

# SUSTAINABLE URBANIZATION IN ASIA

## A SOURCEBOOK FOR LOCAL GOVERNMENTS





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GOVERNMENTS

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# FOREWORD

Urban development challenges in Asia are multi-faceted and appear to be overwhelming at times. They include insufficient provision of infrastructure, rapidly growing slums, urban sprawl and the associated degradation of urban and peri-urban ecosystems, high levels of inequality and underemployment. Many of these local challenges are aggravated by global phenomena such as climate change. This publication has been developed in collaboration between the International Urban Training Centre (IUTC) and UN-HABITAT in order to provide basic principles, knowledge and diverse case studies on sustainable urban development which, if put into practice, should help to put cities on the right path. The publication provides a brief introduction to urban trends in Asia and offers a host of urban planning and management entry points for achieving sustainability. The sourcebook builds on the Sustainable Urbanization training course which was launched at the IUTC in 2007 and will serve as a background document for such courses in the future. I hope that this Sourcebook will serve to enhance the capacity and creativity of urban leaders to steer their cities in the right direction. On behalf of IUTC, I appreciate the valuable contributions of the staff at the IUTC and UN-HABITAT.

**Prof. Kwi-Gon Kim**

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The sourcebook on *Sustainable Urbanization in Asia*, part of a series of publications on urban issues, is designed for local governments in general and as background reading to support training events for urban decision makers in particular. It draws heavily on the UN-HABITAT/UN-ESCAP Report, *The State of Asian Cities 2010/11*. The sourcebook attempts to provide an overview of the multiple challenges cities and local governments face and the many entry points to address them. It provides a framework for achieving urban sustainability through multi-sectoral planning, urban management and governance and highlights the importance of addressing the multitude of social, economic and environmental challenges cities in Asia in an integrated manner. At the same time, sectoral entry points for quick win action are highlighted. Further, opportunities for cities to benefit from moving towards a green economy are explored. Throughout the publication, long-term planning and decision-making are emphasized, as cities need to play a more active role in reducing greenhouse gas emissions and building up their resilience to natural disasters and climate change.

**Gulelat Kebede**

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City view of Dhaka ©UN Photo-Kibae Park

# ASIAN URBANIZATION - TRENDS

# I

## 1 INCREASING URBANIZATION IN ASIA

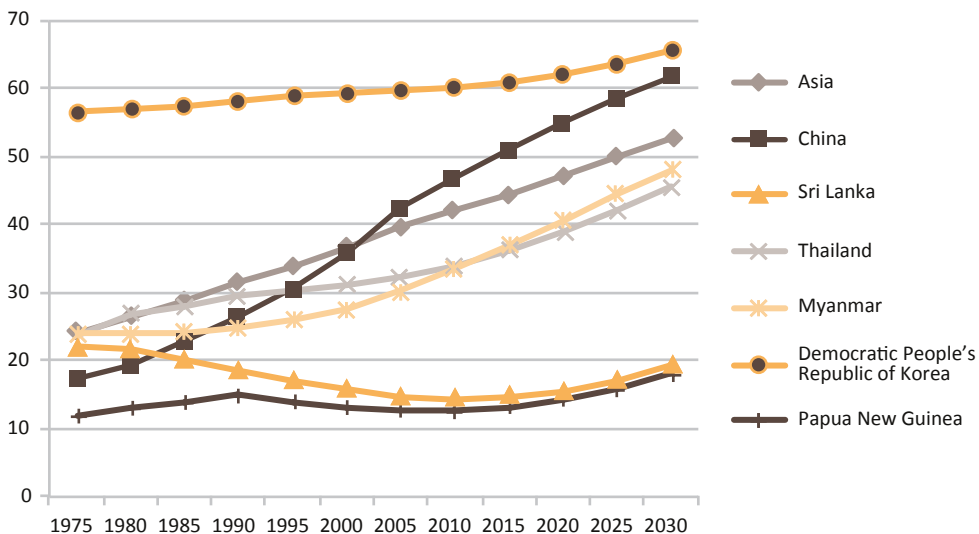
Over the last few decades, Asia in particular has seen some enormous demographic changes. In 1990 the Asia-Pacific region had an urban population of just over 1 billion. In the next twenty years that number had grown by more than 75 per cent to 1.76 billion and the trend is expected to continue. By 2030 Asian cities are projected to be home to some 2.6 billion people. While Asia is not expected to reach the 50 per cent urbanization mark before 2026, the proportion of Asia's urban population increased from 31.5 per cent in 1990 to 42.2 per cent in 2010, the highest percentage increase (10.7 per cent) amongst all regions in the world. The increasing urban density in many Asian countries due to this rapid demographic change puts enormous pressure on existing economic, social and

environmental structures and upon resources, something which further exacerbates the risks associated with climate change. These growing trends highlight the need for planners, policy-makers and others involved in the development process to recognize the importance of these issues and the need for creating more equitable, environmentally low-impact, successful urban spaces for all inhabitants within their cities.

### 1.1 URBANIZATION: MOST PROFOUND IN SMALL AND MEDIUM SIZED CITIES

The number of megacities (with populations of 10 million or more) is increasing around the world, and half of the world's megacities are found in Asia (12 out of 21). These highly urbanized areas attract and are home to a large share of development investment. They are also hubs of creativity and often serve as knowledge centres with the best national education and

FIGURE 1.1: ASIA'S URBANIZATION TRENDS



Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

cultural institutions, allowing for vibrant, mixed-use and culturally diverse urban spaces.

However, in recent decades more urban Asians have lived in smaller cities and towns than in all the megacities in the region, a trend expected to continue over the next two decades (see Chart 1.2). Today, 60 per cent of Asia’s urban population lives in urban areas with populations under one million.



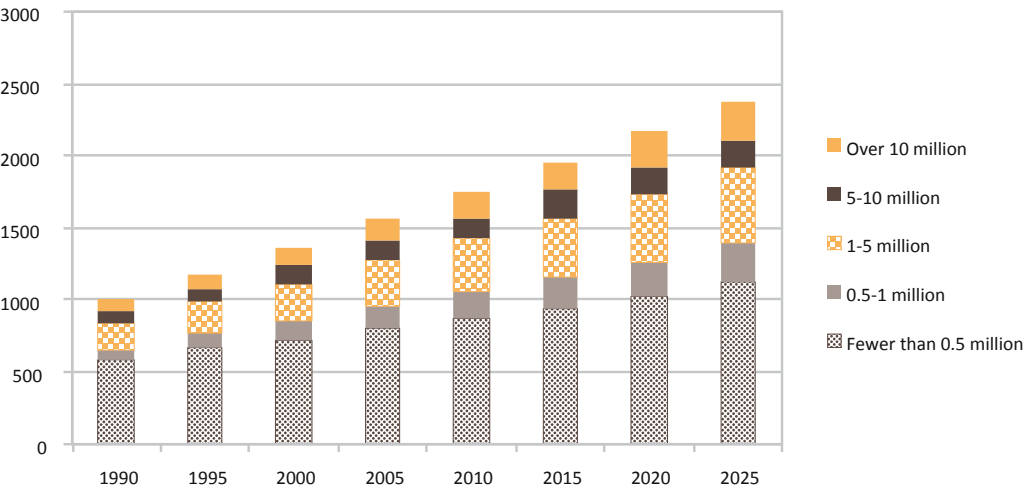
Shanghai 2008 © UN-Habitat/Alain Grimard

## 1.2 WHAT ARE MEDIUM SIZED CITIES?

Urban areas with populations under one million act as economic and growth centres and provide markets for rural products and urban services, performing the very important task of ‘bridging’ rural areas and larger urban centres. In this way medium sized cities play an important role providing indirect links between the rural areas and the global economy. Many small towns not only serve as administrative headquarters for districts or sub-districts, they also serve as ‘stepping-stones’ for rural migrants on their way to further destinations. Furthermore, many small and medium sized towns and cities in Asia have emerged as important economic centres in their own right. Hence, it is important to give more attention to sustainable planning in these types of cities.

However, while medium-sized cities act as economic growth centres, most have inadequate infrastructure and services as well as poor urban planning capacities. This increases the danger of severe environmental damage and burden and prevents these cities and their people from reaching full economic and social potential by enticing

FIGURE 1.2: THE DISTRIBUTION OF SETTLEMENTS IN ASIA



Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

short-term economic gains over overall long-term development stability. This is exemplified by the vulnerability of cities to natural disasters, which are occurring more frequently and with increasing intensity than in the past. It is important to understand the evolving characteristics of

Asian cities and the trends and challenges of urbanization in order to appreciate the urgent need for sustainable planning and action for effective adaption to climate change required to promote stable, equitable development for present and future generations.

#### REFLECTION QUESTIONS:

How fast has the population in YOUR city grown?

Has your city grown faster than other cities in your country?

What are the drivers for population growth?

## 2 CHARACTERISTICS OF URBANIZATION IN ASIA

Asia's rapid rate of urbanization has been occurring in an unprecedented manner in the last few decades, this form of development has occurred at an ever-increasing social and environmental cost. While development in the name of economic and technological progress has created a higher quality of life for some, it has dumped the negative social, economic and environmental consequences on the vulnerable and marginalised. The following paragraphs will elaborate the nature of Asian development through economic, social and environmental contexts together with a broad understanding of its consequences on urban dwellers.

### 2.1 ECONOMIC CHARACTERISTICS

Asian cities are increasingly looking towards diversifying their economies and becoming significant and innovative service providers on a global scale.

#### URBANIZATION: A STIMULANT OF ECONOMIC DEVELOPMENT

Cities are major drivers of national economies in the Asia-Pacific region. With just over 40 per cent of the population in the region, urban centres contribute 80 per cent of the region's economic output.

It is note-worthy that the combined production of the whole region nearly doubled between 1990 and 2008. Foreign direct investment, which is typically located in and around cities, is a major contributor to Asia's rising importance in global production networks. Urban Asia features high population densities and mixed land use development which function as unique spaces in which diverse activities can take place. These are hubs which:

- bring about a diverse and strong economy
- create a strong potential for the reduction of poverty

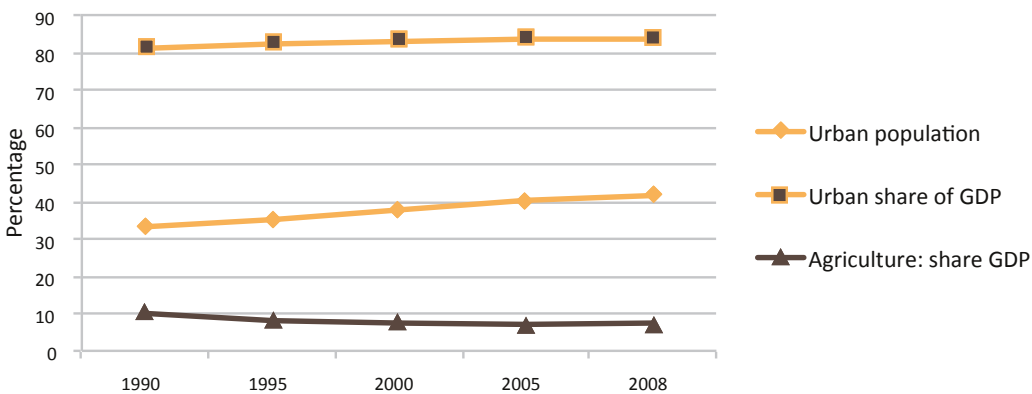
The patterns of development in Asian economies:

- **Export-led growth:** exports are a significant source of economic growth and employment in Asian countries. Through a combination of global capital and abundant cheap labour, Asia has created a number of manufacturing bases. As Asian countries develop, some now make high-value-added components and capital goods. Though these goods have traditionally been destined for foreign markets, with economic growth has come an expansion of domestic markets, which are now gaining in importance for growth strategies.
- **Knowledge economy:** today, Asia is no longer just a source of cheap manufactured goods and services. Many Asian countries have sought new opportunities by improving their innovative capabilities, which has led to next-generation outsourcing. Instead of just exploiting cheap labour, western companies are increasingly looking to Asia for fresh talent and moving their research and development departments there (for example to Bangalore in India). This has expanded Asia's potential for innovation on a global scale.

