have been dependent on high levels of open trade, capital investments and the region's rising productivity. Whereas Asia's businesses and labour have become highly competitive in the world economy, rising incomes mean that a number of countries (such as China, India, Indonesia, Malaysia and Thailand) are running up against limits to export-led, manufacturing-based economic growth. New strategies - maximising both external competitiveness and support for endogenous growth - are needed to avoid declining competitiveness. Improving infrastructure and reducing costs to businesses are two critical areas of need.

The economic cost of inadequate infrastructure can be very high but lagging infrastructure investments are beginning to threaten the competitiveness and productivity of some of the region's urban and national economies. India, for example, needs to invest USD 1.2 trillion because its current urban infrastructure deficit costs are roughly 4.3 percent of GDP annually, and are significantly limiting the country's potential economic growth (McKinsey & Company). Several governments in Asia and the Pacific are recognising the challenges and have attempted to address these by establishing new infrastructure investment mechanisms.

Economic giants... but fiscal dwarfs

Cities are critical for achieving sustainable development. Sustainability goals imply, among others, changes in the design and operation of cities' infrastructure. The investments to effect such changes, as well as those required to cater for increasing urban populations, require such enormous amounts of capital that it would be a huge burden for local governments even if they were fiscally robust, which most Asian and Pacific local governments are not.

Many of the region's local governments are actually less fiscally self-sufficient today than they were 15 years ago. Rapid urban population growth and the associated rise in expenditure is a major driver of this change. National governments are also partly responsible, as they have provided local authorities with inadequate funding or have prevented them from accessing alternative forms of financing that would allow them to meet the increased obligations that accompanied decentralisation.

Admittedly, the wholesale transfer of funds has been cautioned by issues of accountability and transparency among local governments. Sub-national government debt and contingent liabilities have led to significant problems for the national governments of some countries in the Asia and Pacific region, such as India, and to a lesser extent, China. This perception should be tempered, however, by an understanding that local authority capabilities and responsibilities have changed over time, and performance is better measured for a number of dimensions to enable the targeting of support and incentives for improvements.

In many Asian and Pacific countries, local government units' access to capital markets is limited; many are even legally excluded from such financial sources. The challenge facing the governments of Asian and Pacific countries is to build a basis for higher-yielding and robust revenue sources for their cities. These sources should be derived, as far as possible, from the citizens of cities for reasons of both ownership, sustainability and equity.

In addition to the above challenges, a new set of funding requirements is now looming as a result of environmental change, as set out in the Rio+20 sustainability agenda. This relates in particular to investments for mitigation of and adaptation to the impacts of climate change. Here too, new and more effective local funding instruments are required.

Financing instruments

To meet these challenges, national, provincial and local governments must work together to maximise the revenue collected and to spend it transparently on priority issues. The range of instruments and their possibilities are much wider than generally perceived. They are simply little known or have been insufficiently explored because reform of revenue and expenditure patterns is highly political and requires not only changes in laws and regulations but also reform of the institutions collecting and spending revenues and those monitoring revenue flows. But there are many examples of innovation and successful re-organisation that can be replicated provided there is political will.

Globally, successful reform has been achieved by better utilisation of the following major financing instruments:

Sub-national government debt and contingent liabilities have led to significant problems for the national governments of some countries in the Asia and Pacific region

- Instruments facilitating the generation of own-source revenue;
- Asset management instruments;
- Instruments for managing inter-governmental transfers;
- Partnership-based instruments;
- Loan financing instruments; and
- Instruments for accessing capital markets.

It should be noted that the first four instruments are the fundamental ones, because the appropriate use of loans and capital market funding ultimately depends on correct utilisation of these four. The latter are ways of spreading large infrastructure investment needs and addressing the time required for funds' accumulation and inter-generational equity issues.

These six instrument categories, however, require that regulators, city governments and financiers have (or develop) effective capacity for oversight, use and supply of financial flows. To facilitate the development of these capacities, a national enabling framework is needed (see diagram below).

Financing sustainability

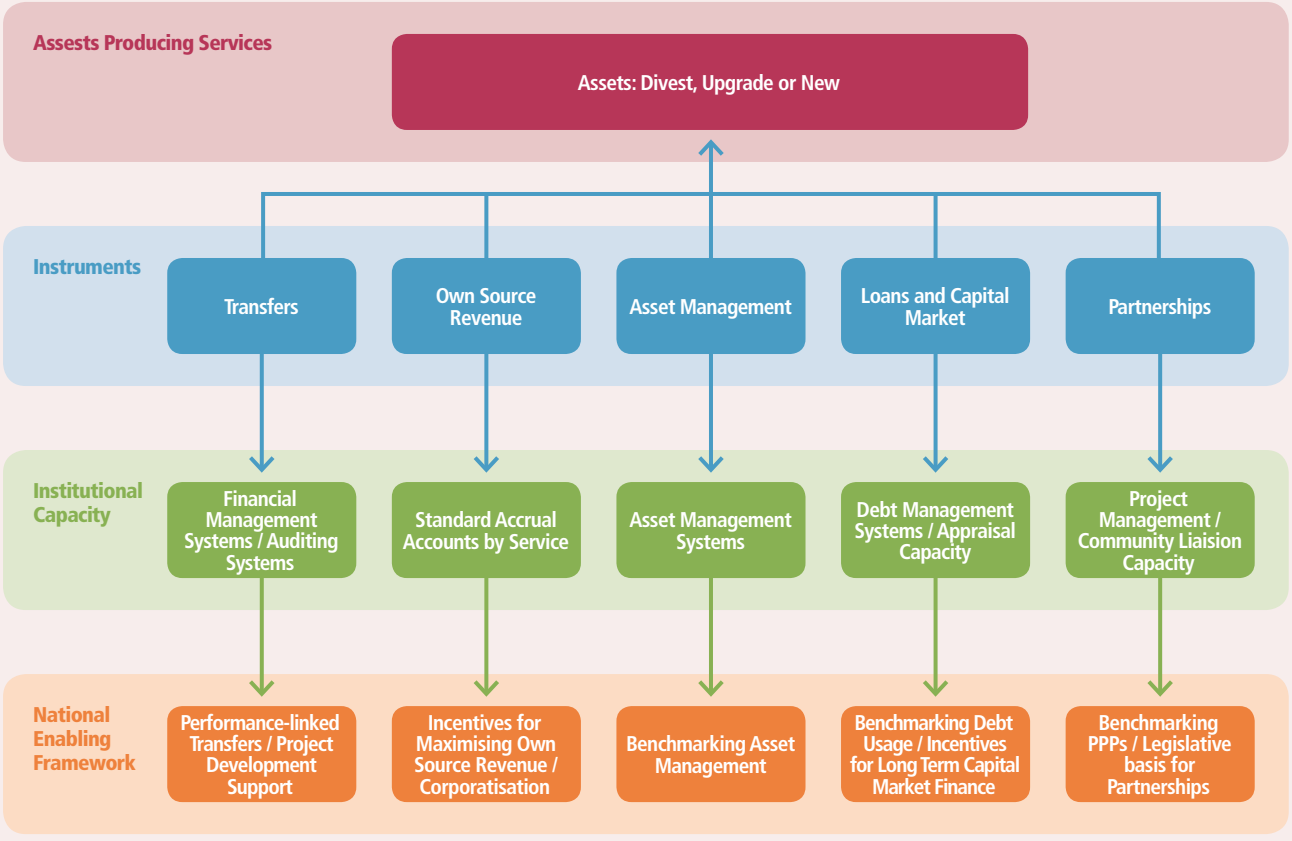
Local governments' responsibilities vary widely in geographic extent, populations covered and mandate. Some jurisdictions fund schools and healthcare; some fund public transport, others do not. Despite the magnitude of current and future challenges, there are replicable examples of good practice in each of the different categories of financing instruments that provide guidance as to the questions urban managers should be asking themselves in each category:

How can cities get the most out of existing revenue sources?

Instruments to maximise own-source revenue

Almost all local governments derive revenue from property taxes, but few use this tax flexibly to pay for specific investments. Potentially there is a 'race to the bottom' in lowering tax rates among competing local governments. This is constrained only when higher levels of government set minimum rates. But the creative use of property taxes can be very effective.

California's Property Assessed Clean Energy (PACE) initiative utilises property taxes to foster



sustainable development in an innovative manner. More often than not, investments in domestic solar photovoltaic systems, energy-efficient windows, and home insulation will not be recovered when the property is sold. The up-front costs are therefore among the most significant barriers to solar and energy efficiency retrofits. Under PACE, property owners can finance energy efficiency and renewable energy measures in homes and commercial buildings by "mortgaging" these improvements and paying them back through property tax levies during the period they own the property.

Similar innovations are possible in other elements of own-source revenue, such as cost recovery through user charges. In Phnom Penh, for instance, many citizens gladly paid charges for the provision of reliable services.

Can cities use their existing assets to develop new assets?

Asset management instruments

While still somewhat in its infancy, better understanding of the utility of asset management is gradually spreading. Cities can leverage the value of their assets - mainly land - to finance public infrastructure. An advantage of land-based financing over other sources is that it usually generates more cash up front.

Auction mechanisms are often used to sell land in developing countries where land valuation systems are lacking. Some countries even use land auctions as a standard element in land management. Land auction data is not widely available, but the three transactions below illustrate the revenue potential:

- In Mumbai, in 2006/7, the auction of 13 hectares of land in the new financial centre generated USD 1.2 billion; more than ten times the total 2005 fiscal spending of the Mumbai Metropolitan Regional Development Authority, and six times the total value of the municipal bonds issued by all urban local bodies and local utilities in India over a decade. The proceeds primarily financed projects identified by the Metropolitan Transportation Plan;

- In Istanbul, in 2007, the auction of an old bus station and government building generated USD 1.5 billion; more than the city's total 2005 fiscal expenditure and infrastructure investments; and

- In Cairo, in 2007, the auction of 3,100 hectares of desert land for a new town generated USD 3.12 billion; an amount 117 times greater than the country's total urban property tax collections and about one-tenth of the national government's annual revenue. The proceeds were used to pay for these new towns' internal infrastructure and to build a connecting highway to Cairo's ring road.

The above examples show how asset management can be very important to municipal budgeting and asset development.

Can innovation, revenue maximisation and efficient use of revenues be encouraged by higher levels of government?