- **Financial centres:** financial services make up an attractive business sector for cities, which caters to the needs of foreign and domestic investors, both directly and indirectly. As a dynamic-high growth sector, it is a major economic asset on a national, regional and global scale. In addition to Tokyo, Singapore, and Hong Kong, a few Asian cities such as Shanghai and Mumbai, have made efforts to turn into international financial centres.

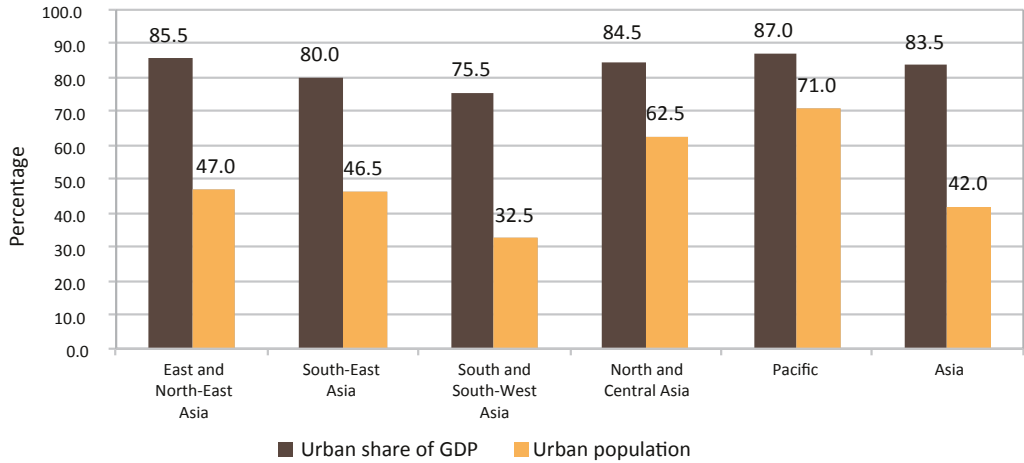
The patterns of economic growth above indicate Asia's advance in becoming a leading participant in the global economy. However, particularly for small and medium cities in the region, the challenge to realizing their growth potential is the lack of cost-effective and high-quality physical infrastructure, an often inadequate regulatory framework, and the lack of capacity to develop and implement a local economic development strategy. Another significant shortcoming is the failure to capitalize on dynamic, ever-expanding and unique informal economies.

FIGURE 2.1: URBAN VS. RURAL SHARE IN GDP IN ASIA AND THE PACIFIC (1990-2008)



Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

FIGURE 2.1: SHARE OF URBAN AREAS IN GDP, ASIA AND THE PACIFIC



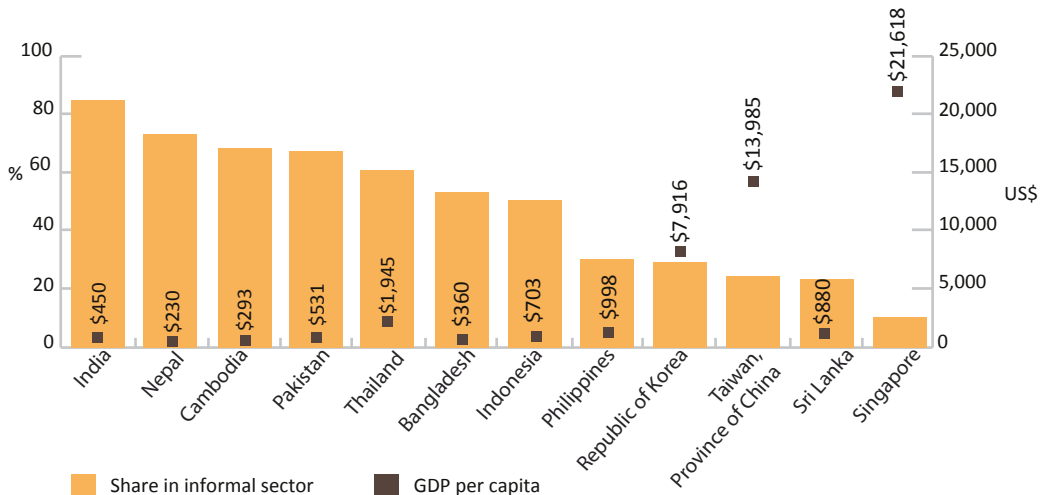
Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

### 2.1.1 INFORMAL ECONOMIES IN ASIA

Asian cities are hosts to large informal economies that in most cases underpin the success of formal economies, by providing important products and services for a fraction of the cost. The links between the formal and informal can be witnessed both directly and indirectly, and usually display a mutually dependant relationship. There is

a positive relationship between urbanization and the informal economy, an increase in the former resulting in an increase in the latter. The importance of the presence of informal economic sectors for urbanization and economic growth is such that they are an early characteristic of urbanization in almost all regions of the world and are often seen as an essential part of the transformation process of turning developing economies into more developed ones.

CHART 2.3: SHARE OF INFORMAL JOBS IN NON-AGRICULTURAL, URBAN EMPLOYMENT, VARIOUS YEARS (%)



Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

Currently the spread of urbanization has occurred without giving due consideration to informal economies and their significant contribution to national and local economies. With an unprecedented focus on upgrading formal economic sectors, policy makers usually see urban informal economies as an irritant or problem regardless of their innovative aspects and

contribution of millions of dollars in revenues. Informal sectors are also an important source of basic income, employment and livelihood opportunities for those who cannot find formal employment. As a result, they effectively absorb many migrants from rural areas looking for opportunities.

#### BOX 1: HOW CITIES CAN SUPPORT STREET VENDORS

##### Quezon City, the Philippines

In an effort to legitimise the informal sector, Quezon City has provided stalls and sites to vendors under the “Integrated Hawkers Management Programme”. Vendors are assigned individual spots on sidewalks or open spaces under what is known as “Mayor’s Permits” and for a nominal fee, with priority given to members of the Hawkers’ Association. Credit is also made available to vendors through the Self-Employment Programme of Manila Community Services Inc. (Amin, 2002).

##### Kuala Lumpur, Malaysia

Malaysia is another of the few countries in Asia that have given formal recognition to street vendors. The government’s 1990 national policy on hawkers included funding for the credit schemes and training programmes that enable street vendors to improve their business practices and facilities. The policy was part of a broader one aimed at turning the capital Kuala Lumpur into “a clean, healthy and beautiful city for the local people and tourists.” The plan involved relocating street vendors to food centres in buildings or to central sites, and also assisted in the design of vans for mobile hawking.

As in other South-East Asian cities, the number of street vendors in Kuala Lumpur has risen sharply since the 1997-98 financial crisis, providing alternative livelihoods to those who had lost their formal jobs. By the year 2000, the number of licensed street vendors was close to 35,000, not to mention more than 12,000 unlicensed operators (Bhowmik, 2005).

*UN-HABITAT, ESCAP, The State of Asian Cities 2010/11 (citing: Kohpaiboon (2008) and ZsinWoon et al. (2007))*



## 2.2 SOCIAL CHARACTERISTICS

Economic growth has not benefitted all urban dwellers in the region equally. Over 40 per cent of Asia's urban dwellers live in substandard housing and overcrowded slums (Asia Development Bank, 2010). In developing Asia, poverty can be characterised by the following features (amongst others):

- Large and ever increasing backlogs in the delivery of basic services.
- The lack of access to adequate, secure shelter resulting in severe overcrowding, homelessness and environmental health problems.
- Increased vulnerability to health problems, environmental shocks and natural disasters.
- Increasing intra-city inequality, noticeable in residential segregation, and in issues of violence, which impact disproportionately on women and the poor.

Providing basic urban services is not only crucial for public health and economic development, it is also critical for dignity and basic security for women and children. Countries in Eastern Asia have made significant progress in terms of

### THE PLIGHT OF SLUM DWELLERS

The most obvious manifestation of urban inequity and poverty are slums. Instead of reaping the benefits of the 'urban advantage' as they expected, slum-dwellers pay an urban penalty through denial of legal status in the city and deprivation of a range of urban services. They are constantly at risk of eviction, lack a political voice, and are excluded from main benefits of urban life such as decent housing, safety and the rule of law, education and health. These currently remain monopolized by a privileged minority.

access to drinking water by achieving 98 per cent coverage (see table 2.1). In South-East Asia some countries have achieved universal coverage, others have made significant progress but a number of countries still lag behind. In some countries in Asia the proportion of urban dwellers with access to basic water supplies is in decline. This is probably linked to poverty and to a significant growth in the share of the urban population living in informal settlements (i.e. slums) where lack of legal tenure often prevents access to piped water (State of Asian Cities Report, 2011).

**TABLE 2.1: URBAN POPULATIONS: ACCESS TO WATER SUPPLY, 1990-2008**

| Country             | 1990 | 2000 | 2008 | Country                               | 1990 | 2000 | 2008 |
|---------------------|------|------|------|---------------------------------------|------|------|------|
| <b>Eastern Asia</b> |      |      |      | <b>Eastern Asia</b>                   |      |      |      |
| Republic of Korea   | 97   | 98   | 100  | Democratic People's Republic of Korea | 100  | 100  | 100  |
| China               | 97   | 98   | 98   | Mongolia                              | 81   | 88   | 97   |
| <b>South Asia</b>   |      |      |      | <b>South-East Asia</b>                |      |      |      |
| Bhutan              | N/A  | 99   | 99   | Malaysia                              | 94   | 99   | 100  |
| Maldives            | 100  | 100  | 99   | Singapore                             | 100  | 100  | 100  |
| Iran                | 98   | 98   | 98   | Thailand                              | 97   | 98   | 99   |
| Sri Lanka           | 91   | 95   | 98   | Viet Nam                              | 98   | 94   | 99   |
| India               | 90   | 93   | 96   | Philippines                           | 93   | 93   | 93   |
| Pakistan            | 96   | 95   | 95   | Indonesia                             | 92   | 90   | 89   |
| Bangladesh          | 88   | 86   | 85   | Cambodia                              | 52   | 64   | 81   |
| Nepal               | 96   | 94   | 93   | Mynmar                                | 87   | 80   | 75   |
| Afghanistan         | N/A  | 36   | 78   | Lao PDR                               | N/A  | 77   | 72   |

More than 98 per cent
  More than 95 per cent
  Less than 95 per cent

Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

Generally, providing basic urban services such as water and sanitation, solid waste collection and disposal, and transportation remains a challenge in most Asian sub-regions. The reasons for this might involve a combination of inadequately targeted public resources along with issues relating to recognition and/or legal tenure in informal settlements.

With increased demand for land as city centres expand, the lack of legal tenure results in the

urban poor being subjected to forced evictions, which disrupt social and economic networks that are vital for survival.

With overall income increasing in Asia, the number of people living in absolute poverty has declined in all but a few countries. Yet as shown in Chart 2.4, in many cases more than 20 per cent of the population still live under the poverty line of \$1.25 a day.

#### BOX 2: INDONESIA'S KAMPUNG IMPROVEMENT PROGRAMME

The innovative Kampung Improvement Programme (KIP), launched in 1969 in Indonesia, was the first urban slum-upgrading project in the developing world. The rationale was to provide basic urban services, such as roads and footpaths, water, drainage and sanitation, as well as health and education facilities. The programme soon became a model for the transformation of slums from illegal settlements into a regularized component of the urban fabric. Through official recognition of improved kampungs ('villages' or 'hamlets', in Malay) as formal settlements, municipal authorities effectively brought security of tenure to, and improved the lives of, 1.2 million slum-dwellers in Jakarta between 1969 and 1974.

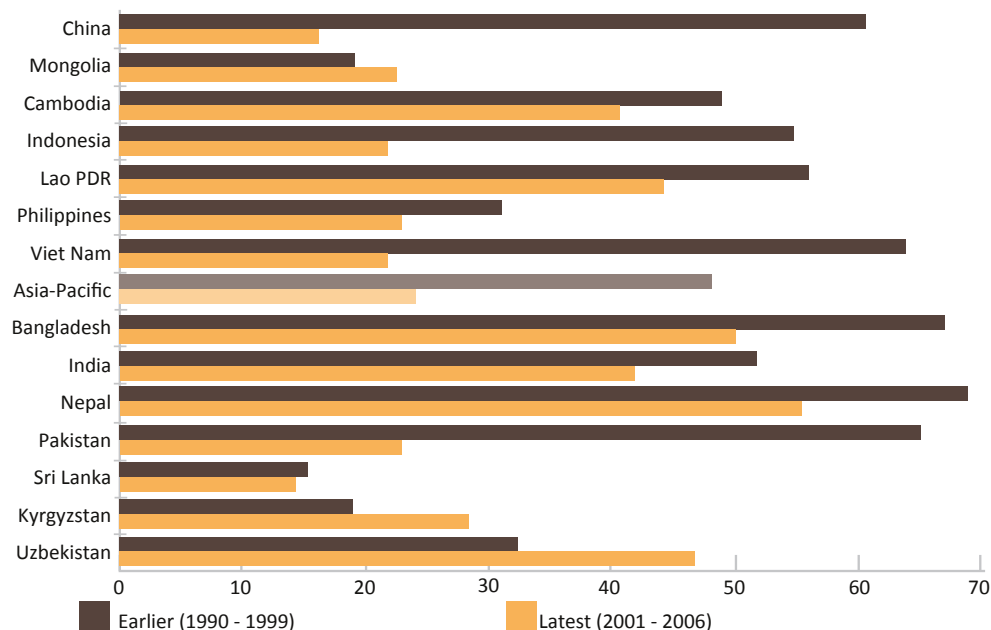
In 1974, the World Bank decided to support the programme with soft loans in order to accelerate implementation and upscaling. In 1979, the Indonesian government endorsed KIP as national policy. By the time World Bank support came to an end in 1982, the programme had improved the day-to-day living conditions of close to 5 million urban poor. Permanent monitoring and assessment, based on trial-and-error, as well as input from the communities, were the major factors behind the success of the programme.

The KIP has gone through various stages of growth over the past 30 years, evolving from a physical improvement approach to community-based development. In the early years, the scheme received adequate support from the government, international agencies and the people. Although rapid urban extension remains a major challenge for KIP, recently support from the government and the community has been waning and no international agency funding is available to keep the programme going at its original pace. As a result, the first slum improvement programme in the developing world has not been able to keep pace with the current growth of slums in Indonesian cities.

*UN-HABITAT, ESCAP, The State of Asian Cities 2010/11*



CHART 2.4: POPULATIONS LIVING ON LESS THAN USD 1.25 A DAY IN ASIA AND THE PACIFIC

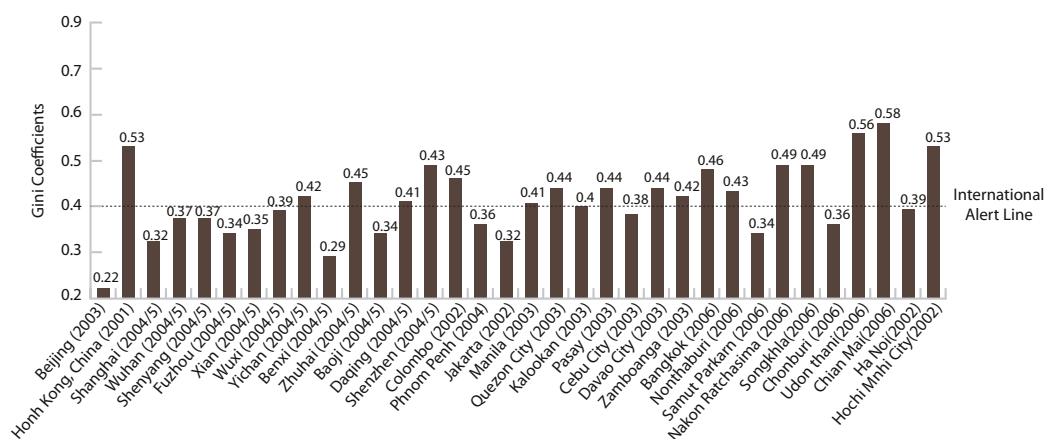


Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

However, the absolute decline of poverty has in many countries occurred in parallel with a marked increase in inequality in rural and in urban areas. This suggests that economic expansion benefits the better-off more than the poor. An additional trend is the significant discrepancy in income

distribution between cities of the same country. For example Beijing's inequality index (Gini Coefficient) is among the lowest in the world while inequality in Hong Kong, China is among the highest in the region.

CHART 2.5: INTRA-URBAN INEQUALITIES (GINI COEFFICIENTS)



Source: UN-HABITAT, ESCAP, *The State of Asian Cities 2010/11*

## 2.3 ENVIRONMENTAL CHARACTERISTICS

Asia, which has enjoyed a fair amount of foreign direct investment, has become the 'factory of the world' through national industrial policies as well as mass relocation of labour-intensive, less technology dependent and often environmentally hazardous industries from developed countries. The focus on economic growth and the need to address prevailing

### PUTTING IMAGE AHEAD OF THE NEEDS OF THE POOR

Local authorities tend to focus on making cities look 'global' for visitors or investors. This often happens at the expense of the urban poor. Following are examples of high-end initiatives which tend to overshadow the practical needs of cities:

- Flyovers and elevated expressways vs. traffic management and planning.
- High-rise apartments vs. upgrading informal settlements.
- Shopping malls vs. traditional markets.
- Removing the poor from the city centres to the periphery to improve city image vs. eradicating poverty.

(The State of Asian Cities Report, 2010)

poverty has resulted in far less attention being accorded to environmental issues, in particular those associated with urban development, especially due to out-dated laws and their poor enforcement. Based on existing consumption patterns, Asia's natural resource base will soon be lower than that of any other region in per capita terms. Given the high resource and energy needs, the growth of Asian cities is not environmentally sustainable. Infrastructure, development and growth strategies that are resource-heavy will lock Asian cities into unsustainable consumption and production patterns for years to come.

Currently Asian cities suffer from severe environmental problems ranging from pollution, congestion, excessive waste, etc. due to rapidly increasing urbanization. Paying attention to the environmental impacts of growth is critical for the provision of adequate housing, energy, water, sanitation and mobility needs to people (to address social and economic issues mentioned above) in a manner that does not cause major depletion of natural resources or endanger future generations. This essentially brings environmental concerns to the forefront as an integral part of present and future efforts to bring about sustainable urbanization.

### 2.3.1 ENVIRONMENTAL CONCERNS NEED TO BE BUILT INTO TODAY'S DEVELOPMENT STRATEGIES

Because of high unemployment and rampant poverty, governments often give a high priority to economic development by means of industrialization. Though it is acknowledged that environmental issues are important, they are still perceived as a luxury that can be addressed after achieving a desired level of economic development. This cure rather than prevention approach often causes unnecessary costs and immense damage to the environment, all of

### HEALTH AND THE URBAN ENVIRONMENT

Many people in Asian cities suffer from poor health mainly due to poor environmental conditions that result in malnutrition, poverty, cramped living conditions, polluted air and contaminated water. Not only do these conditions pose a major strain on state medical facilities, but many of the poor still lack access to these medical facilities or other health services in the first place. These unsanitary conditions together with high population densities make Asian cities particularly conducive to the breeding, mutation and spread of disease.

which have numerous negative impacts on urban inhabitants.

### 2.3.2 PREVAILING ENVIRONMENTAL CONDITIONS

**Air:** Air pollution causes as many as 519,000 premature deaths every year.

Air pollution stems from two sources:

- Stationary sources e.g. power plants, industrial activities and residential and commercial buildings.
- Mobile sources e.g.: motor vehicles in particular, due to poor maintenance, poor fuel quality and inadequate traffic management.

There is no comprehensive picture of air quality in Asia. At best, research has found some changes in air quality in specific cities. These show

improvements in certain cities such as Bangkok, Colombo, Dhaka etc. but also serious decline in air quality in cities such as Jakarta, Phnom Penh, Ulaanbaatar, etc. These declines are thought to have occurred mostly because of increasing rates of vehicle ownership, high manufacturing concentrations in inner city areas (as mentioned above), together with the use of low-quality coal and wood in cooking/heating stoves.

Apart from drought and flooding, threats to water resources result from many factors, including poor sanitation infrastructure, river pollution and ground water overuse.

Currently, urban authorities in Asia find it a challenge to maintain and/or replace older parts of water supply systems, many of which are plagued by major leakage that results in serious amounts of wasted water.

The recycling of wastewater has a significant impact on relieving the pressure caused by insufficient water resources. As of now, only a few Asian cities have the capacity or resources to set up large-scale wastewater treatment facilities. This is considered a serious problem and improved sanitation and wastewater treatment is a major issue in water management in the Asian region.

#### WATER SCARCITY

According to UNESCO a country can be considered to be 'water-scarce' if total extraction is greater than 40 per cent of annual water resources.

An Asian Development Bank Survey of 18 Asian cities done earlier in the decade showed that most were extracting more than 60 per cent of annual volumes needed for replenishment. In cities such as Chengdu and Shanghai (China) the rate was greater than 80 per cent. Another challenge in Asia is aging distribution systems. For example: in Kathmandu, the distribution system loses around 35-40 per cent of clean water through leakage alone. Similarly, Karachi loses 30 per cent of clean water, while Chennai loses 25-30 per cent. As water demand rises and/or losses due to leakage grow, the price of water increases and it does so disproportionately for the poor.

**Solid Waste:** Despite records of improvements, dumping is still the dominant method of solid waste disposal in most Asian cities. While many governments try to improve services and facilities, developing Asian cities still face serious problems with inadequate waste management. While all countries within the Asian region have policies in place to manage waste collection and disposal, implementation of these rules and regulations is still lacking. Inadequate collection and disposal of solid waste in urban Asia is a source of health hazards, environmental degradation and greenhouse gas emissions. This indicates a need for improvements in enforcement, as well as increased community awareness to promote understanding by, and gain cooperation from, urban dwellers.

There are several reasons why waste quantities are rapidly increasing in developing countries:

- The number of people living and working in cities is increasing.
- The amount of waste generated per person is rising in line with increasing incomes and lifestyle changes.
- The amount of waste from businesses is increasing

In addition, the substances in waste are increasing in complexity and variety, making waste harder to manage, recycling more difficult, and causing increased pollution.

#### RISKS ASSOCIATED WITH INADEQUATE WASTE MANAGEMENT:

In their disposed waste, lower-income countries tend to have more organic material with high water content. If there are no formal collection services provided or these services are irregular, these municipal wastes end up mixed with faecal matter, infectious medical waste and other hazardous materials, leaving communities at risk of being exposed to diseases and other hazards.

For example, uncollected wastes can clog drains and cause the stagnation of water causing the breeding of mosquitoes or the contamination of water bodies from which the local population draws water for daily consumption, cooking and cleaning. There are also high risks in the spread of diseases from animals frequenting overflowing dumpsites in search of food.

*UN-HABITAT (2011), Solid Waste Management in the World's Cities*



**Slum in Nepal** © UN-Habitat



**Bangkok 2009** © UN-Habitat/Alain Grimard

**REFLECTION QUESTIONS:**

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What are the biggest sustainable development challenges in your city?