Instruments for managing inter-governmental transfers

Although financial autonomy for local governments should be a priority, in some situations transfers to local governments and area-specific utilities will still be required. These may include population-based block grants - the predominant form of transfers - even though these are often somewhat less than 'transparent'.

Examples of good fund transfer practice exist. The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is a programme sponsored by India's national urban ministries. It covers seven megacities, 28 cities with populations of one to four million, and 28 other large urban centres. Launched in December 2005, it has two lines of funding: "urban infrastructure and governance" (under the Ministry of Urban Development) and "basic services for the urban poor" (administered by the Ministry of Urban Employment and Poverty Alleviation).

To be eligible for funds, urban local bodies (ULBs) and state governments have to undertake a set of mandatory reforms. In the case of ULBs, these include full operations and maintenance cost recovery, and adopting accrual accounting, e-governance, and pro-poor budgeting. Mandatory reform for states includes the repeal or amendment of restrictive or deficient legislation on land use, rent control and regulation of urban services. States and ULBs are also offered incentives to implement optional reforms, such as bylaws to streamline the approval process of construction permits, introduction of a property title certification system, and computerised land and property registration/ administration.

Fund transfer mechanisms can sometimes also be useful for fostering sustainability goals. A performance-based incentive policy addressing such goals was established by the Department of the Interior and Local Government (DILG) of the Philippines. Under this policy, DILG appropriated P500 million (approximately USD 11 million) to the Performance-based Challenge Fund for financing subsidies to qualified LGUs. Specific performance criteria were established in key areas of governance, including planning, fiscal management, transparency and accountability, and performance management. Qualifying LGUs receive one-to-one matching of funds

for investments undertaken in three key elements of sustainability:

- Inclusiveness - attainment of Millennium Development Goals in poorer areas across a broad range of areas (e.g. school buildings, rural health units and centres, birthing facilities, water and sanitation systems, farm-to-market roads, housing and settlements).

- Local economic development (e.g., roads and bridges, tourism facilities, irrigation systems, post-harvest and cold-storage facilities, ports and wharves, and other economic infrastructure and growth-enhancing projects such as markets, slaughterhouses, and water supply systems).

- Environmental sustainability - adaptation to climate change and preparedness for disasters (e.g., flood control, reforestation, solid waste management facilities, storm drainage, dikes and related flood protection measures, slope protection, evacuation centres, rainwater collectors, early warning devices, and rescue equipment).

Who should cities partner with to leverage resources?

Partnership-based instruments
Even though the capacity to engage in partnerships has grown across the region over recent years, partnerships remain under-utilised. Some good replicable examples of cities' partnerships with communities and the private sector exist. For example, the NGO Philippine Business for Social Progress (PBSP) works with local governments to upgrade housing, infrastructure, livelihoods and disaster preparedness in low-income areas through the *Step-Up* project. This project provides small grants partially sourced from Community Social Responsibility contributions and establishes revolving funds for housing upgrading in these communities.

The Cities Development Initiative for Asia, a project preparation facility initiated in the Philippines by the Asian Development Bank (ADB), has helped the local government of Iloilo undertake pre-feasibility studies for its *Downtown CDB Revitalisation Project.* The studies formulated a plan to redevelop the old market and to provide for an improved environment in the city centre. The project was structured as a Public-Private Partnership (PPP) – one of the first at the local government level in the Philippines. Assistance was also extended to supporting the PPP bidding process. The project will improve the amenity and business environment in the CBD; income opportunities for hawkers; hygiene and public health through redevelopment of the public market; solid waste and wastewater management; and air quality through pedestrianisation.

To leverage funding for sustainable development, the city of Chicago has developed an innovative approach known as the Chicago Infrastructure Trust. The Trust, established by the City Council in 2012, is set up as a non-profit entity and aims to leverage some USD 1.7 billion in private funding. City projects funded through the Trust will remain under city control. There will be no asset sales or lifetime-long leases. It is designed to attract private money and pay it back relatively fast - 10 years instead of 90 - so that after one decade the city too can profit from the improvements. The Trust is designed to shift risk away from taxpayers to private investors. Its first project involved USD 101 million worth of energy retrofits in city-owned buildings. The Trust is seeking cash up front from investors, to be paid back over time from the expenditure saved through the improvements.

How can cities overcome the obstacles to borrowing?

Loan-financing instruments
Local governments should have the mandate and be encouraged to borrow for capital expenditure (capex) up to a debt ceiling proportional to their stable cash flow base. Lending can be facilitated by a number of instruments – 'intercepts' of national block transfers as in the Philippines, 'pledging' of a proportion of stable cash flows (such as property tax) as used in the USA, and the 'pooling', or grouping, of local governments in the 'pooled lending' arrangements used in India by the Tamil Nadu Urban Development Fund (TNUDF).

The World Bank-funded Tamil Nadu Urban Development Project set up a loan and grant programme as the Municipal Urban Development Fund (MUDF). In 1996, MUDF was converted into a new and legally autonomous financial intermediary with participation of private capital and management: the Tamil Nadu Urban Development Fund (TNUDF). An asset management company - a joint-venture between the Tamil Nadu government and private investment companies - now manages the fund. A separate grant window for poverty-oriented investments, such as slum upgrading and resettlement costs, is also being handled by the asset management company thus providing technical assistance for the preparation of investments, while also improving their own financial managment.

Even for sustainability goals, many local governments may not borrow. However, support can be available through international and, increasingly, local institutions. The ADB, for instance, is providing partial-credit guarantees to Shanghai Pudong Development Bank (SPD Bank) to support private sector financing of energy-efficient

buildings. Under its Energy Efficiency Multi-Project Financing Program, the ADB is partnering with Johnson Controls, a private sector energy management company listed on the New York Stock Exchange. Johnson Controls identifies buildings with energy-savings potential, while the ADB shares project credit risks with financial institutions. Although improving the energy efficiency of buildings is a high priority for China, companies have found it difficult to access finance for such purposes given the little collateral they can offer. For their part, banks have little experience in financing energy-efficiency projects. Supported by the ADB, SPD Bank was the first PRC domestic bank to offer a full range of green credit solutions to companies.

How can cities access the money in financial institutions?

Instruments for accessing capital markets

Local governments, particularly those with over one million inhabitants, should be able to go to the capital markets to fund capital expenditure. Bonds constitute the most common capital market instrument used by local governments and their financing structures, especially through Special Purpose Vehicles (SPVs) for PPPs. The use of bond funding can provide both additional depth to the capital markets and flexibility in local government finance. China, India, Indonesia, Malaysia, the Philippines, and Thailand, among others, have successfully fostered urban PPP SPVs and have accessed capital markets (both debt and equity). The resultant projects have typically been confined, however, to large (USD 50 million plus) public transport, water supply/waste water, and expressway projects undertaken by big cities.

The Philippine Investment Alliance for Infrastructure (PINAI) fund also illustrates a good practice. It is an unlisted fund dedicated to investing in core infrastructure assets in the Philippines, mostly in urban areas, to catalyse private sector investment in infrastructure and to overcome infrastructure investors' general preference for the 'safer' economies of Europe, North America and Australia. The fund was formed in a reverse order compared with most other infrastructure funds, with the cornerstone investors - the Government Service Insurance System fund, the ADB, and a Dutch pension fund asset manager, firstly coming together before selecting Macquarie Infrastructure and Real Assets (MIRA) to manage the fund. The total size of the fund is USD 625 million.

Examples of capital markets catering for sustainability are increasing. Equity and debt funds structured to attract long-term pension fund investment can and now do invest in green infrastructure – including in cities. Prominently represented in PINAI's portfolio are sustainability projects promoting investments in areas such as public transport and wind farms. Local governments, however, need to develop the capacity to bring viable projects to the market.

Financing sustainable urban infrastructure

The challenge of sustainability

Most local governments have neither the funding mandate nor access to the capital required to foster a more sustainable economy or even to put in place environmentally friendly infrastructure. Such investments are, at least in terms of initial capital costs, often more expensive than' business-as-usual'. Justifying procurement of more expensive LNG-fuelled buses rather than standard diesel buses, for instance, may be difficult, especially in the context of widespread shortfalls in services to the poor.

Investments needed in the Asia and Pacific region to adapt to climate change are estimated to require

Chicago has set up a special Infrastructure Trust to leverage private finance while retaining ownership of projects © Bert Kaufmann

about USD 40 billion annually to 2030, about half of which will be needed for infrastructure, while sustainable energy efficiency investments through 2030 are estimated at another USD 1 trillion. But the investments needed to build a sustainable economy go beyond conventional infrastructure needs. The structure of a sustainable economy needs to price resources at the true cost of life-cycle usage and must favour industrial ecology approaches to development, such as the Chinese 'Circular Economy' concept. The underlying infrastructures and systems to achieve such economic restructuring do not come cheap. Furthermore, restructuring must also address the growing and divisive inequality in income and opportunity that affects many societies in Asia and the Pacific. Large investments in human capital and basic infrastructure are also required.

Institutional design for sustainability

Aside from the regulatory and administrative changes needed to deliver the range of financing instruments set out above, significant institutional reform needs to be undertaken to assure better accountability, integrated approaches, and long-term perspectives. Current institutions, even in high-income countries, generally deliver none of these requirements because political systems and their institutions are not structured for this; particularly those charged with delivering urban services. Better accountability and transparency are essential, if only to achieve the political support needed for a sustainable development agenda. But this is also to ensure that vested interests do not frustrate the effort.

Sustainable urban development would imply, among others, denser, highly connected and energy efficient housing and industry. But the development of such an urban form, both in expansion areas and through retrofitting in existing urban areas, requires integration of service provision. This, in turn, requires greater coordination across institutions that were designed to address problems of another era. Finally, there is also need for planning and continuity over longer time spans - 10 to 15 years at least - which is often beyond the political horizon of current governments.

Different national circumstances obviously require different institutional configurations, but a general typology is a two-tiered set of scale-related institutions:

- At the level of the urban region, an independent oversight planning body takes the regional ecosystems and economic hinterland into account in the planning process; and

- At the scale of the local area and/or urban corridor, an independent implementation agency incorporates stakeholder representation into its governance structure.