Who is most affected by these challenges?

What policies are in place and what practices are applied in your city vis-à-vis slum prevention or slum upgrading?

How does the informal economy contribute to the overall economy in your city?



Traffic ©UN-Habitat/B. Barth



## 3 CLIMATE CHANGE

### 3.1 INTRODUCTION TO CLIMATE CHANGE

Climate change refers to changes in averages and extremes in the weather of a region or of the planet as a whole over time. It is measured by changes in temperature, precipitation, wind, storms and other weather indicators.

The key climate change indicator is the average surface temperature of the earth. Over the past 50 years the global average temperature increased by 0.65°C. No region is immune to rising temperatures, though some have witnessed sharper increases than others. Over the next 100 years the Earth's surface temperature is expected to increase between 1 and 4°C depending on the action taken.

In its 4th Assessment Report (2007) the Intergovernmental Panel on Climate Change stated "most of the observed increases in global average temperatures since the mid-20th century are very likely due to the observed increase in anthropogenic (those caused by human activity) greenhouse gas concentrations." The increase in carbon dioxide levels and those of other greenhouse gases in the atmosphere -- primarily from the burning of fossil fuels and land use change -- is increasing global temperatures at a rate never before seen in human history.

Historically industrialized countries have been the main emitters of greenhouse gases and on a per capita basis they continue to lead in emissions. However, by 2004 developing countries in South and East Asia were contributing 13.1 and 17.3 per cent of global greenhouse gas emissions, respectively (IPCC, 2007), with China having surpassed the United States as the main emitter of greenhouse gases.

The energy demand of urban areas - including Asia's rapidly growing cities - is a major contributor to greenhouse gases. In particular, the rapidly growing housing and infrastructure stock in Asia with its energy needs for construction and operation as well as fast growing car ownership rates in the region are likely to increase per capita and total greenhouse gas emissions in Asia.

The Asia-Pacific region also stands to be severely affected by climate change. The region already suffers from the highest number of weather related disasters, and these are predicted to increase with climate change. Due to their size, geographic location and elevation, cities in Asia are the most exposed to the effects of climate change such as droughts and heat waves, floods and cyclones. These will affect all aspects of life. The urban poor are particularly vulnerable as they are often forced to settle on the most vulnerable land.

### 3.2 CAUSES OF CLIMATE CHANGE

#### ECONOMY AND ENVIRONMENT:

In Asia over 80 per cent of the region's total primary energy supply stems from fossil fuels. Biomass remains an important source of energy where access to modern energy is poor. The region's total energy consumption continues to increase significantly in line with increases in electricity generation and private car use driven by rapid economic development.

#### EFFECTS OF TRANSPORTATION:

this particular sector contributes an estimated 1/3 of greenhouse gas emissions worldwide. While tighter emission norms and technological change have resulted in a decline in greenhouse gas emissions per car, overall emissions from cars continue to grow on the back of an increasing number of cars across the region. According to the International Energy Agency, the number of motor vehicles in Asia will increase by more than four times in the next 20 years. Asia's share of global energy consumption is expected to increase nearly threefold from the current 6.5 per cent to 19 per cent by 2030.



A train snakes its way through Seoul, Korea  
©UN Photo-Kibae Park

#### BUILDINGS:

according to the International Energy Agency, buildings account for as much as 40 per cent of the world's total end-use of energy and about 24 per cent of greenhouse gas emissions.. Buildings, especially high-rises, tend to be made of materials such as concrete and steel that are energy-intensive to manufacture. The operation of buildings, which requires heating, cooling, lighting, etc., further consumes large amounts of energy. The Intergovernmental Panel on Climate Change, IPPC, has calculated that the greenhouse gas reduction potential in the building sector is particularly high as the investments required to increase energy efficiency are relatively low in comparison to the huge cost saving potential due to reduced energy bills.

(State of Asian Cities Report, 2010)



Bangkok, Thailand © UN HABITAT

### 3.3 EFFECTS OF CLIMATE CHANGE

#### INCREASE IN NATURAL DISASTERS:

Many Asian cities lie on coastal plains that are bound to suffer more frequent flooding from tidal surges and storm damage. The Asian region is already exposed to high chances of extreme weather events such as heat waves, tropical cyclones, prolonged dry spells, intense rainfall etc. In fact, in the 20th century Asia accounted for 91 per cent of all deaths and 49 per cent of all damage due to natural disasters.

#### RISING SEA LEVELS:

An estimated 18 per cent of Asia's urban population lives in low-lying coastal zones. In 2000, according to some authors, more than 238 million people lived in cities located in Asia's Low Elevation Coastal Zone (less than 10m above sea level), a number which by 2010 rose to an estimated 304 million. As a result of climate change, these areas are potentially exposed to rising sea level and storm surges.

#### IN URBAN AREAS, THE POOR ARE MOST VULNERABLE TO CLIMATE CHANGE

Due to lack of proper land plots or housing, the urban poor often live in environmentally vulnerable sites such as low-lying areas, along the banks of rivers or lakes, on steep slopes or in the proximity of waste dump-sites. These are likely to become more vulnerable due to the effects of climate change such as increased rainfall and inundation, stronger cyclones, typhoons and storms, or sea level rise. Moreover, the poor are more likely to be affected due to water and food shortages, as well as the rapid spread of disease.

#### ECO REFUGEES:

Many people living in thousands of cities and towns across the Asia-Pacific region face increasing uncertainty about their future, with millions potentially relocating as 'eco-refugees' (known as climate change refugees) from affected rural and urban areas. The relocation of eco-refugees will pose a significant challenge, requiring new urban settlements that will further reduce the amounts of land available for food production.

(State of Asian Cities Report, 2010)

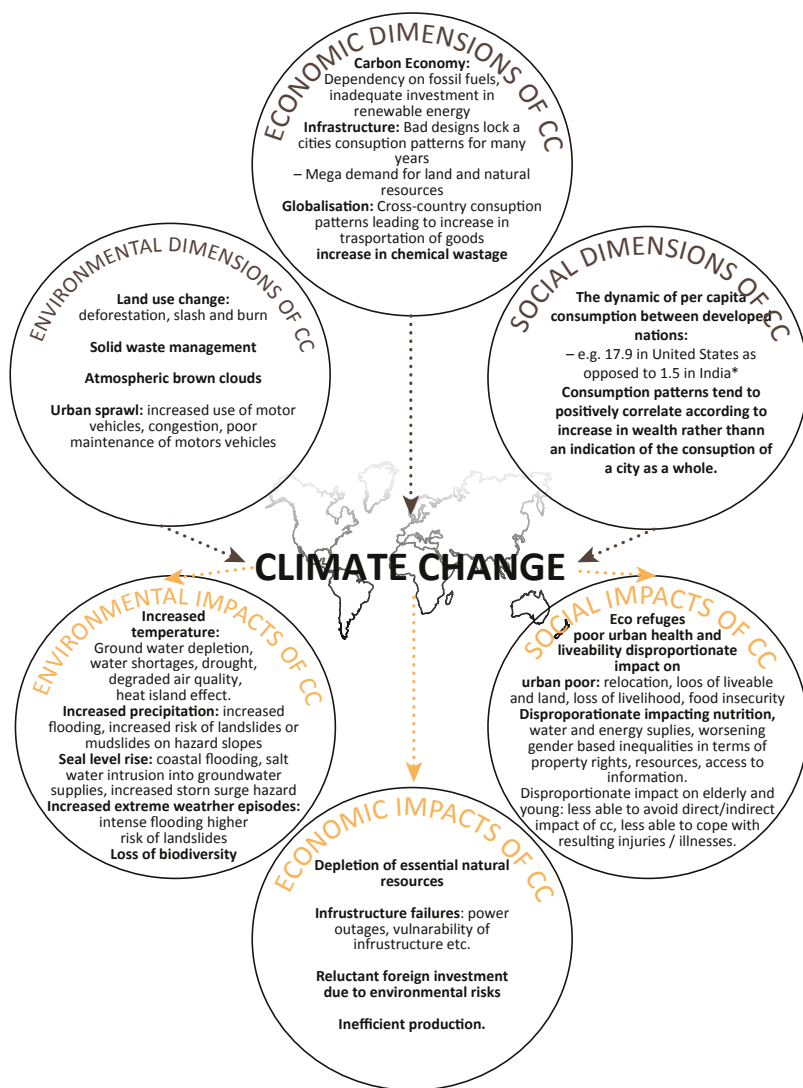


Residents of Khyber Pakhtunkhwa district in Pakistan  
© UN-HABITAT

### 3.4 CLIMATE CHANGE AND PRESSURES OF DEVELOPMENT: LINKING THE ECONOMIC, SOCIAL AND ENVIRONMENTAL WITH CLIMATE CHANGE

Climate Change is intricately linked to sustainable development. Environmental, economic and social development challenges can contribute to the emission of greenhouse gases, while climate change can undermine the components of sustainable urban development (see figure 3.1).

FIGURE 3.1: SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE



\* To Read more refer to UNEP. Atmospheric Brown Clouds: Regional Assessment Report with Focus on Asia, <http://www.unep.org/pdf/ABCSummaryFINAL.pdf>

#### REFLECTION QUESTIONS:

How does your city contribute to climate change? Is this significant?

How is your city affected by climate change? Are certain economic activities, certain communities and certain locations differently affected?

## 4 ARE ASIAN CITIES EQUIPPED TO TACKLE PRESENT CHALLENGES?

The processes that Asian cities put in place to promote economic growth, social inclusion and address environmental challenges shape their ability to develop long-term urban sustainability. Asia's urban planning practices are as diverse as its urban and national histories and current political and governance systems. To characterise 'Asian Urban Planning Practices' this diversity needs to be considered. The long history of Chinese and Indian civilizations, the spatial constraints of Japan, the socialist planning models of Russia and their impact on North and Central Asian countries, the multitude of vibrant national cultures in South-East Asia, the unique histories and cultural heritage of Australia, New Zealand and the Pacific Islands, etc., all lead to specific urban planning practices and contexts, each of them deserving to be studied on its own. Nonetheless some common characteristics among Asian countries can be observed.

In the 20th century western planning models had a strong influence on Asian urban planning culture. Many countries in Asia attempted to plan the future development of their cities based on the idea of becoming modern and in a way 'catching up with the west' (Watson, 2009). However the associated urban modernism (see box below) as well as its related outcomes are often considered an unsuitable reference for shaping urbanization in Asia and are commonly seen as aggravating environmental and socio-economic challenges.

### 4.1 THE THREE MAIN PRESSURES ON ASIAN URBANIZATION

The contemporary Asian city nonetheless exhibits significantly higher densities than comparable western cities due to varying factors such as geographical constraints (as in Tokyo, Hong Kong and Mumbai), slower pace of infrastructure development on the city periphery compared to urban spatial expansion and rapid population growth.

Rapid urban growth characterises the urban form of the contemporary Asian city, which exhibits planned as well as unplanned spatial expansion.

Following economic liberalization, China has experienced dramatic urban transformation due to the demographic pressure from increased number of in-migrants and the emergence of an expanding middle class.

#### COMMON CHARACTERISTICS OF MODERNIST CITIES

Urban modernism is associated with one or more of the following characteristics:

- Giving priority to the aesthetic appearance of cities by making them spacious, uncluttered, and with grand views. This provides few opportunities for the poor or for informal activities.
- Priority given to vehicular movement as high car ownership is assumed.
- Separation of land use - whereby separate areas are carved out for residences, community facilities, retail, commerce, industrial activities, etc. It is assumed that people will travel between these areas by car.
- Allocating different residential densities for different income groups (for example, lower densities - one house per plot - for higher income groups).