Since combining holistic local governance within the built up area of a city is difficult enough as it is, to adequately manage the environmental footprint and enhance the resilience of a city, the economic hinterland and water basin areas need to be included under the authority of a 'urban region' management entity. But mandates and capacities comprehensive enough to also cover such territories are almost non-existent. Exceptions are the Citarum Basin in Indonesia (Jakarta's main water source) and, in the case of economic regions, in Chinese development regions such as the Pearl River Delta. However, even in these cases the planning and coordination mechanisms leave gaps. A much more effective example is the Stuttgart Region, Germany.

The Greater Stuttgart Region was assigned the status of a public entity in 1994 with core competences and a governance model defined by law. The region is composed of 179 municipalities, including the core-city of Stuttgart. A directly elected Regional Assembly with urban and rural representation ensures local democracy. Cooperation of the region's urban and rural parts in transport and economic issues establishes urban-rural linkages for mutual benefit. Three key competences are assigned to a regional entity *Verband Region Stuttgart* - a dedicated development corporation financed, among others, by transport revenues and mandatory contributions of the 179 municipalities: a) Regional land-use planning; b) Public transport development; and c) Economic development. The details of this regional cooperation can be found at http://www.region-stuttgart.org/.

The core attributes of successful development companies are well known. They need a corporate structure with the mandate to enter into contracts (specifically buying and selling land and other property); sufficient capitalisation or ownership of real property to fund at least initial investments; the ability to tap adequate revenue streams related to its area of development over the long term; eminent domain powers (if not of their own then reliably exercised by another entity); and a governance structure inclusive of all key stakeholders. Development corporations provided with such powers are the exception rather than the rule.

Linking taxes to outcomes

Revenue streams can include a wide array of surcharges on existing taxes justified by the

improved amenities resulting from the investments. While surcharges on national and state or provincial taxes are possible, local taxes directly related to those properties increasing in value are preferable and easier to administer. Property taxes and surcharges, an instrument available to most local governments, may also be used to foster a wide range of environmental investments. Differential rates for more and less energy-efficient buildings are also possible, as are surcharges to recover the cost of energy efficient investments, although these need higher levels of management capacity.

Property taxes, justified by the differential costs of repairing infrastructure, can also be varied to encourage people to move away from vulnerable areas. This principle can also be applied to persuade industry to move to dedicated industrial parks where recycling and other environmental infrastructure is in place. Administrative fees, for example on vehicles, can be used to promote more energy efficient mobility modes. Utility charges can reflect the efforts households put into saving resources, such as rebates for water-saving fittings and for recycling. At the far end of the spectrum, requiring high orders of political support, management and enforcement capacity, Tokyo and some other local governments have introduced a local carbon tax.

It is important that taxes and the resultant benefits from investments funded by these taxes are clearly linked. Such linkages improve both the efficiency of funds' use and, bolstered by the presence of local representatives in the governance structure of the implementing entity, the political acceptability of taxation. Experience in countries as diverse as Cambodia, the Philippines and Japan has shown that people are willing to pay more (within reason) for better services.

Financing the future city

Reversing ineffective incentive structures and lack of local government funding options requires a comprehensive redevelopment of the current urban fiscal space in Asia and the Pacific. Given the huge variety of urban systems - from the mega-urban region of the Yangzi River Delta with 65 million people centred on Shanghai to Apia, Samoa, with a population of just 38,000 and consisting of 45 relatively autonomous villages - there is a need to move away from old fiscal models and 'one-size-fits-all' approaches. Fiscal models should move towards systems based on clear principles and guidelines which allow room for innovation and adaptation to local circumstances.

untied transfers. In the medium term, urban finance systems need to become more supportive to investment, both public and private, geared towards more sustainable and inclusive urban development.

The Republic of Korea's incentive finance schemes provide a model and, in developing countries, international funds such as the Global Environmental Facility and the Green Climate Fund can be used. International finance institutions and development assistance agencies have significant funds for climate-related interventions. The United Nations Environment Programme Finance Initiative (UNEPFI) has developed models of how both domestic and international capital markets can be tapped for this purpose.

Incremental change towards more effective fiscal policy is necessary and possible, but it is critical that the discussion among stakeholders on the best ways forward should begin now

Incremental change towards more effective fiscal policy is necessary and possible, but it is critical that the discussion among stakeholders on the best ways forward should begin now.

Today's solutions for financing urban development will in large part determine the shape of tomorrow's cities. Given the large capital outlays involved, a wrong decision today may lock a city or urban region for decades on a development path that may be regretted in the future. If we want our cities to be more sustainable and resilient, there is a pressing need for national governments to put the issue of financing urban development at the top of the reform agenda.

In the short term, incentives can be built into existing inter-governmental transfers over and above minimum mandated

It is widely recognised that cities are now critical to national and indeed global economic and development outcomes. But for many, their strong façade masks fiscal fragility. Addressing this will be key to harnessing urban transformations through this century. Effective regional dialogue on sustainable urban financing policy is therefore urgently needed, focusing on improving enabling frameworks and on implementation of concrete measures within the capacity and mandate of sub-national and local governments. Without such change, the region's urban financial capacities may be overwhelmed by the gargantuan challenges at hand.

*Michael Lindfield is an Independent Urban Consultant

Table 1 **Population of urban and rural areas at mid-year (thousands) and percentage urban, 2014**

Major area, region, country or area	Urban	Rural	Total	Percentage urban
World	**3,880,128**	**3,363,656**	**7,243,784**	**53.6**
Asia Pacific	**2,069,702**	**2,273,013**	**4,342,715**	**47.7**
East and North-East Asia	**942,356**	**663,682**	**1,606,038**	**58.7**
China	758,360	635,424	1,393,784	54.4
Democratic People's Republic of Korea	15,195	9,832	25,027	60.7
Hong Kong, China	7,260	0	7,260	100.0
Japan	118,136	8,864	127,000	93.0
Macao, China	575	0	575	100.0
Mongolia	2,052	829	2,881	71.2
Republic of Korea	40,778	8,734	49,512	82.4
South-East Asia	**294,409**	**331,573**	**625,982**	**47.0**
Brunei Darussalam	325	98	423	76.9
Cambodia	3,161	12,247	15,408	20.5
Indonesia	133,999	118,813	252,812	53.0
Lao People's Democratic Republic	2,589	4,305	6,894	37.6
Malaysia	22,342	7,846	30,188	74.0
Myanmar	18,023	35,696	53,719	33.6
Philippines	44,531	55,566	100,096	44.5
Singapore	5,517	0	5,517	100.0
Thailand	33,056	34,167	67,223	49.2
Timor-Leste	370	782	1,152	32.1
Viet Nam	30,495	62,053	92,548	33.0
South and South-West Asia	**664,417**	**1,182,902**	**1,847,319**	**36.0**
Afghanistan	8,221	23,059	31,281	26.3
Bangladesh	53,127	105,386	158,513	33.5
Bhutan	290	475	766	37.9
India	410,204	857,198	1,267,402	32.4
Islamic Republic of Iran	57,170	21,301	78,470	72.9
Maldives	156	195	,352	44.5
Nepal	5,130	22,991	28,121	18.2
Pakistan	70,912	114,221	185,133	38.3
Sri Lanka	3,929	17,517	21,446	18.3
Turkey	55,279	20,559	75,837	72.9
North and Central Asia	**141,047**	**83,515**	**224,562**	**62.8**
Armenia	1,874	1,110	2,984	62.8
Azerbaijan	5,172	4,343	9,515	54.4
Georgia	2,311	2,011	4,323	53.5
Kazakhstan	8,850	7,757	16,607	53.3
Kyrgyzstan	2,002	3,623	5,625	35.6
Russian Federation	105,318	37,149	142,468	73.9
Tajikistan	2,245	6,164	8,409	26.7
Turkmenistan	2,637	2,670	5,307	49.7
Uzbekistan	10,638	18,686	29,325	36.3

Pacific	**27,473**	**11,341**	**38,814**	**70.8**
American Samoa	48	7	55	87.3
Australia	21,099	2,531	23,630	89.3
Cook Islands (the)	15	5	21	74.3
Fiji	473	414	887	53.4
French Polynesia	157	123	280	56.0
Guam	158	9	168	94.4
Kiribati	46	58	104	44.2
Marshall Islands	38	15	53	72.4
Federated States of Micronesia	23	81	104	22.4
Nauru	10	0	10	100.0
New Caledonia	181	79	260	69.7
New Zealand	3,926	626	4,551	86.3
Niue	1	1	1	41.8
Northern Mariana Islands (the)	49	6	55	89.3
Palau	18	3	21	86.5
Papua New Guinea	971	6,505	7,476	13.0
Samoa	37	155	192	19.3
Solomon Islands	125	448	573	21.9
Tonga	25	81	106	23.6
Tuvalu	6	4	10	58.8
Vanuatu	67	192	258	25.8

Source: WUP 2014

Table 2 **Total population by major area, region and country, 1950-2050**

Major area, region or country	1950	1960	1970	1980	1990	2000	2010	2020*	2030*	2040*	2050*
World	**2,525,779**	**3,026,003**	**3,691,173**	**4,449,049**	**5320817**	**6,127,700**	**6,916,183**	**7,716,749**	**8,424,937**	**9,038,687**	**9,550,945**
Asia Pacific	**1,538,670**	**1,791,386**	**2,225,335**	**2,722,532**	**3,289,971**	**3,769,016**	**4,179,470**	**4,561,831**	**4,835,313**	**5,000,012**	**5,058,883**
East and North-East Asia	**715,906**	**783,882**	**969,421**	**1,161,741**	**1,359,183**	**1,484,625**	**1,570,426**	**1,646,075**	**1,664,805**	**1,641,718**	**1,583,970**
China	543,776	650,680	814,378	984,016	1,165,429	1,280,429	1,359,821	1,432,868	1,453,297	1,435,499	138,4977
Democratic People's Republic of Korea	10,549	11,424	14,410	17,372	20,194	22,840	24,501	25,766	26,719	27,086	27,076
Hong Kong, China	1,974	3,076	3,958	5,054	5,794	6,835	7,050	7,550	7,885	8,004	8,004
Japan	82,199	92,501	103,708	115,912	122,249	125,715	127,353	125,382	120,625	114,517	108,329
Macao, China	196	171	251	246	360	432	535	626	702	755	797
Mongolia	780	956	1,279	1,690	2,184	2,397	2,713	3,114	3,388	3,587	3,753
Republic of Korea	19,211	25,074	31,437	37,451	42,972	45,977	48,454	50,769	52,190	52,270	51,034
South-East Asia	**167,986**	**214,941**	**281,123**	**356,606**	**443,735**	**524,410**	**597,097**	**666,110**	**722,790**	**763,854**	**787,535**
Brunei Darussalam	48	82	130	193	257	332	401	454	499	532	546
Cambodia	4,433	5,720	7,022	6,699	9,057	12,223	14,365	16,947	19,144	21,023	22,569
Indonesia	72,592	88,693	114,067	145,494	178,633	208,939	240,676	269,413	293,482	311,334	321,377
Lao People's Democratic Republic	6,110	8,161	10,909	13,834	4,245	5,388	6,396	7,651	8,806	9,791	10,579

Malaysia	6,110	8,161	10,909	13,834	18,211	23,421	28,276	32,858	36,846	39850	42113
Myanmar	17,527	21,486	27,166	34,475	42,123	48,453	51,931	56,125	58,698	59410	58645
Philippines	18,580	26,272	35,805	47,398	61,949	77,652	93,444	110,404	127,797	143516	157118
Singapore	1,022	1,634	2,074	2,415	3,016	3,918	5,079	6,057	6,578	6904	7065
Thailand	20,607	27,362	36,879	47,369	56,583	62,343	66,402	67,858	67,554	65520	61740
Timor-Leste	433	500	604	581	751	854	1,079	1,286	1,555	1820	2087
Viet Nam	24,949	32,912	43,783	54,897	68,910	80,888	89,047	97,057	101,830	104155	103697
South and South-West Asia	**514,037**	**622,713**	**779,557**	**987,409**	**1,245,642**	**1,511,026**	**1,753,545**	**1,979,897**	**2,172,305**	**2315758**	**2406632**
Afghanistan	7,451	8,774	11,016	13,180	11,731	20,595	28,398	35,667	43,500	50834	56551
Bangladesh	37,895	49,537	66,309	82,498	107,386	132,383	151,125	169,566	185,064	195861	201948
Bhutan	177	224	292	413	536	564	717	822	898	950	980
India	376,325	449,595	555,200	698,966	868,891	1,042,262	1,205,625	1353,305	1,476,378	1,565,509	1,620,051
Islamic Republic of Iran	17,119	21,958	28,607	38,890	56,362	65,911	74,462	84,149	91,336	96,772	100,598
Maldives	74	89	114	154	216	273	326	388	436	473	504
Nepal	8,140	9,545	11,559	14,385	18,111	23,184	26,846	30,001	32,853	35,053	36,479
Pakistan	37,542	45,541	59,204	79,984	111,091	143,832	173,149	203,351	231,744	254,769	271,082
Sri Lanka	8,076	9,895	12,485	15,033	17,324	18,846	20,759	22,338	23,271	23,759	23,834
Turkey	21,238	27,553	34,772	43,906	53,995	63,174	72,138	80,309	86825	91,778	946,06
North and Central Asia	**128,075**	**154,085**	**175,565**	**193,821**	**214,457**	**217,747**	**221759**	**227697**	**228,111**	**226,466**	**223,886**
Armenia	1,354	1,867	2,518	3,096	3,545	3,076	2963	2991	2,970	2,901	2,782
Azerbaijan	2,896	3,898	5,178	6,164	7,217	8,118	9095	10030	10,474	10,614	10,492
Georgia	3,527	4,160	4,707	5,073	5,460	4,744	4389	4202	3,953	3,738	3,563
Kazakhstan	6,703	9,714	12,757	14,519	16,172	14,576	15921	17519	18,573	19,441	20,186
Kyrgyzstan	1,740	2,173	2,964	3,627	4,395	4,955	5334	6162	6,871	7,429	7,976
Russian Federation	102,799	120,057	130,358	138,536	148,149	146,763	143618	140011	133,556	127,005	120,896
Tajikistan	1,532	2,064	2,920	3,918	5,297	6,186	7627	9602	11,407	13,214	15,093
Turkmenistan	1,211	1,594	2,188	2,861	3,668	4,501	5,042	5,685	6,160	6,438	6,570
Uzbekistan	6,314	8,559	11,973	16,027	20,555	24,829	27,769	31,495	34,147	35,687	36,330
Pacific	**12,666**	**15,765**	**19,670**	**22,955**	**26,954**	**31,208**	**36,644**	**42,052**	**47,302**	**52,217**	**56,860**
American Samoa	19	20	27	32	47	58	56	57	61	62	62
Australia	8,177	10,292	12,905	14,708	17,097	19,259	22,404	25,440	28,336	31,045	33,735
Cook Islands (the)	15	18	21	18	18	18	20	21	22	23	24
Fiji	289	393	521	635	728	812	861	916	939	940	918
French Polynesia	60	78	110	152	198	237	268	296	318	331	337
Guam	60	67	84	104	130	155	159	180	200	215	227
Kiribati	26	33	44	55	71	83	98	114	131	144	156
Marshall Islands	13	15	20	31	47	52	52	55	58	64	67
Federated States of Micronesia	32	45	61	73	96	107	104	110	121	127	130
Nauru	3	4	6	7	9	10	10	10	11	11	11
New Caledonia	65	78	105	142	169	210	246	280	312	340	364
New Zealand	1,908	2,372	2,820	3,147	3,398	3,858	4,368	4,814	5,208	5,521	5,778
Niue	5	5	5	3	2	2	1	1	1	1	1
Northern Mariana Islands (the)	7	10	13	17	44	68	54	56	57	55	52
Palau	7	10	11	12	15	19	20	22	25	27	28
Papua New Guinea	1,708	1,967	2,435	3,215	4,158	5,379	6,859	8,422	10,044	11,634	13,092
Samoa	82	109	143	156	163	175	186	199	211	229	242
Solomon Islands	90	118	160	231	312	412	526	643	764	891	1,010

Tonga	47	62	84	93	95	98	104	111	121	132	140
Tuvalu	5	6	7	8	9	9	10	10	11	11	12
Vanuatu	48	64	85	116	147	185	236	292	352	414	473

Source: WUP 2014
*Projections

Table 3 **Urban population at mid year by major area, region or country, 1950-2050 (thousands)**

Major area, region or country	1950	1960	1970	1980	1990	2000	2010	2020*	2030*	2040*	2050*
World	**746,481**	**1,019,495**	**1,350,281**	**1,749,539**	**2,285,031**	**2,856,131**	**3,571,272**	**4,338,015**	**5,058,158**	**5,715,413**	**6,338,611**
Asia Pacific	**289,868**	**419,760**	**576188**	**786,606**	**1,101,230**	**1,439,528**	**1,881,721**	**2,337,026**	**2,716,,028**	**3,004,754**	**3,230,164**
East and North-East Asia	**117,478**	**178,619**	**241,142**	**315,652**	**453,606**	**617,070**	**848,539**	**1,062,530**	**1,188,576**	**1,231,219**	**1,231,929**
China	64,180	105,427	141,702	190,483	308,167	459,383	669,386	874,427	998,925	1,044,395	1,049,948
Democratic People's Republic of Korea	3,270	4,592	7,810	9,885	11,790	13,570	14,752	15,942	17,308	18,549	19,507
Hong Kong, China	1,682	2,621	3,472	4,623	5,766	6,835	7,050	7,550	7,885	8,004	8,004
Japan	43,896	58,527	74,542	88,297	94,546	98,873	115,282	119,444	116,918	111,532	105,784
Macao, China	190	163	244	243	359	432	535	626	702	755	797
Mongolia	156	341	576	880	1,246	1,370	1,833	2,355	2,724	2,974	3,181
Republic of Korea	4,102	6,948	12,796	21,242	31,732	36,607	39,701	42,185	44,114	45,011	44,709
South-East Asia	**26,066**	**39,895**	**60,460**	**90,955**	**140,164**	**199,681**	**265,801**	**336,822**	**403,284**	**460,205**	**507,725**
Brunei Darussalam	13	36	80	116	169	236	302	357	403	438	458
Cambodia	452	588	1,121	663	1,408	2,272	2,846	3,723	4,900	6,433	8,167
Indonesia	9,001	12,936	19,473	32,161	54,634	87,759	120,154	154,164	184,912	209,153	227,770
Lao People's Democratic Republic	122	168	258	402	655	1,184	2,118	3,332	4,479	5,473	6,435
Malaysia	1,244	2,171	3,649	5,816	9,068	14,515	20,051	25,544	30,182	33,534	36,163
Myanmar	2,832	4,131	6,202	8,264	10,350	13,067	16,309	20,709	25,095	29,002	32,206
Philippines	5,042	7,959	11,808	17,765	30,101	37,238	42,288	48,865	59,220	73,335	88,381
Singapore	1,016	1,634	2,074	2,415	3,016	3,918	5,079	6,057	6,578	6,904	7,065
Thailand	3,396	5,383	7,704	12,691	16,649	19,570	29,270	37,894	43,135	44,703	44,335
Timor-Leste	43	50	78	96	157	207	319	461	638	816	1,007
Viet Nam	2,904	4,838	8,012	10,566	13,958	19,715	27,064	35,716	43,743	50,413	55,739
South and South-West Asia	**84,212**	**111,985**	**158,716**	**240,536**	**348,048**	**461,584**	**601,619**	**764,738**	**944,030**	**1,124,405**	**1,292,799**
Afghanistan	432	721	1,270	2,067	2,149	4,383	7,011	10,321	14,788	20,094	25,642
Bangladesh	1,623	2,544	5,035	12,252	21,275	31,230	46,035	64,480	83,160	98,935	112,443
Bhutan	4	8	18	42	88	143	249	347	430	491	539
India	64,134	80,586	109,709	161,446	221,979	288,365	372,902	470,726	583,038	701,358	814,399
Islamic Republic of Iran	4,716	7,408	11,789	19,326	31,749	42,211	52,590	63,739	72,544	79,231	84,358
Maldives	8	10	14	34	56	76	130	194	245	281	315
Nepal	218	332	457	876	1,604	3,114	4,516	6,177	8,235	10,547	12,979
Pakistan	6,578	10,066	14,693	22,448	33,967	47,687	63,370	83,764	107,880	132,548	155,747
Sri Lanka	1,238	1,626	2,436	2,823	32,16	3,476	3,803	4,194	4,868	5,944	7,190