(Watson, 2009)

On a larger scale, urban corridors and mega-regions develop as a consequence of the economic advantages they offer. National governments encourage this development through policies that strengthen these special zones via taxation, provision of infrastructure, etc. (see Shenzhen Special Economic Zone (SEZ), China).

Currently efforts are being made to take ecological principles into consideration while planning new urban areas. For instance, the Songdo city design in South Korea has obtained the LEED certification. Another example is Dongtan in China. Despite these efforts these cities cannot offset the increased ecological footprint they cause due to the increased wealth and associated change of their populations' lifestyles. Economic factors remain the main drivers of the urbanisation process.

Urban planning is the key to ensuring the sustainable development of Asian cities. Planning can guide their growth and integrate economic development and prosperity with social cohesion, with as little environmental impact as possible.

One key problem with the predominant planning and urban management approaches is that they fail to accommodate the “way of life”

of the majority of inhabitants in rapidly growing cities, especially who live in informal settlements.

Master plans usually do not live up to the important challenges of the 21st century such as climate change, food insecurity, oil depletion, informality, etc.

The regulatory aspects of planning usually embody Western standards and associated technological requirements that are not only complex and time consuming but also found to be costly and unsuitable for the urban poor. Another problem is that plans are often drawn up by experts with little or no consultation with communities. Therefore there is little understanding of the dynamic and context of poverty and urbanization within cities in developing countries, leading to many generalizations about values, lifestyles, priorities, etc., which many not really align with the realities in Asian cities (UN-HABITAT 2009).

#### REFLECTION QUESTIONS:

Which of the plans in your city are being funded and implemented, which plans are out-dated or are not being implemented?

What percentage of the area of your city is planned; what is the percentage of people living in unplanned areas?

To what extent does the cultural context influence the rapid transformation of the cities?

Which densities and typologies reflect and enable local lifestyles?

The rapid transformation of Asian cities is happening now. Which mistakes can be avoided by learning from previous transformations of similar kind in Europe or North America? How can new technologies - from high-rise buildings to 'smart cities' - be exploited to the fullest?

What are the current urban trends in planning practices in Asia, in which ways do they differ from region to region, and in which ways can external models be imported? How can local planning tradition be preserved and at the same time modernised to accommodate new needs?

Are current urban planning models contributing to achieve sustainability in your country? What are the driving forces for urbanization?

Are urban planning practices taking into account local culture and participatory processes?



Changwon ©UN-Habitat/B. Barth

# A FRAMEWORK FOR URBAN SUSTAINABILITY



## 5 GUIDING PRINCIPLES FOR SUSTAINABLE URBANIZATION

*"We don't yet understand the long-term causes and effects at the intersection of natural phenomena and human behaviour. But we do know that creating long-term value in our resource constrained world will require a unified approach to design"*

Gary Lawrence,  
former director of planning  
for the city of Seattle.

### 5.1 SUSTAINABLE URBANIZATION AND HOW IT SHOULD BE VIEWED

To achieve sustainable urbanization it is important to recognize that sustainability is more than helping to reduce urban ecological footprints or increasing the durability of urban infrastructure. There is a realisation that no city, no matter where, no matter what size, can accomplish its goals by relying solely on existing 'master plans' or conventional practices and methods that separate urban planning, management and governance from one another. In this sourcebook, therefore, sustainable urbanization is understood as a process which promotes an integrated, gender-sensitive and pro-poor approach to the social, economic and environmental pillars of development, to meet not only the needs of the present but also safeguard the future. In order to shape urbanization in this manner, it is essential that policy makers, both locally and nationally, understand and establish the key principles

that need to be considered when formulating development strategies.

### 5.2 PRINCIPLES OF SUSTAINABILITY

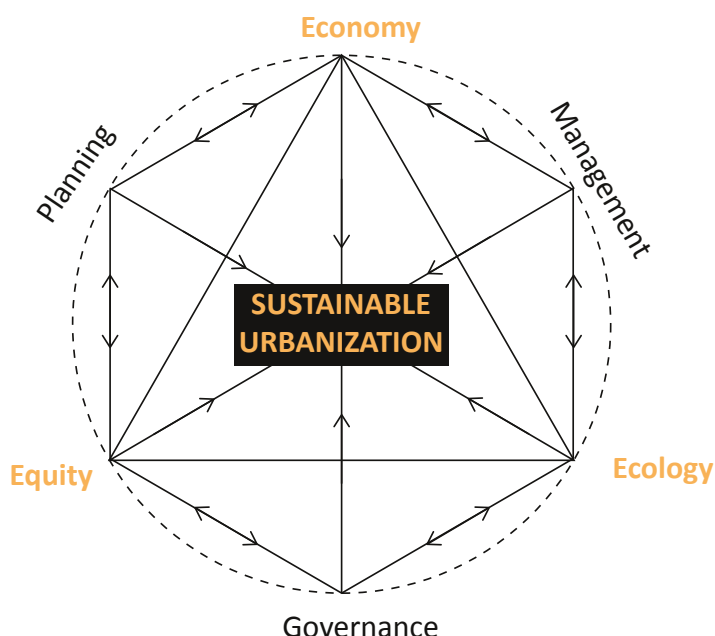
Sustainability requires that all forms of development and associated policies be judged on the basis of three criteria (the 3 E's forming the triangle below), be it on a national or local scale.

At a local scale, this ensures that every action taken – whether it be primarily regarding economic, social or environmental ventures -- will consider all other aspects to arrive at solutions which are balanced and cater to the sustainability of all three aspects. This guarantees that any action is not only environmentally sound but also economically viable and socially just.

Good planning, governance and management are a necessary condition for achieving sustainability. The framework also asks *who* participates, governs, and manages, *which* are the effects, on *whom* do they have an impact and *what* is to be done and *how*.

In order to respond to the imperative of sustainable urban development, local governments need to be in the position to govern, plan and manage their cities and this in turn requires an assessment of the institutional capacities of local governments, their departments and staff. More often than not a vigorous capacity development approach is necessary that goes far beyond the building of technical skills of individuals.

FIGURE 5.1 SUSTAINABLE URBANIZATION



Source: Adapted from Cohen et.al (2009)

**KEEPING IN MIND ALL 6 OF THESE ASPECTS WILL HELP DEVELOP PRINCIPLES OF SUSTAINABILITY IN YOUR CITY:**

- Environmentally sound and carbon-efficient built environment, including the use of appropriate technology.
- Vibrant, resilient and competitive local economies promoting decent work and livelihoods.
- Accessible and pro-poor land, infrastructure, services, mobility and housing.
- Governance structures that will empower cities and communities to plan for and effectively manage adversity and change.
- Socially inclusive, gender sensitive, healthy and safe development.
- Participatory planning and decision-making processes.
- Creating conditions of non-discrimination and equitable rights to the city.

Source: Adapted from World Urban Campaign (UN-HABITAT)

### 5.3 INTEGRATION OF SECTORS AND INSTITUTIONS

Achieving sustainability by engaging in comprehensive planning, governance and management may seem like a daunting task - especially when faced with limited budgets and restrictions at the local level. However, with innovative thinking and identification of, as well as building on, existing resources, it is possible to move towards sustainability through equitable and feasible eco-efficient development.

Currently sector policies and actors continue to be the primary drivers of urban development. Different local government departments, the private sector and other urban stakeholders focus on small “parts” of their city without meaningfully integrating their approaches for overall sustainable development. Sustainable urbanization requires an approach that combines different strategies and ideas in order to efficiently create a city that excels in competitiveness and quality of life, while safeguarding the environment.

### 5.3.1 AN INTEGRATED APPROACH TO URBAN DEVELOPMENT

Below are three strategies that can aid local governments in formulating an integrated approach to urban development:

- Assets based - as opposed to needs based approach. Starting the process of development with needs leads to dependency on external resources. Starting with existing assets and opportunities helps create 'development from within,' promotes partnerships to collaboratively take on issues of importance to the community and creates opportunities for growth.
- Horizontal integration - this has to occur between sectors. It allows local authorities to identify new opportunities for sustainable urban development within the spaces in-between sectors, and to address development challenges that are crosscutting in nature.
- Vertical integration - this has to occur between institutions and actors. It is required for the design and execution of policies and strategies and derived from a decentralized, multi-actor arena. Vertical integration has two dimensions: top-down (e.g. from national to local government, from city agencies to community boards) and bottom-up (e.g. from local government to national and from community boards or CBOs to city agencies).

#### IMPORTANCE OF THE LOCAL LEVEL

Responsibilities of local authorities are broadening due to decentralization and globalization. Local authorities now find themselves in settings which involve multiple actors and are required to cover a broad range of specialties that include housing, infrastructure, social and community services, local economic development and environmental protection. Thus the multi-dimensional and crosscutting nature of modern urban issues and challenges need an integrated outlook to urban management. Different departments should therefore work together more closely by integrating physical, socio-cultural and economic aspects of urban planning and development. Most gains in eco-efficiency can be made by institutional and organizational set-ups that enable healthy and effective urban management and by devising integrated solutions among sectors.

(ESCAP, UN HABITAT, 2011)

### 5.4 BUILDING CITIES FOR THE PEOPLE, WITH THE PEOPLE

Public participation in planning and designing urban infrastructure and services is essential for identifying what, why and how change should occur.

Participation of all stakeholders in a particular city ensures that any action taken and services provided are accurate reflections of the needs of people and that the benefits of development are shared more equally. Well managed participation can bring out concerns of different stakeholder groups such as women, youth, older people and people with disability; participation can also deal with conflicting development objectives; furthermore, it is a method by which all available options can be explored.

There are a number of conditions and guidelines that play a significant role in ensuring that participation goes beyond superficial consultation and becomes a form of meaningful practice. These are:

**Creating an enabling environment:**

- A committed city leadership, both political and bureaucratic.
- Conducive national policy and legislative framework, with support from higher levels of government.

**BENEFITS OF PUBLIC PARTICIPATION**

Participatory approaches are practised at all levels of planning. Many infrastructure-related projects integrate participatory elements in their set-up. The extent and nature of participation by different parties may vary. Local governments need to ensure they choose an appropriate level of engagement. For a simple project, an informal meeting might be sufficient, while a complex project requires an extensive participation procedure.

Public participation has many benefits, including:

- Better planning process and identification of problems
- Better and faster execution of actions
- Better response to local needs
- Greater ability to deliver within budget, with clear priorities
- Increased residents' understanding of problems
- Better support from residents towards initiatives
- Greater sense of belonging and influence amongst local inhabitants
- Increased community cohesion
- Capitalizing on people's experiences and community resources

(ESCAP, UN-HABITAT, 2011)

- Suitable political arrangements at the city or metropolitan level to ensure coordination and accountability, complemented by provision for direct and indirect participation.
- Participation that is broad and inclusive involving all relevant stakeholders, especially disadvantaged groups; creation of multiple channels for participation to involve all social groups at various levels of government.
- Civil society and community organizations need to be supported and involved in coordination. It is also useful to recognize and learn from their proven methods for organizing and empowering the poor.

**Creating a motivating process:**

- An open, fair and accountable process that is comprehensible, transparent and based on clear ground rules.
- An established distinction between short and long-term objectives; to create legitimacy and maintain commitment, rapid progress has to be made on selected short-term actions.
- Outputs that are adopted through proper prioritization and sequencing of action.
- A willingness to strive for consensus backed up by conflict resolution techniques and sound political decision-making.
- Establishment of monitoring and evaluation processes to track progress and outcomes, and that allow learning from experience. These should also allow for citizen involvement in monitoring implementation.
- Provision of long-term support to cities by local government associations, national governments, bilateral donors and/or

international agencies, and promotion of knowledge sharing between them.

positively impact the preparation of land-use plans and planning decisions.

- Closer links in legislation and practice between multi sectoral urban planning and management, and land-use planning so that promising participatory approaches can (ESCAP, UN-HABITAT, 2011)

#### REFLECTION QUESTIONS:

How are urban governance, planning and management supporting sustainable urban development in your city?