Turkey	5,262	8,683	13,295	19,222	31,966	40,900	51,012	60,797	68,842	74,977	79,189
North and Central Asia	**54,207**	**78,678**	**101,831**	**123,081**	**140,353**	**139,178**	**139,840**	**143,117**	**146,392**	**151,223**	**155,903**
Armenia	546	958	1 508	2 045	2,390	1,989	1,884	1,864	1,885	1,937	1,961
Azerbaijan	1,323	2,053	2,589	3,253	3,879	4,171	4,857	5,627	6,259	6,789	7,136
Georgia	1,302	1,792	2,260	2,663	3,005	2,497	2,320	2,298	2,282	2,309	2,350
Kazakhstan	2,437	4,294	6,409	7,861	9,099	8,123	8,555	9,360	10,357	11,691	13,034
Kyrgyzstan	461	743	1,111	1,401	1,660	1,749	1,883	2,257	2,754	3,365	4,052
Russian Federation	45,321	64,508	81,436	96,631	108,732	107,650	105,828	104,399	101,944	100,000	98,040
Tajikistan	450	685	1,077	1,343	1,677	1,638	2,022	2,642	3,473	4,671	6,185
Turkmenistan	544	740	1,046	1,347	1,653	2,067	2,440	2,953	3,473	3,930	4,303
Uzbekistan	1,823	2,908	4,396	6,536	8,257	9,293	10,050	11,717	13,964	16,531	18,842
Pacific	**7,906**	**10,584**	**14,040**	**16,383**	**19,059**	**22,013**	**25,924**	**29,818**	**33,747**	**37,702**	**41,807**
American Samoa	12	13	19	24	38	51	49	50	53	55	55
Australia	6,297	8,391	11,003	12,614	14,601	16,787	19,880	22,910	2,5835	28,593	31,346
Cook Islands (the)	6	8	11	9	10	12	15	16	17	19	20
Fiji	70	117	181	240	303	389	446	509	554	583	597
French Polynesia	20	33	61	90	115	133	151	165	180	195	209
Guam	25	33	52	98	118	145	150	171	191	207	218
Kiribati	3	5	11	18	25	36	43	51	62	74	85
Marshall Islands	3	5	11	18	31	36	37	41	44	50	54
Federated States of Micronesia	6	10	15	19	25	24	23	25	29	35	39
Nauru	3	4	6	7	9	10	10	10	11	11	11
New Caledonia	16	29	54	81	100	130	166	203	238	267	293
New Zealand	1,384	1,803	2,287	2,626	2,880	3,305	3,764	4,166	4,550	4,890	5,187
Niue	1	1	1	1	1	1	1	1	1	1	1
Northern Mariana Islands (the)	3	5	9	15	39	62	48	50	51	50	47
Palau	4	5	7	8	11	13	17	20	23	25	26
Papua New Guinea	29	73	239	420	623	710	893	1120	1503	2131	2976
Samoa	11	21	29	33	35	38	37	37	40	47	57
Solomon Islands	3	7	14	24	43	65	106	158	218	284	355
Tonga	6	11	17	20	22	23	24	27	31	38	45
Tuvalu	1	1	2	2	4	4	5	6	7	8	9
Vanuatu	4	7	11	17	27	40	58	81	109	141	177

Source: WUP 2014 F3
*Projections

Table 4 **Percentage of population residing in urban areas by major area, region and country, 1950-2050**

Major area, region or country	1950	1960	1970	1980	1990	2000	2010	2020*	2030*	2040*	2050*
World	**29.6**	**33.7**	**36.6**	**39.3**	**42.9**	**46.6**	**51.6**	**56.2**	**60.0**	**63.2**	**66.4**
Asia Pacific	**19.6**	**23.4**	**25.9**	**28.9**	**33.5**	**38.2**	**45.0**	**51.2**	**56.2**	**60.1**	**63.9**
East and North-East Asia	**17.8**	**22.8**	**24.9**	**27.2**	**33.4**	**41.6**	**54.0**	**64.5**	**71.4**	**75.0**	**77.8**

China	11.8	16.2	17.4	19.4	26.4	35.9	49.2	61.0	68.7	72.8	75.8
Democratic People's Republic of Korea	31.0	40.2	54.2	56.9	58.4	59.4	60.2	61.9	64.8	68.5	72.0
Hong Kong, China	85.2	85.2	87.7	91.5	99.5	100.0	100.0	100.0	100.0	100.0	100.0
Japan	53.4	63.3	71.9	76.2	77.3	78.6	90.5	95.3	96.9	97.4	97.7
Macao, China	96.9	95.3	97.0	98.5	99.8	100.0	100.0	100.0	100.0	100.0	100.0
Mongolia	20.0	35.7	45.1	52.1	57.0	57.1	67.6	75.6	80.4	82.9	84.8
Republic of Korea	21.4	27.7	40.7	56.7	73.8	79.6	81.9	83.1	84.5	86.1	87.6
South-East Asia	**15.5**	**18.6**	**21.5**	**25.5**	**31.6**	**38.1**	**44.5**	**50.6**	**55.8**	**60.2**	**64.5**
Brunei Darussalam	26.8	43.4	61.7	59.9	65.8	71.2	75.5	78.6	80.7	82.4	84.0
Cambodia	10.2	10.3	16.0	9.9	15.5	18.6	19.8	22.0	25.6	30.6	36.2
Indonesia	12.4	14.6	17.1	22.1	30.6	42.0	49.9	57.2	63.0	67.2	70.9
Lao People's Democratic Republic	7.2	7.9	9.6	12.4	15.4	22.0	33.1	43.5	50.9	55.9	60.8
Malaysia	20.4	26.6	33.5	42.0	49.8	62.0	70.9	77.7	81.9	84.2	85.9
Myanmar	16.2	19.2	22.8	24.0	24.6	27.0	31.4	36.9	42.8	48.8	54.9
Philippines	27.1	30.3	33.0	37.5	48.6	48.0	45.3	44.3	46.3	51.1	56.3
Singapore	99.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Thailand	16.5	19.7	20.9	26.8	29.4	31.4	44.1	55.8	63.9	68.2	71.8
Timor-Leste	9.9	10.1	12.9	16.5	20.8	24.3	29.5	35.8	41.0	44.8	48.3
Viet Nam	11.6	14.7	18.3	19.2	20.3	24.4	30.4	36.8	43.0	48.4	53.8
South and South-West Asia	**16.4**	**18.0**	**20.4**	**24.4**	**27.9**	**30.5**	**34.3**	**38.6**	**43.5**	**48.6**	**53.7**
Afghanistan	5.8	8.2	11.5	15.7	18.3	21.3	24.7	28.9	34.0	39.5	45.3
Bangladesh	4.3	5.1	7.6	14.9	19.8	23.6	30.5	38.0	44.9	50.5	55.7
Bhutan	2.1	3.6	6.1	10.1	16.4	25.4	34.8	42.2	47.9	51.7	55.0
India	17.0	17.9	19.8	23.1	25.5	27.7	30.9	34.8	39.5	44.8	50.3
Islamic Republic of Iran	27.5	33.7	41.2	49.7	56.3	64.0	70.6	75.7	79.4	81.9	83.9
Maldives	10.6	11.2	11.9	22.3	25.8	27.7	40.0	50.2	56.2	59.4	62.5
Nepal	2.7	3.5	4.0	6.1	8.9	13.4	16.8	20.6	25.1	30.1	35.6
Pakistan	17.5	22.1	24.8	28.1	30.6	33.2	36.6	41.2	46.6	52.0	57.5
Sri Lanka	15.3	16.4	19.5	18.8	18.6	18.4	18.3	18.8	20.9	25.0	30.2
Turkey	24.8	31.5	38.2	43.8	59.2	64.7	70.7	75.7	79.3	81.7	83.7
North and Central Asia	**42.3**	**51.1**	**58.0**	**63.5**	**65.4**	**63.9**	**63.1**	**62.9**	**64.2**	**66.8**	**69.6**
Armenia	40.3	51.3	59.9	66.1	67.4	64.7	63.6	62.3	63.5	66.8	70.5
Azerbaijan	45.7	52.7	50.0	52.8	53.7	51.4	53.4	56.1	59.8	64.0	68.0
Georgia	36.9	43.1	48.0	52.5	55.0	52.6	52.9	54.7	57.7	61.8	66.0
Kazakhstan	36.4	44.2	50.2	54.1	56.3	55.7	53.7	53.4	55.8	60.1	64.6
Kyrgyzstan	26.5	34.2	37.5	38.6	37.8	35.3	35.3	36.6	40.1	45.3	50.8
Russian Federation	44.1	53.7	62.5	69.8	73.4	73.4	73.7	74.6	76.3	78.7	81.1
Tajikistan	29.4	33.2	36.9	34.3	31.7	26.5	26.5	27.5	30.4	35.4	41.0
Turkmenistan	45.0	46.4	47.8	47.1	45.1	45.9	48.4	51.9	56.4	61.0	65.5
Uzbekistan	28.9	34.0	36.7	40.8	40.2	37.4	36.2	37.2	40.9	46.3	51.9
Pacific	**62.4**	**67.1**	**71.4**	**71.4**	**70.7**	**70.5**	**70.7**	**70.9**	**71.3**	**72.2**	**73.5**
American Samoa	61.8	66.2	70.4	74.3	80.9	88.6	87.6	87.0	87.3	88.3	89.4
Australia	77.0	81.5	85.3	85.8	85.4	87.2	88.7	90.1	91.2	92.1	92.9
Cook Islands (the)	38.0	46.5	53.3	53.8	57.7	65.2	73.3	75.7	77.9	79.9	81.6
Fiji	24.4	29.7	34.8	37.8	41.6	47.9	51.8	55.6	59.0	62.0	65.0
French Polynesia	33.3	42.3	55.2	59.0	57.9	56.1	56.5	55.7	56.5	59.1	62.1
Guam	41.3	50.1	61.9	93.8	90.8	93.1	94.1	94.9	95.5	95.9	96.3