How do you engage citizens in your planning and development processes?

## 6 INTRODUCING SUSTAINABILITY IN YOUR CITY

Existing cities rarely have the luxury of engaging in large-scale physical restructuring or changing their urban design. Therefore it is necessary to understand how principles of urban sustainability may be applied to existing Asian cities with minimum disruption. The following chapter will elaborate current methods and practices of working towards sustainability in this context along with appropriate case studies based on successful practices within the Asian region.

### 6.1 GREEN ECONOMY

Economic growth is a foremost priority amongst developing Asian nations; this has increasingly led to conflicts between economic and environmental agendas. A Green Economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP). The concept connects economic development with environmental protection, and tries to demonstrate that the two are in fact not mutually exclusive. It seeks to guide economies on pathways of higher, more equitable growth with lower carbon, energy and resource intensity. It is considered a good modern method of applying principles of sustainability to existing cities as its measures are pro-growth, pro-jobs as well as pro-environment which not only integrates different perspectives but is attractive as it does not hinder a city's ambition of greater economic growth. Although some green industries in Asia are export oriented, many are based on the provision of locally-used services. This is thought to strengthen local employment with jobs that cannot be readily exported. It is also seen as an

opportunity to attract clean, high-tech industries helping these cities become centres of innovation and employment (Sustainablecities.net, 2007). This in turn is thought to build local skills and capacity that can then lead to new industry clusters as well innovative small and medium sized enterprises.

### 6.2 ENHANCING CONDITIONS FOR A GREEN ECONOMY

This can be achieved by:

- Minimizing zoning restrictions and permitting the orderly densification and extension of cities, by using land management tools, incentives, swaps of buildings, etc.

#### CITIES AND THE PRINCIPLES OF THE GREEN ECONOMY

- Use of innovative thinking, technology and maximum utilization of existing infrastructure.
- Efficient development that is not about destroying all that is familiar and adopting radical new approaches, but instead about making wise use of resources.
- The Asian Development Bank and the International Monetary Fund estimate that over the next 10 years, it would take USD 4.7 trillion to meet new infrastructure demands and USD 1.6 trillion to replace aging infrastructure.
- Shifting away from resource-intensive delivery of infrastructure by adopting green construction and promoting the retrofitting of buildings for energy and water efficiency, which have been identified as major possible sources of employment in green economies. It is currently accepted that every USD 1 million invested in building efficiency retrofits creates 10-14 direct jobs and 3-4 indirect jobs.
- Sustainable infrastructure also provides opportunities for additional

jobs in areas such as transport services, which usually accounts for a big portion of a city's job market (in many countries 1-2 per cent of jobs are in transport services).

- The manual refining of things that would normally be sent to a landfill also creates additional jobs in the waste sector, which is particularly advantageous for the unemployed in the informal sector.

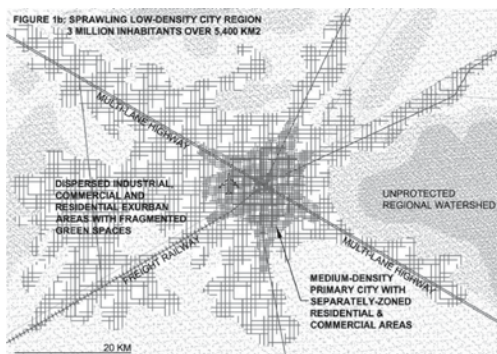
*Source: Swilling et al., 2010*

#### EMBRACING LAND PATTERNS THAT DISCOURAGE URBAN SPRAWL:

This involves encouraging future growth to occur in a more 'compact' manner with mixed-use land and medium to high-built densities, enabling efficient public transport and population thresholds that support concentrations of economic activity, services and facilities, while at the same time allowing for ample green spaces to improve surrounding ecosystems. Of course, it is acknowledged that cities need to be developed in diverse forms to achieve sustainability. Thus, the compact city form has to be implemented in areas where it is deemed suitable to local contexts and modified where it is not. In the context of Asia with its high number of natural disasters, densification must not lead to higher vulnerability of people, property and wider urban assets.

- Redeveloping inner cities through brownfield redevelopment where land abandoned by industry, rails, military barracks and ports is reused. This not only decreases development pressure at the urban fringe but also could yield additional benefits such as tax-revenues, job creation, reduced greenhouse gas emissions, and lower required investment in infrastructure.
- Providing for growth around public transport stations; referred to as 'Transit Oriented Development'. As there is lower dependency on private vehicles, greenhouse gas emissions are reduced and an orderly extension of cities can take place.

FIGURE 6.1: SPRAWLING LOW DENSITY CITY REGION



Source: UN-HABITAT (2011) *Urban Patterns for Sustainable Development: Towards a Green Economy*. (An urbanised region composed primarily of one low-density, sprawling conurbation is poorly suited to mass transit and strategically-located facilities, increases consumption and emissions and fragments the wider landscape in a manner that is detrimental to the functioning of ecosystems.)



"Unused urban spaces can be used to densify cities"  
© UN-Habitat/B. Barth

### BOX 3. ENERGY EFFICIENT COMPACT DESIGN: SINGAPORE

Well-planned cities are an essential component of creating efficient, sustainable cities. Singapore's comprehensive, integrated urban development planning has brought the city up to high standards of infrastructure. Measures such as creating high-rise, high-density urban forms that reduce private car travel and encourage the location of community facilities within walking distance of people or near public transport ensure that the city maximises its resources. The deliberate greening policy at the city, neighbourhood and building levels including the use of recycled construction materials provides for energy efficiency and minimizes the impact on climate change. Research conducted has shown that less radiant heat energy is emitted from denser urban areas than from expansive developed areas (Yuen & Kong, 2009).

#### EXPAND AND IMPROVE NETWORK INFRASTRUCTURE:

A competitive city region needs to be adequately equipped with network infrastructure. This not only involves expanding infrastructure to needed areas but also upgrading existing systems in order to get the most out of them. In an interview with stakeholders in 25 major cities around the world it was found that infrastructure was considered the most vital in attracting private investment.

This can be achieved by:

- Encouraging efficient multi-modal transportation systems that will reduce dependence on private automobiles and support compact development. The easy public access to and from urban centres improves the chances of a city remaining internationally competitive.
- Enabling the use of alternative energy sources can reduce power rationing, which can stunt economic and social development. Alternative energy advancements will allow these sources to become more viable options to meet the pent-up demand for energy in

### CONSTRUCTING A 'GREENER' BUILT ENVIRONMENT:

Building more efficiently and retrofitting existing structures can significantly reduce the existing use of energy and water given that, globally, 40 per cent of energy consumption goes into housing (building, maintenance, heating, cooling and lighting). In some energy-poor economies, conserving energy is fast becoming a necessity. In addition to saving money and leaving a smaller carbon footprint the environmental health benefits of energy efficiency (less air pollution, improved thermal comfort through natural ventilation, etc.) can be significant. These benefits have been seen in fewer sick days. Though the initial investment to achieve this may be high, generally the long-term savings outweigh the initial costs.

an environmentally friendly manner. Cities should be geared to take advantage of these advancements, particularly as the price of fossil fuels keeps climbing, making alternative energy sources more competitive.

This can be achieved by:

- Modernizing building regulations to require more sustainable construction measures and more green features such as solar water heaters.
- Ensuring that building and construction reforms are linked to sustainable urban planning with the objective to model a more efficient urban form.
- Advocating for legislative reform as soon as possible, accompanied by education in new building technologies and attractive financial incentives to adopt such technology.

### 6.3 CREATING GREEN JOBS

“When talking of ‘Green jobs’ many think of energy and waste efficiency through expensive automation of industries. This is not the case. Green industries refer to the methods by which we try to sustain our normal lifestyles without using as many natural resources as we currently do. In many cases, it refers to adapting skills and certain products to become more environmentally sustainable while ensuring that workers receive decent wages and benefits.” (*TIME*, 2008; *Green Careers Guide*, 2011)

While this approach may have a less direct impact on the physical structuring of a city towards sustainability, its focus on creating a more

#### THE NEED FOR GREEN JOBS IN ASIA:

Recent trends show that a huge reduction in jobs for migrant workers and blue-collar manufacturers is likely imminent due to a predicted shrink in trade-oriented sectors in Asia. For example, China’s mining industry saw employment fall from 9 million in 1996 to 5.6 million in 2007, a 38 per cent decrease.

Asian manufacturing industries are very likely to undergo vast changes with ever increasing limits put on global greenhouse gas emissions. As issues of climate change become increasingly urgent, the timeline to reverse and / or mitigate the damages caused by a high carbon global economy is ever shrinking - forcing many Asian economies to commit to carbon reduction targets. This is creating more pressure on Asia to continue its development based on less carbon-intensive industries. Therefore, creating jobs within a green industry sector is seen as an effective way of achieving sustainable development.

(*Asian Business Council*, 2010)

BOX 4 LOW-ENERGY OFFICE BUILDING: MALAYSIA

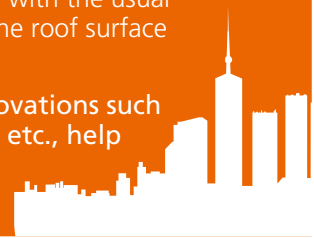
The Low Energy Office government building is a first of its kind in Malaysia. Located in Putrajaya, the building exceeded projected energy savings of 50 per cent compared to buildings lacking in energy-efficient design, achieving a total 58 per cent savings.

A few of the building’s cost-effective, energy-conserving measures include:

- Windows primarily orientated to where there is less direct sunlight
- Windows also equipped with appropriate shading mechanisms to allow maximum light while minimizing heat.
- The roof is equipped with 100mm of insulation (compared with the usual 25mm), and a second canopy has been set up to protect the roof surface from direct solar radiation.

These simple measures, together with several other innovations such as natural air ventilation, an innovative lighting system, etc., help reduce the energy burden of the building.

(Asia Business Council, 2007)

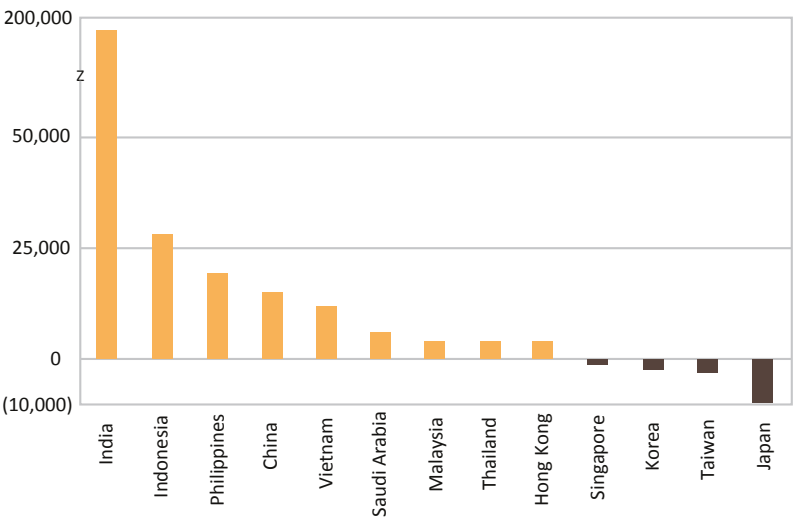


sustainable job market through the nurturing of ‘green’ industries within cities provides an economically and environmentally attractive manner of achieving both equity and sustainable development.

To further demonstrate the urgent need to shift focus to a more effective and sustainable form

of economic development, it is also necessary to understand what the future demographic projections are for the working populations in Asia and what it means for national and city economies. Chart 6.1 demonstrates the varying labour challenges to be faced by Asian economies.