Kiribati	11.0	16.3	24.1	32.3	35.0	43.0	43.8	45.1	47.8	51.1	54.5
Marshall Islands	23.3	35.6	53.5	58.3	65.1	68.4	71.3	73.9	76.1	78.2	78.2
Federated States of Micronesia	20.0	22.3	24.8	26.4	25.8	22.3	22.3	22.8	24.4	27.2	27.2
Nauru	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New Caledonia	24.6	37.4	51.2	57.4	59.5	61.8	67.3	72.7	76.2	78.4	78.4
New Zealand	72.5	76.0	81.1	83.4	84.7	85.7	86.2	86.5	87.4	88.6	88.6
Niue	21.5	21.5	21.1	27.0	30.9	33.1	38.7	46.1	51.8	55.6	55.6
Northern Mariana Islands (the)	42.0	51.2	70.1	86.8	89.7	90.1	89.5	89.2	89.5	90.4	90.4
Palau	53.9	56.8	59.7	62.5	69.6	70.0	83.4	89.4	91.6	92.4	92.4
Papua New Guinea	1.7	3.7	9.8	13.0	15.0	13.2	13.0	13.3	15.0	18.3	18.3
Samoa	12.9	18.9	20.4	21.2	21.2	22.0	20.1	18.6	18.8	20.7	20.7
Solomon Islands	3.8	5.8	8.9	10.6	13.7	15.8	20.0	24.5	28.6	31.9	31.9
Tonga	12.9	17.6	20.2	21.2	22.7	23.0	23.4	24.2	26.0	28.7	28.7
Tuvalu	11.2	15.9	22.1	29.8	40.7	46.0	54.8	63.9	69.9	73.2	73.2
Vanuatu	8.8	10.4	12.3	14.7	18.7	21.7	24.6	27.7	30.9	34.2	34.2

Source: WUP 2014, ESCAP SD table_01 - Urban population, share of total population - 1950-2050
*Projections

Table 5 **Average Annual Rate of Change of the Urban Population by Major Area, Region and Country, 1950-2050 (percent)**

Major area, region or country	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010	2010-2020*	2020-2030*	2030-2040*	2040-2050*
World	**3.17**	**2.85**	**2.62**	**2.71**	**2.26**	**2.26**	**1.96**	**1.55**	**1.23**	**1.04**
Asia Pacific	**3.34**	**2.96**	**2.79**	**2.93**	**2.41**	**2.41**	**2.04**	**1.54**	**1.15**	**0.93**
East and North-East Asia	**4.28**	**3.05**	**2.73**	**3.69**	**3.13**	**3.24**	**2.27**	**1.13**	**0.35**	**0.01**
China	5.09	3.01	3.00	4.93	4.07	3.84	2.71	1.34	0.45	0.05
Democratic People's Republic of Korea	4.53	2.87	2.90	2.24	1.72	0.31	0.69	0.44	0.15	0.00
Hong Kong, China	-1.52	4.07	-0.04	3.99	1.87	2.16	1.60	1.14	0.74	0.54
Japan	3.47	5.46	2.39	1.78	1.42	0.84	0.78	0.83	0.69	0.51
Macao, China	2.92	2.45	1.71	0.69	0.45	1.55	0.36	-0.21	-0.47	-0.53
Mongolia	8.13	5.39	4.33	3.54	0.95	2.96	2.54	1.47	0.88	0.68
Republic of Korea	5.41	6.30	5.20	4.10	1.44	0.81	0.61	0.45	0.20	-0.07
South-East Asia	**4.35**	**4.24**	**4.17**	**4.42**	**3.60**	**2.90**	**2.40**	**1.82**	**1.33**	**0.99**
Brunei Darussalam	10.71	8.46	3.75	3.88	3.39	2.51	1.67	1.22	0.84	0.45
Cambodia	2.67	6.71	-3.45	7.85	4.90	2.28	2.72	2.78	2.76	2.41
Indonesia	3.69	4.17	5.15	5.44	4.85	3.19	2.52	1.84	1.24	0.86
Lao People's Democratic Republic	3.29	4.38	4.53	5.00	6.10	5.99	4.63	3.00	2.02	1.63
Malaysia	5.72	5.33	4.77	4.54	4.82	3.28	2.45	1.68	1.06	0.76
Myanmar	3.85	4.15	2.91	2.28	2.36	2.24	2.42	1.94	1.46	1.05
Philippines	4.67	4.02	4.17	5.41	2.15	1.28	1.46	1.94	2.16	1.88
Singapore	4.86	2.42	1.53	2.25	2.65	2.63	1.78	0.83	0.49	0.23
Thailand	4.71	3.65	5.12	2.75	1.63	4.11	2.62	1.30	0.36	-0.08
Timor-Leste	1.64	4.44	2.11	5.05	2.85	4.40	3.76	3.31	2.48	2.13

Viet Nam	5.24	5.17	2.81	2.82	3.51	3.22	2.81	2.05	1.43	1.01
South and South-West Asia	**2.89**	**3.55**	**4.25**	**3.76**	**2.86**	**2.69**	**2.43**	**2.13**	**1.76**	**1.41**
Afghanistan	5.26	5.82	5.00	0.40	7.42	4.81	3.94	3.66	3.11	2.47
Bangladesh	4.60	7.07	9.32	5.67	3.91	3.96	3.43	2.58	1.75	1.29
Bhutan	8.06	8.22	8.95	7.70	5.04	5.70	3.35	2.17	1.34	0.94
India	2.31	3.13	3.94	3.24	2.65	2.60	2.36	2.16	1.86	1.51
Islamic Republic of Iran	4.62	4.76	5.07	5.09	2.89	2.22	1.94	1.30	0.89	0.63
Maldives	2.42	3.17	9.74	4.98	3.09	5.59	4.09	2.34	1.39	1.13
Nepal	4.31	3.25	6.72	6.23	6.86	3.79	3.18	2.92	2.51	2.10
Pakistan	4.35	3.85	4.33	4.23	3.45	2.88	2.83	2.56	2.08	1.63
Sri Lanka	2.77	4.13	1.49	1.31	0.78	0.90	0.98	1.50	2.02	1.92
Turkey	5.14	4.35	3.76	5.22	2.50	2.23	1.77	1.25	0.86	0.55
North and Central Asia	**3.80**	**2.61**	**1.91**	**1.32**	**-0.08**	**0.05**	**0.23**	**0.23**	**0.33**	**0.31**
Armenia	5.78	4.65	3.10	1.57	-1.82	-0.54	-0.11	0.11	0.27	0.12
Azerbaijan	4.49	2.35	2.31	1.77	0.73	1.53	1.48	1.07	0.81	0.50
Georgia	3.25	2.35	1.66	1.22	-1.84	-0.73	-0.10	-0.07	0.12	0.18
Kazakhstan	5.83	4.09	2.06	1.47	-1.13	0.52	0.90	1.02	1.22	1.09
Kyrgyzstan	4.89	4.11	2.35	1.71	0.52	0.74	1.83	2.01	2.03	1.87
Russian Federation	4.29	4.63	2.24	2.24	-0.23	2.13	2.71	2.77	3.01	2.85
Tajikistan	3.11	3.52	2.56	2.07	2.26	1.68	1.92	1.64	1.24	0.91
Turkmenistan	4.78	4.22	4.05	2.37	1.19	0.79	1.55	1.77	1.70	1.32
Uzbekistan	3.59	2.36	1.73	1.19	-0.10	-0.17	-0.14	-0.24	-0.19	-0.20
Pacific	**2.96**	**2.87**	**1.56**	**1.52**	**1.45**	**1.65**	**1.41**	**1.25**	**1.11**	**1.04**
American Samoa	2.91	2.75	1.38	1.47	1.41	1.71	1.43	1.21	1.02	0.92
Australia	2.68	2.41	1.39	0.93	1.39	1.31	1.02	0.89	0.72	0.59
Cook Islands (the)	6.89	3.55	1.23	0.47	1.06	-0.27	-0.09	0.69	1.80	1.78
Fiji	5.19	4.48	2.86	2.36	2.52	1.38	1.33	0.85	0.51	0.23
French Polynesia	6.23	6.32	4.24	2.11	2.60	2.48	2.06	1.57	1.16	0.93
Guam	9.70	12.56	5.82	4.04	1.31	2.32	2.30	2.98	3.55	3.40
Kiribati	7.14	7.71	5.50	5.75	4.34	4.93	4.10	3.31	2.66	2.27
Marshall Islands	4.73	4.73	4.94	4.88	3.87	3.78	3.38	3.00	2.64	2.30
Federated States of Micronesia	5.92	4.66	1.45	0.94	0.43	0.77	1.01	1.57	1.88	1.64
Nauru	3.11	4.49	6.53	1.95	2.02	0.37	1.32	1.10	0.79	0.55
New Caledonia	6.46	7.00	5.24	3.51	3.66	1.87	1.86	1.96	1.70	1.43
New Zealand	5.57	7.66	5.06	5.61	1.49	0.48	0.83	0.85	1.21	0.74
Niue	4.50	4.37	2.39	2.57	-0.34	-0.37	0.80	1.65	1.61	1.33
Northern Mariana Islands (the)	4.15	3.90	1.44	2.03	0.93	-0.02	0.41	0.44	0.23	0.03
Palau	5.79	6.02	4.81	10.33	4.57	-2.43	0.34	0.16	-0.12	-0.60
Papua New Guinea	3.17	2.27	1.08	3.25	2.48	2.44	1.64	1.26	0.80	0.56
Samoa	5.31	5.21	4.07	4.31	1.70	2.20	1.82	1.50	0.80	1.05
Solomon Islands	1.25	3.78	2.30	4.67	2.96	-0.44	0.26	0.63	0.34	0.03
Tonga	4.00	3.00	-1.82	0.70	1.35	2.49	0.84	0.68	0.74	0.55
Tuvalu	5.10	6.32	3.92	2.52	1.49	1.30	0.86	0.87	0.84	0.69
Vanuatu	0.35	0.41	-1.60	-2.42	-1.36	-1.00	-0.71	0.50	0.91	0.67

Source: WUP 2014
*Projections

Table 6 **Population of urban agglomerations with 3,000,000 inhabitants or more in 2014, by country, 1950-2025 (thousands)**

Sub-region and country or area	Urban Agglomeration	1950	1960	1970	1980	1990	2000	2010	2014	2020*	2030*
East and North-East Asia											
China	Shanghai	4,300.94	6,819.63	6,036.49	5,966.17	7,823.03	13,958.98	19,979.98	22,991.07	27,137.32	30,750.67
China	Beijing	1,671.37	3,900.44	4,426.05	5,366.12	6,787.74	10,162.39	16,189.57	19,520.33	24,201.47	27,706.03
China	Chongqing	1,566.97	2,275.16	2,237.34	2,961.40	4,010.60	7,862.98	11,243.67	12,915.71	15,232.82	17,380.36
China	Guangzhou, Guangdong	1,049.03	1,271.98	1,542.23	1,870.00	3,072.14	7,330.10	9,620.38	11,842.79	15,174.27	17,574.40
China	Tianjin	2,467.29	2,935.24	3,317.81	3,750.37	4,557.94	6,669.53	9,450.93	10,859.76	12,816.13	14,655.41
China	Shenzhen	3.15	8.30	21.89	58.30	875.00	6,550.41	10,222.92	10,680.17	11,287.09	12,672.82
China	Wuhan	1,068.54	1,653.33	2,039.40	2,515.76	3,417.48	6,637.75	7,514.80	7,838.13	8,363.99	9,441.57
China	Dongguan	91.56	98.87	113.95	137.17	552.61	3,630.94	7,118.37	7,409.67	7,731.36	8,700.62
China	Chengdu	646.16	1,580.30	1,750.00	2,150.00	2,954.91	4,222.28	6,234.26	7,288.95	8,765.74	10,104.41
China	Nanjing, Jiangsu	1037.12	1,230.23	1,459.22	1,730.92	2,892.83	4,278.64	6,162.15	7,127.38	8,475.65	9,754.28
China	Foshan	103.30	182.57	322.64	570.25	1,007.95	3,832.25	6,653.21	6,988.78	7,399.35	8,353.32
China	Shenyang	2,147.71	2,699.00	3,155.77	3,417.94	3,650.68	4,562.48	5,676.32	6,194.10	6,932.33	7,910.91
China	Hangzhou	610.50	948.20	1,026.74	1,141.43	1,476.22	3,159.78	5,081.77	6,121.11	7,596.58	8,821.76
China	Xi'an, Shaanxi	574.72	781.85	959.74	1,178.17	2,157.01	3,690.31	5,149.35	5,866.59	6,869.30	7,903.83
China	Haerbin	726.53	1,422.69	1,695.54	1,991.99	2,392.40	3,887.64	4,896.30	5,350.66	5,998.97	6,860.04
China	Suzhou, Jiangsu	457.06	516.11	507.75	555.76	1,066.70	2,111.88	3,997.25	5,155.91	6,875.77	8,098.45
China	Qingdao	751.11	901.81	905.94	1,094.90	2,101.39	2,939.84	3,951.54	4,445.21	5,138.91	5,920.15
China	Dalian	715.90	938.45	1,176.96	1,423.77	1,884.31	2,833.27	3,862.37	4,365.98	5,073.09	5,850.60
China	Zhengzhou	195.60	315.23	507.95	818.61	1,134.41	2,437.56	3,629.58	4,234.37	5,085.55	5,899.77
China	Xiamen	193.35	317.24	417.56	490.51	639.44	1,416.50	3,039.97	4,123.95	5,799.77	6,911.03
China	Ji'nan, Shandong	575.92	1,002.98	1,060.00	1,260.00	1,923.15	2,591.79	3,492.95	3,926.53	4,536.89	5,234.05
China	Shantou	270.36	305.36	344.89	419.74	724.63	2,930.65	3,623.05	3,888.19	4,280.80	4,899.35
China	Kunming	334.29	397.32	472.21	561.24	1,100.13	2,599.96	3,365.41	3,700.17	4,177.74	4,804.55
China	Changchun	764.62	1,110.92	1,254.80	1,655.42	2,192.32	2,730.17	3,386.54	3,691.07	4,129.64	4,742.11
China	Changsha	577.08	860.80	730.95	830.06	1,089.38	2,182.25	3,155.13	3,639.82	4,321.68	5,013.20
China	Zhongshan	55.29	90.30	147.48	240.89	393.49	1375.65	2,681.83	3,474.40	4,657.93	5,517.54
China	Taiyuan, Shanxi	196.51	349.54	621.63	1,105.70	1,636.60	2,502.66	3,131.16	3,415.21	3,824.43	4,396.45
China	Ürümqi (Wulumqi)	102.28	296.13	581.16	880.59	1,240.86	1,806.61	2,810.98	3,357.70	4,135.16	4,831.08
China	Hefei	145.41	316.24	517.86	750.53	1,099.52	1,532.29	3,027.19	3,298.29	3,622.26	4,152.23
China	Fuzhou, Fujian	301.11	406.63	549.09	741.51	1,402.58	2,008.54	2,793.29	3,185.83	3,738.64	4,335.39
China	Shijiazhuang	272.22	504.51	692.18	991.11	1,372.11	1,914.19	2,737.08	3,158.95	3,753.40	4,362.03
China	Nanning	143.05	323.29	431.89	621.44	759.26	1,623.98	2,619.10	3,109.70	3,800.36	4,438.36
China	Wenzhou	151.00	418.79	766.67	948.69	1,110.60	1,565.38	2,652.03	3,095.70	3,722.28	4,335.57
China	Ningbo	281.67	337.95	376.86	447.48	634.30	1,643.39	2,546.75	3,012.77	3,673.68	4,290.45
China, Hong Kong SAR	Hong Kong	1,681.85	2,620.54	3,472.48	4,623.03	5,766.04	6,835.30	7,049.51	7,259.57	7,549.53	7,885.16
Japan	Tokyo	11,274.64	16,678.82	23,297.50	28,548.51	32,530.00	34,449.91	36,833.98	37,832.89	3,8323.23	37,190.49
Japan	Kinki M.M.A. (Osaka)	7,005.28	10,614.84	15271.51	17,027.55	18,388.78	18,660.02	19,491.72	20,122.69	20,523.39	19,975.68
Japan	Chukyo M.M.A. (Nagoya)	2,236.88	4,296.74	6603.38	7,777.33	8,407.20	8,740.19	9,164.89	9,373.37	9,491.47	9,304.10

Japan	Kitakyushu-Fukuoka M.M.A.	1,403.15	2,680.78	4,071.70	4,725.63	5,269.08	5,420.56	5,556.20	5,527.57	5,447.36	5,354.75
Japan	Shizuoka-Hamamatsu M.M.A.	380.44	534.21	725.78	894.97	1,002.85	1,216.81	2,729.79	3,239.30	3,845.90	3,933.54
Republic of Korea	Seoul	1,021.03	2,361.20	5,311.57	8,257.84	10,517.57	9,878.47	9,796.05	9,775.38	9,818.22	9,959.68
Republic of Korea	Busan	947.77	1,154.13	1,812.77	3,104.36	3,772.20	3,594.43	3,329.10	3,236.75	3,174.49	3,263.70
South-East Asia											
Indonesia	Jakarta	1,452.00	2,678.74	3,915.41	5,984.26	8,175.42	8,389.76	9,629.95	10,176.01	11,298.16	13,811.98
Malaysia	Kuala Lumpur	261.53	343.53	451.20	971.45	2,097.66	4,176.47	5,809.95	6,629.18	7,843.63	9,422.89
Myanmar	Yangon	1,302.46	1,591.99	1,945.77	2,378.26	2,906.70	3,552.74	4,342.14	4,705.06	5,358.26	6,578.16
Philippines	Manila	1,543.67	2,273.73	3,534.31	5,954.72	7,972.80	9,961.91	11,891.11	12,763.75	13,941.92	16,755.63
Singapore	Singapore	1,016.43	1,633.72	2,074.07	2,414.53	3,016.40	3,918.19	5,078.97	5,517.10	6,057.22	6,577.88
Thailand	Krung Thep (Bangkok)	1,360.00	2,150.85	3,109.95	4,723.14	5,888.38	6,360.48	8,213.37	9,097.87	10,137.05	11,527.93
Viet Nam	Thành Pho Ho Chí Minh (Ho Chi Minh City)	1,213.22	1,400.00	1,969.56	2,716.09	3,037.81	4,389.37	6,189.37	7,100.33	8,308.53	10,200.39
Viet Nam	Hà Noi	260.80	416.60	617.35	899.13	1,139.25	1,659.74	2,811.02	3,469.71	4,388.57	5,497.92
South and South-West Asia											
Afghanistan	Kabul	170.78	285.35	471.89	977.82	1,549.32	2,401.11	3,722.32	4,436.26	5,721.70	8,279.61
Bangladesh	Dhaka	335.76	507.92	1,373.72	3,265.66	6,620.70	10,284.95	14,730.54	16,982.36	20,988.56	27,373.59
Bangladesh	Chittagong	288.85	359.90	723.32	1,339.83	2,022.83	3,308.48	4,106.06	4,446.68	5,154.79	6,718.80
India	Delhi	1,369.37	2,282.96	3,530.69	5,558.48	9,725.89	15,732.30	21,935.14	24,953.31	29,347.62	36,060.10
India	Mumbai (Bombay)	2,857.36	4,060.37	5,811.30	8,657.89	12,436.42	16,366.79	19,421.98	20,740.82	22,838.48	27,796.56
India	Kolkata (Calcutta)	4,513.50	5,652.24	6,925.68	9,030.29	10,889.66	13,058.06	14,283.10	14,766.10	15,726.15	19,092.46
India	Bangalore	746.00	1,165.98	1,614.76	2,812.43	4,036.19	5,567.29	8,275.03	9,717.99	11,836.80	14,762.09
India	Chennai (Madras)	1,491.29	1,914.80	3,056.69	4,203.30	5,338.06	6,352.61	8,522.50	9,619.58	11,240.68	13,920.94
India	Hyderabad	1,096.32	1,240.51	1,748.40	2,487.04	4,192.58	5,445.40	7,577.53	8,670.20	10,278.70	12,773.55
India	Ahmadabad	854.96	1,180.78	1,694.53	2,483.90	3,254.88	4,426.94	6,209.89	7,115.86	8,452.10	10,526.60
India	Pune (Poona)	580.85	776.90	1,104.91	1,641.98	2,429.83	3,654.77	4,951.38	5,574.08	6,501.96	8,091.39
India	Surat	233.57	311.44	477.12	876.79	1,468.42	2,698.78	4,438.44	5,397.68	6,826.73	8,616.41
India	Jaipur	294.02	402.31	616.28	983.93	1,478.09	2,259.48	3,016.72	3,373.36	3,910.85	4,884.84
India	Lucknow	488.68	643.70	800.98	993.30	1,614.04	2,221.30	2,854.19	3,150.32	3,603.26	4,493.18
India	Kanpur	688.23	950.66	1,249.64	1,611.73	2,001.19	2,640.59	2,904.19	3,000.89	3,203.56	3,949.75
Iran (Islamic Republic of)	Tehran	1,041.35	1,872.63	3,289.79	5,079.19	6,364.83	7,128.14	8,058.52	8,352.93	8,909.02	9,989.81
Pakistan	Karachi	1,055	1,853	3,119	5,048	7,147	10,032	14,081	16,126	19,230	24,838
Pakistan	Lahore	836	1,264	1,964	2,882	3,970	5,452	7,487	8,500	10,054	13,033
Pakistan	Faisalabad	168	404	726	1,079	1,520	2,142	3,017	3,460	4,142	5,419
Turkey	Istanbul	967.50	1,453.35	2,772.10	4,397.04	6,552.16	8,743.87	12,703.38	13,953.70	15,098.96	16,694.31
Turkey	Ankara	280.59	635.44	1,340.90	1,891.41	2,561.07	3,179.22	4,166.35	4,643.66	5,208.17	5,874.55
North and Central Asia											
Russian Federation	Moskva (Moscow)	5356.39	6169.96	7,106.46	8,136.14	8,986.63	10,004.52	11,461.26	12,062.73	12,474.10	4,955.35
Russian Federation	Sankt Peterburg (Saint Petersburg)	2902.79	3398.46	3,980.18	4,644.72	4,988.62	4,719.27	4,871.56	4,984.12	5,019.86	5,300.93
Pacific											
Australia	Sydney	1689.94	2134.67	2,892.48	3,252.11	3,631.94	4,052.50	4,364.38	4,475.20	4,729.41	5,300.93
Australia	Melbourne	1331.97	1851.22	2,499.11	2,839.02	3,154.31	3,460.54	3,951.22	4,151.03	4,500.50	5,070.87