FIGURE 6.1: SPRAWLING LOW DENSITY CITY REGION



Source: Asia Business Council, 2010

Based on current trends, the world working age population is set to grow from 4.5 billion in 2010 to 5.2 billion in 2025. It is thought that Asia will be responsible for 300 million of those additional 700 million workers. However, these trends

vary from country to country. Countries such as Korea, Japan, Singapore and Taiwan will be facing an aging population, becoming relatively 'labour-poor' over time. However, countries such as India, the Philippines, Indonesia, Malaysia and Vietnam will have a larger labour force in the future, making them relatively 'labour rich'. For labour rich economies the challenge will be to employ the excess workers and foster real economic gains through productive industries; whereas labour poor countries will have to employ their shrinking work forces in higher value-added jobs in order to ease the burden on these workers of supporting a growing retired population, as well as find workers with the right skills for new, technology-driven industries.

#### ADVANTAGES OF CREATING GREEN JOBS:

- The emerging green economy has flexibility to accommodate and offer employment opportunities for a wide range of skills and experiences.
- Industries that are related to carbon reduction such as renewable energy sectors and waste management can create new jobs that previously did not exist.
- It is estimated that over the next two decades the number of green jobs could reach 100 million worldwide – some of these jobs can be created in existing industries that are usually not thought of as green industries.
- Particularly for labour rich economies, more jobs at home would drive domestic economic gains by reducing the pressure to migrate or work abroad.

*(Asia Business Council, 2010)*



Informal waste recycling, Yangon ©UN-Habitat/B. Barth

#### REFLECTION QUESTIONS:

What opportunities do you see for your city to move towards a "Green Economy"?

Which sectors do you think lend themselves to creating green jobs?

As the Asian Cities Climate Change Resilience Network notes, a resilient city will incorporate certain elements into urban systems that will help to withstand a variety of challenges:

**Redundancy:** this is when there are several urban systems in place to serve similar functions. One system can provide substitute services when another system is disrupted. For example, the use of multiple energy sources with a variety of pathways distributing power to all parts of the city can be considered as infrastructure redundancy.

**Flexibility:** resilient cities need to be able to absorb shocks and/or slow the onset of challenges, avoiding massive, catastrophic failures. If a system or institution fails, the flexibility of the city dynamic will ensure that the impact will be minimal on other systems. This can include a diversified economy where populations are not exclusively dependent on a single industry – therefore having a selection of sectors and industries to absorb a work force and provide alternative livelihoods in case of the failure or disruption in one industry.

**Capacity to reorganize:** this involves the ability to change or evolve to changing situations and conditions. It involves recognizing when certain methods are no longer effective or appropriate. Finding new solutions and strategies should become a continual effort to address ever-changing challenges.

**Capacity to learn:** this addresses the need to utilize experiences from the past. Making sure that mistakes made, lessons learnt and successes are incorporated in future decision-making processes.

(ACCCRN, 2009)

## 7 URBAN RESILIENCE

### 7.1 UNDERSTANDING RESILIENCE

Our human settlements and livelihoods depend heavily on the resources provided by the earth's natural systems. The resilience of communities will then be partly determined by the ability of these ecosystems to buffer, recover and adapt to various environmental changes and their associated social and economic impacts.

Building urban resilience involves an acute understanding that climate change projections -- however sophisticated -- cannot predict the future with 100 per cent accuracy. According to UN-HABITAT's Cities and Climate Change Initiative (CCCI) and the Asian Cities Climate Change Resilience Network (ACCCRN) of the Rockefeller Foundation, this calls for adaptive solutions that are not specifically designed for a single climate future.

Furthermore, risks associated with climate change are not distributed evenly between countries or within countries. For instance, climate change is likely to have the heaviest impact on the small islands developing states, which include some of the poorest countries in the world. At the same time, within countries the urban poor often live in environmentally vulnerable sites (such as low-lying areas, along the banks of rivers or lakes, on steep slopes or in the proximity of waste dumpsites), which are likely to become more vulnerable due to the effects of climate change and increased natural disasters. Building resilience therefore needs to be pro-poor – given both the high levels of vulnerability of slum dwellers vis-à-vis natural disasters and the general dependence of the poor on climate-sensitive natural resources. Resilience then, can be understood as a process that enables cities to not only cope with shocks and stresses but also looks to tackle the challenges associated with poverty and facilitating more general improvements in quality of life.

### ELEMENTS OF URBAN RESILIENCE



Adapted from the Resilience Alliance.

## 7.2 DISASTER RISK REDUCTION

A key element of building resilience is Disaster Risk Reduction, which seeks to significantly reduce the damage caused by natural hazards such as earthquakes, floods, cyclones, etc. This is to be achieved by systematically analysing and reducing the underlying factors that contribute to disasters that follow natural hazards such as cyclones. It is acknowledged that a disaster's severity mainly depends on who is impacted by a hazard.

The United Nations International Strategy for Disaster Reduction proposes a ten-point checklist for its Making Cities Resilient Campaign.

#### TEN-POINT CHECKLIST - ESSENTIALS FOR MAKING CITIES RESILIENT

- Put in place organization and coordination to understand and reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role to disaster risk reduction and preparedness.
- Assign a budget for disaster risk reduction and provide incentives for homeowners, low-income families, communities, businesses and public

sector to invest in reducing the risks they face.

- Maintain up-to-date data on hazards and vulnerabilities; prepare risk assessments and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them.
- Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change.
- Assess the safety of all schools and health facilities and upgrade these as necessary.
- Apply and enforce realistic, risk-compliant building regulations and land use planning principles. Identify safe land for low-income citizens and develop upgrading of informal settlements, wherever feasible.
- Ensure education programmes and training on disaster risk reduction are in place in schools and local communities.
- Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to climate change by building on good risk reduction practices.
- Install early warning systems and emergency management capacities in your city and hold regular public preparedness drills.
- After any disaster, ensure that the needs of the survivors are placed at the centre of reconstruction with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods.

UNISDR 2010 (<http://www.unisdr.org>)

### 7.3 ADAPTING TO CLIMATE CHANGE

The concept of adaptation refers to actions taken to respond to climate change. These usually can be done through a combination of utilizing existing city resources and accessing additional funds that are slowly becoming available. Protecting forests or planting new trees on nearby hills can prevent landslides and flooding. Using mangroves as a natural sea wall can defend the land from storm surges. These are all a part of making cities more adaptable to adverse effects of climate change. Disaster Risk Reduction, as described in the previous section, is one

key element of Climate Change adaptation. However, Climate change adaptation is much broader. Sometimes, for instance, the reduction of Greenhouse Gas emissions is itself considered an Adaptation option as it indirectly reduces climate change impacts in the long run. Climate change adaptation refers to the reduction of vulnerability. This can include reducing the exposure to climatic hazards (for example by moving from the coastline or a flood prone area), reducing the sensitivity to climatic impacts and improving the adaptive capacity by building better houses or flood defences or developing alternative livelihoods.

#### MEASURES OF CLIMATE CHANGE ADAPTATION IN CITIES

##### Social

- Enhance community resilience
- Upgrading of slums: Relocation of extremely vulnerable settlements and infrastructure
- Ensuring all relevant actors and organizations have capacity and knowledge prompted by good governance
- Invest in effective emergency services
- well trained and provisioned health services

##### Economic

- Access financing mechanisms such as the UNFCCC Adaptation Fund
- Insurance schemes
- Ensure economic development occurs according to principles of sustainability
- Diversification of jobs, focusing on climate dependent livelihoods

##### Environmental

- Climate proofing of urban infrastructure, e.g.: seawalls and storm surge barriers as well as water and sanitation, transport and energy infrastructure.
- Explore eco-systems based adaptation (coastal zone

rehabilitation, reforestation, wetlands, urban eco-system restoration) to reduce impacts of extreme events (for example flooding) and sea-level rise.

- Explore urban agriculture for climate change adaptation
- Investing in storm water drainage
- Placement of early warning systems
- Reduction of and adequate disposal of solid waste
- Reduce environmental burden of transportation and urban infrastructure

##### Urban Planning, Management and Governance

- Setting up a climate change coordinating mechanism at the highest level of the city.
- Climate proofing Land Use Plans as well as citywide and sectoral plans
- Climate change and natural disasters don't stop at municipal boundaries; governance systems need to respond to this fact
- Environmental Management needs to consider climate change
- Disaster Management needs to consider the changing nature of disasters

(UNISDR, 2005, ICLEI, 2009, UN-HABITAT 2011)

#### BOX 5 CLIMATE CHANGE RESPONSE, SORSOGON CITY IN THE PHILIPPINES

Following its climate change vulnerability assessment, Sorsogon City set up a comprehensive city-wide consultation process with residents and stakeholders which resulted in a climate change plan with four main components:

The housing and basic infrastructure component focuses on developing local minimum building standards for climate change resilient low-income housing and to apply these in demonstration houses. The livelihood component focuses on the most vulnerable sectors (fisheries and agriculture) and the identification of alternative livelihoods. The Climate and Disaster Risk Reduction component focuses on a combination of better information and awareness of the community, better coordination between different government departments on the national and local level and on retrofitting of school buildings used as evacuation centres. The fourth component focuses on climate change mitigation, which is particularly remarkable given the limited Greenhouse Gas emissions associated with Sorsogon City. Early on the city had committed to convert traditional light bulbs with CFL bulbs. The second key element of the mitigation plan is the conversion of the omnipresent motor tricycles, used as taxis, most of which have two-stroke engines. Technology for electric tricycles is available in the Philippines and a Social Bank provides loans for such a conversion. Sorsogon is in negotiations to advance these plans. For more information please visit: [www.unhabitat.org.ph/climate-change](http://www.unhabitat.org.ph/climate-change).



Sorsogon City, Philippines © UN-HABITAT/Bernhard Barth

*UN-HABITAT's Cities and Climate Change Initiative is active in more than 20 cities in the Asia and Pacific region. A host of tools and experiences are available for interested cities ([www.unhabitat.org/ccci](http://www.unhabitat.org/ccci)).*

## 7.4 MITIGATING CLIMATE CHANGE

Mitigating climate change refers to the reduction in greenhouse gases. For many cities in Asia this may not be as much a priority as adapting to climate change given that the overall greenhouse gas emissions of small and medium sized cities are often relatively small and the pressure is high to prepare for on-setting climate change.

However there are a number of reasons why climate change mitigation makes sense, some of which are discussed in Chapter 6 on the Green Economy and in the next Chapter 8 on Sectoral Entry Points.

### **Why cities should reduce their greenhouse gas emissions?**

- There are many 'no regrets' mitigation actions that make sense even in the absence of

climate change. For example energy savings will reduce energy costs and in some cases will reduce air pollution.

- Reducing sprawl can reduce the costs transport and infrastructure services and the associated environmental costs.
- The investment decisions taken today can 'lock in' a particular level of emissions for the future that may not be sustainable.

#### What cities can do to reduce their greenhouse gas emissions?

- **Urban Design:** use opportunities to increase city density and reduce sprawl, which would reduce infrastructure and
- **Transport:** Invest in public transport; promote non-motorized transport.
- **Buildings:** Make municipal buildings 'green', promote energy efficient building and construction techniques and material, and provide incentives for energy savings.
- **Waste:** Compost organic waste or recover methane from landfills.
- **Energy:** Promote renewable energy, for example solar water heaters.

#### REFLECTION QUESTIONS:

Has your city conducted a climate change vulnerability assessment?

In your opinion, what are key climate change actions the local government should take?

What ways are there to increase your city's disaster preparedness?