Source: WUP 2014
*Projections

Table 7 **Average annual rate of change of urban agglomerations with 3,000,000 inhabitants or more in 2014, by country, 1950-2025 (percent)**

Sub-region and country or area	Urban Agglomeration	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010	2010-2020*	2020-2030*
East and North-East Asia									
China	Beijing	8.84	1.27	1.94	2.38	4.12	4.77	4.10	1.36
China	Changchun	3.81	1.23	2.81	2.85	2.22	2.18	2.00	1.39
China	Changsha	4.08	-1.62	1.28	2.76	7.19	3.76	3.20	1.50
China	Chengdu	9.36	1.03	2.08	3.23	3.63	3.97	3.47	1.43
China	Chongqing	3.80	-0.17	2.84	3.08	6.96	3.64	3.08	1.33
China	Dalian	2.74	2.29	1.92	2.84	4.16	3.15	2.76	1.44
China	Dongguan	0.77	1.43	1.87	14.95	20.71	6.96	0.83	1.19
China	Foshan	5.86	5.86	5.86	5.86	14.29	5.67	1.07	1.22
China	Fuzhou, Fujian	3.05	3.05	3.05	6.58	3.66	3.35	2.96	1.49
China	Guangzhou, Guangdong	1.95	1.95	1.95	5.09	9.09	2.76	4.66	1.48
China	Haerbin	6.95	1.77	1.62	1.85	4.97	2.33	2.05	1.35
China	Hangzhou	4.50	0.80	1.06	2.61	7.91	4.87	4.10	1.51
China	Hefei	8.08	5.06	3.78	3.89	3.37	7.05	1.81	1.37
China	Ji'nan, Shandong	5.70	0.55	1.74	4.32	3.03	3.03	2.65	1.44
China	Kunming	1.74	1.74	1.74	6.96	8.98	2.61	2.19	1.41
China	Nanjing, Jiangsu	1.72	1.72	1.72	5.27	3.99	3.72	3.24	1.42
China	Nanning	8.50	2.94	3.71	2.02	7.90	4.90	3.79	1.56
China	Ningbo	1.84	1.10	1.73	3.55	9.99	4.48	3.73	1.56
China	Qingdao	1.85	0.05	1.91	6.74	3.41	3.00	2.66	1.43
China	Shanghai	4.72	-1.21	-0.12	2.75	5.96	3.65	3.11	1.26
China	Shantou	1.22	1.22	1.98	5.61	15.00	2.14	1.68	1.36
China	Shenyang	2.31	1.58	0.80	0.66	2.25	2.21	2.02	1.33
China	Shenzhen	10.18	10.18	10.29	31.11	22.30	4.55	1.00	1.16
China	Shijiazhuang	6.36	3.21	3.65	3.31	3.39	3.64	3.21	1.51
China	Suzhou, Jiangsu	1.22	-0.16	0.91	6.74	7.07	6.59	5.57	1.65
China	Taiyuan, Shanxi	5.93	5.93	5.93	4.00	4.34	2.27	2.02	1.40
China	Tianjin	1.75	1.23	1.23	1.97	3.88	3.55	3.09	1.35
China	Ürümqi (Wulumqi)	11.22	6.97	4.24	3.49	3.83	4.52	3.94	1.57
China	Wenzhou	10.74	6.23	2.15	1.59	3.49	5.41	3.45	1.54
China	Wuhan	4.46	2.12	2.12	3.11	6.86	1.25	1.08	1.22
China	Xiamen	5.08	2.79	1.62	2.69	8.28	7.94	6.67	1.77
China	Xi'an, Shaanxi	3.13	2.07	2.07	6.23	5.52	3.39	2.92	1.41
China	Zhengzhou	4.89	4.89	4.89	3.32	7.95	4.06	3.43	1.50
China	Zhongshan	5.03	5.03	5.03	5.03	13.33	6.90	5.68	1.71
China, Hong Kong SAR	Hong Kong	4.53	2.85	2.90	2.23	1.72	0.31	0.69	0.44
Japan	Chukyo M.M.A. (Nagoya)	6.75	4.39	1.65	0.78	0.39	0.48	0.35	-0.20
Japan	Kinki M.M.A. (Osaka)	4.24	3.70	1.09	0.77	0.15	0.44	0.52	-0.27
Japan	Kitakyushu-Fukuoka M.M.A.	6.69	4.27	1.50	1.09	0.28	0.25	-0.20	-0.17

Japan	Shizuoka-Hamamatsu M.M.A.	3.45	3.11	2.12	1.14	1.95	8.42	3.49	0.23
Japan	Tokyo	3.99	3.40	2.05	1.31	0.58	0.67	0.40	-0.30
Republic of Korea	Busan	1.99	4.62	5.53	1.97	-0.48	-0.76	-0.47	0.28
Republic of Korea	Seoul	8.75	8.44	4.51	2.45	-0.62	-0.08	0.02	0.14
South-East Asia									
Indonesia	Jakarta	6.32	3.87	4.33	3.17	0.26	1.39	1.61	2.03
Malaysia	Kuala Lumpur	2.76	2.76	7.97	8.00	7.13	3.36	3.05	1.85
Myanmar	Yangon	2.03	2.03	2.03	2.03	2.03	2.03	2.12	2.07
Philippines	Manila	3.95	4.51	5.36	2.96	2.25	1.79	1.60	1.86
Singapore	Singapore	4.86	2.42	1.53	2.25	2.65	2.63	1.78	0.83
Thailand	Krung Thep (Bangkok)	4.69	3.76	4.27	2.23	0.77	2.59	2.13	1.29
Viet Nam	Hà Noi	4.80	4.01	3.83	2.40	3.83	5.41	4.56	2.28
Viet Nam	Thành Pho Ho Chí Minh (Ho Chi Minh City)	1.44	3.47	3.27	1.13	3.75	3.50	2.99	2.07
South and South-West Asia									
Afghanistan	Kabul	5.27	5.16	7.56	4.71	4.48	4.48	4.39	3.76
Bangladesh	Chittagong	2.22	7.23	6.36	4.21	5.04	2.18	2.30	2.69
Bangladesh	Dhaka	4.23	10.46	9.05	7.32	4.50	3.66	3.60	2.69
India	Ahmadabad	3.28	3.68	3.90	2.74	3.12	3.44	3.13	2.22
India	Bangalore	4.57	3.31	5.71	3.68	3.27	4.04	3.64	2.23
India	Chennai (Madras)	2.53	4.79	3.24	2.42	1.76	2.98	2.81	2.16
India	Delhi	5.24	4.46	4.64	5.75	4.93	3.38	2.95	2.08
India	Hyderabad	1.24	3.49	3.59	5.36	2.65	3.36	3.10	2.20
India	Jaipur	3.19	4.36	4.79	4.15	4.34	2.93	2.63	2.25
India	Kanpur	3.28	2.77	2.58	2.19	2.81	0.96	0.99	2.12
India	Kolkata (Calcutta)	2.28	2.05	2.69	1.89	1.83	0.90	0.97	1.96
India	Lucknow	2.79	2.21	2.18	4.97	3.25	2.54	2.36	2.23
India	Mumbai (Bombay)	3.58	3.65	4.07	3.69	2.78	1.73	1.63	1.98
India	Pune (Poona)	2.95	3.58	4.04	4.00	4.17	3.08	2.76	2.21
India	Surat	2.92	4.36	6.27	5.29	6.28	5.10	4.40	2.36
Iran (Islamic Republic of)	Tehran	6.04	5.80	4.44	2.28	1.14	1.23	1.01	1.15
Pakistan	Faisalabad	9.17	6.04	4.04	3.49	3.49	3.49	3.22	2.72
Pakistan	Karachi	5.79	5.34	4.93	3.54	3.45	3.45	3.17	2.59
Pakistan	Lahore	4.23	4.50	3.91	3.26	3.22	3.22	2.99	2.63
Turkey	Ankara	8.52	7.75	3.50	3.08	2.19	2.74	2.26	1.21
Turkey	Istanbul	4.15	6.67	4.72	4.07	2.93	3.81	1.74	1.01
North and Central Asia									
Russian Federation	Moskva (Moscow)	1.42	1.42	1.36	1.00	1.08	1.37	0.85	-0.22
Russian Federation	Sankt Peterburg (Saint Petersburg)	1.59	1.59	1.56	0.72	-0.55	0.32	0.30	-0.13
Pacific									
Australia	Melbourne	3.35	3.05	1.28	1.06	0.93	1.33	1.31	1.20
Australia	Sydney	2.36	3.08	1.18	1.11	1.10	0.74	0.81	1.15

Source: WUP
*Projections

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