## 8 SECTORAL ENTRY POINTS

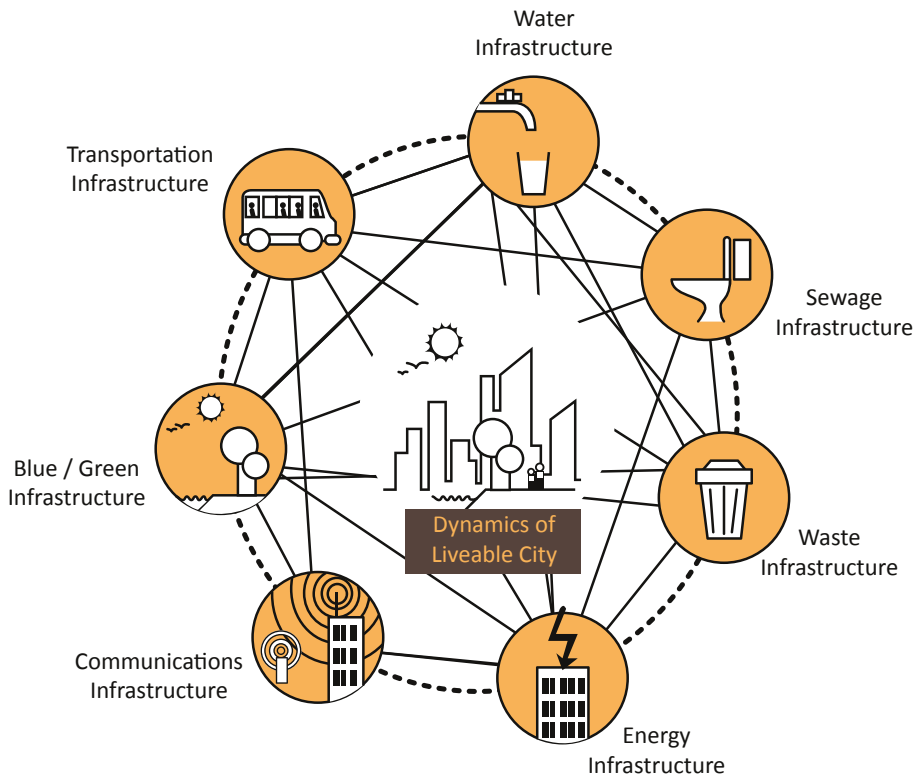
While sustainable development requires the integration of a variety of sectors and actors often the more feasible manner of tackling local sustainability issues continues to be through the identification and management of opportunities in specific municipal sectors. Sectoral entry points are of paramount importance to local governments as small changes can make big differences. Often no outside technical or financial support is necessary and the local government in collaboration with a variety of local actors can implement change. Graph 8.1 demonstrates the various sectors that can be addressed locally in a more sustainable manner. The following section will elaborate on a few

of those sectors with a brief outline of the key strategies identified within the individual sector.

### 8.1 SOLID WASTE MANAGEMENT: INTEGRATED SUSTAINABLE WASTE MANAGEMENT (ISWM)

Managing solid waste well and affordably has become one of the key challenges of the 21st century. How well this challenge is handled tends to directly affect people's perception of the effectiveness of their city government. This framework developed by WASTE, a Dutch NGO and its South Partner Organizations, and furthered by the Collaborative Working Group on Solid Waste Management in Low and Middle-Income Countries (CWG), is seen as an effective method for working towards sustainability within the waste sector. (see graph 8.2)

GRAPH 8.1 ORCHESTRATION OF SECTORS



Source: ECLAC, ESCAP, UN-HABITAT, Urban Design Lab (2011)

**The Integrated Sustainable Waste Management framework recognizes three important dimensions**

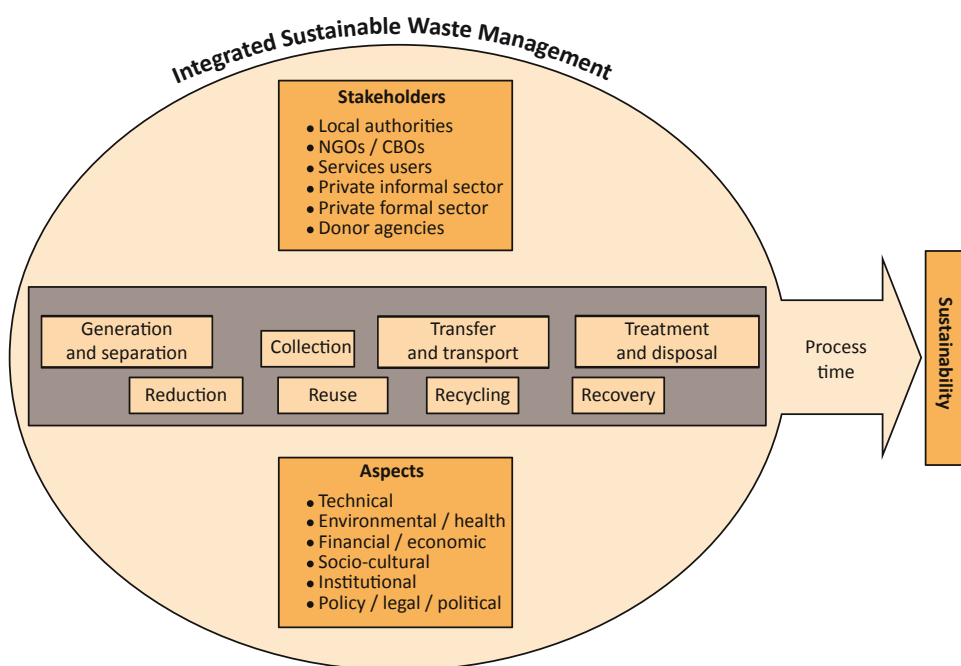
- *The stakeholders:* Prompts to not only recognize traditionally involved stakeholders but also informal and unrecognized stakeholders such as street sweepers, waste-pickers and people who live off recycling, and waste generators such as households, hotels, etc.
- *The elements:* Technical components of waste management systems are seen as only a part of the overall picture. Solid waste management consists of different activities including reduction, reuse, etc., and various stakeholders operating at a variety of scales.
- *The aspects:* Emphasises consideration of all operation, financial, social, institutional,

political, legal and environmental aspects to assess current situations.

## 8.2 SUSTAINABLE URBAN ENERGY

To exert less pressure on energy production, it is necessary for cities to cut down consumption and promote behavioural changes. Even actions that reduce energy use by a small amount at the individual level can lead to large reductions in the amounts of energy needs citywide. Energy conservation is still considered the most cost-effective and efficient intervention in the energy system. This is primarily due to the fact that the reduction at the level of the end user has multiplier effects (no losses converting energy to uses such as light, no transmission and distribution losses, and no losses of energy during the production process). Reducing energy consumption is particularly important as production and transmission losses of centrally

GRAPH 8.2: INTEGRATED SUSTAINABLE WASTE MANAGEMENT (ISWM) FRAMEWORK



Source: WASTE (advisers on urban environment and development), Gouda, the Netherlands

generated electricity can be as high as 80 per cent. This means a reduction of energy use of 20 units could potentially reduce the need to produce 100 units.

Improving building regulations and retrofitting existing buildings to make them more energy efficient is also an effective way of significantly improving and reducing common energy wastage associated with poor building quality. Adopting green designs in building infrastructure is considered the least cost intensive option that leads to major savings of energy.

Relatively straightforward measures such as adding insulation and solar thermal installations, creating natural ventilation, using improved lighting technologies and greater use of daylight are not only found to be extremely effective but also develop local skills and stimulate local economies.

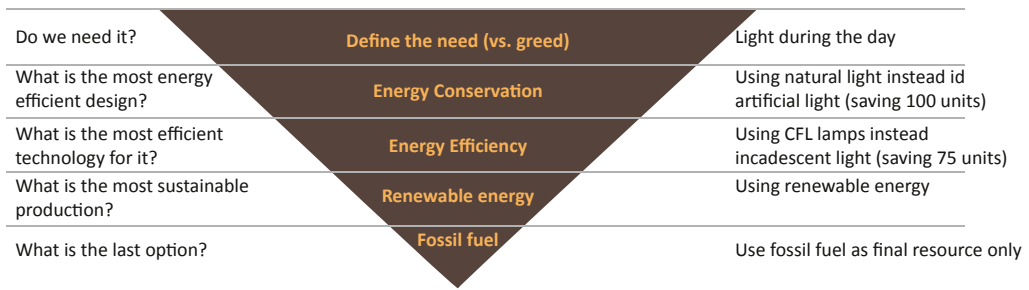
### 8.3 IMPROVED URBAN MOBILITY: A SUSTAINABLE, ACCESSIBLE CITY THROUGH TRANSIT ORIENTED DEVELOPMENT

In 2008 it was found that the transport sector accounted for about 22 per cent of the global CO<sub>2</sub> emissions, a number that is steadily on the rise as the rate of private car ownership, particularly in Asia, continues to rise (IEA, 2010).

Creating sustainable transport infrastructure that includes both motorized and non-motorized transport not only lowers the carbon footprints of cities but also aids in creating a vibrant city that offers a higher quality of life for its citizens.

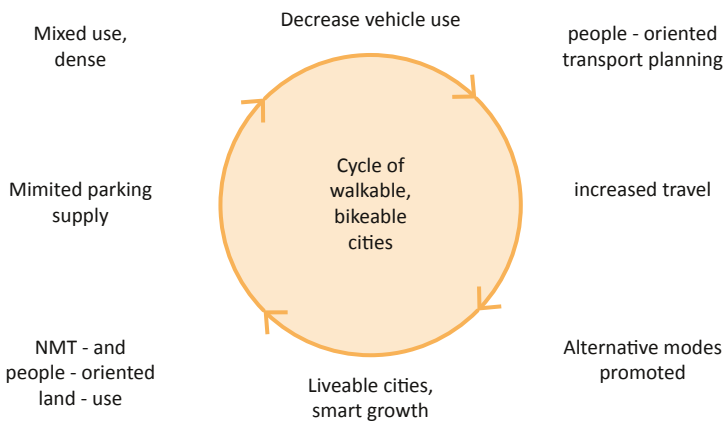
Transit oriented development means city development that is more accessible for non-motorized transport and reduces the overall dependency on motorized vehicles.

GRAPH 8.3: ENERGY PYRAMID – EXAMPLE OF LIGHTING



Source: UN-HABITAT, IUTC (2012): *Sustainable Urban Energy- A Sourcebook for Asia*

GRAPH 8.4: CYCLE OF WALK-ABLE AND BIKE-ABLE CITIES



Source UNEP 2010

Key characteristics of Transit Oriented Development:

- A rapid and frequent transit service
- High accessibility to the transit stations
- A mix of residential, commercial and community uses
- High-quality public spaces, and streets which are pedestrian and cyclist friendly
- Medium to high density development within 800 metres of a transit station
- Reduced rates of private car parking (Adapted from Queensland, 2011)

#### REFLECTION QUESTIONS:

In your opinion, which sectors promise the biggest development gains with limited investments and simple changes to management and governance?

What opportunities do you see for the sector departments in your city to collaborate more closely?

## 9 STRATEGIC PLANNING

Engaging in planning - whether it is spatial, economic, sectoral, environmental, or organizational- is thought to be more effective if it is strategic. Strategic planning is recognized as an important tool that helps local governments conduct themselves more efficiently and effectively in the designing of policy and in its implementation. It helps move cities away from ad-hoc and short-term decision-making, ensuring that long-term visions get translated into practical objectives. Strategic planning then is a systematic decision-making process that provides a framework for action: a way to determine priorities, make wise choices and allocate scarce resources to achieve agreed-upon objectives.

### 9.1 THE PLANNING FRAMEWORK

For this kind of planning strategy to work, it is essential that planners and policy makers keep in mind four essential questions that will aid them in addressing urban challenges and creating an effective and inclusive, long-term development plan. Addressing these four essential questions represents the four general stages of the process.

- Where are we now?
- Where do we want to go?
- How do we get there?
- Are we getting there?

Graph 9.1 illustrates how answering these four general questions can be broken down into 10 more detailed steps.

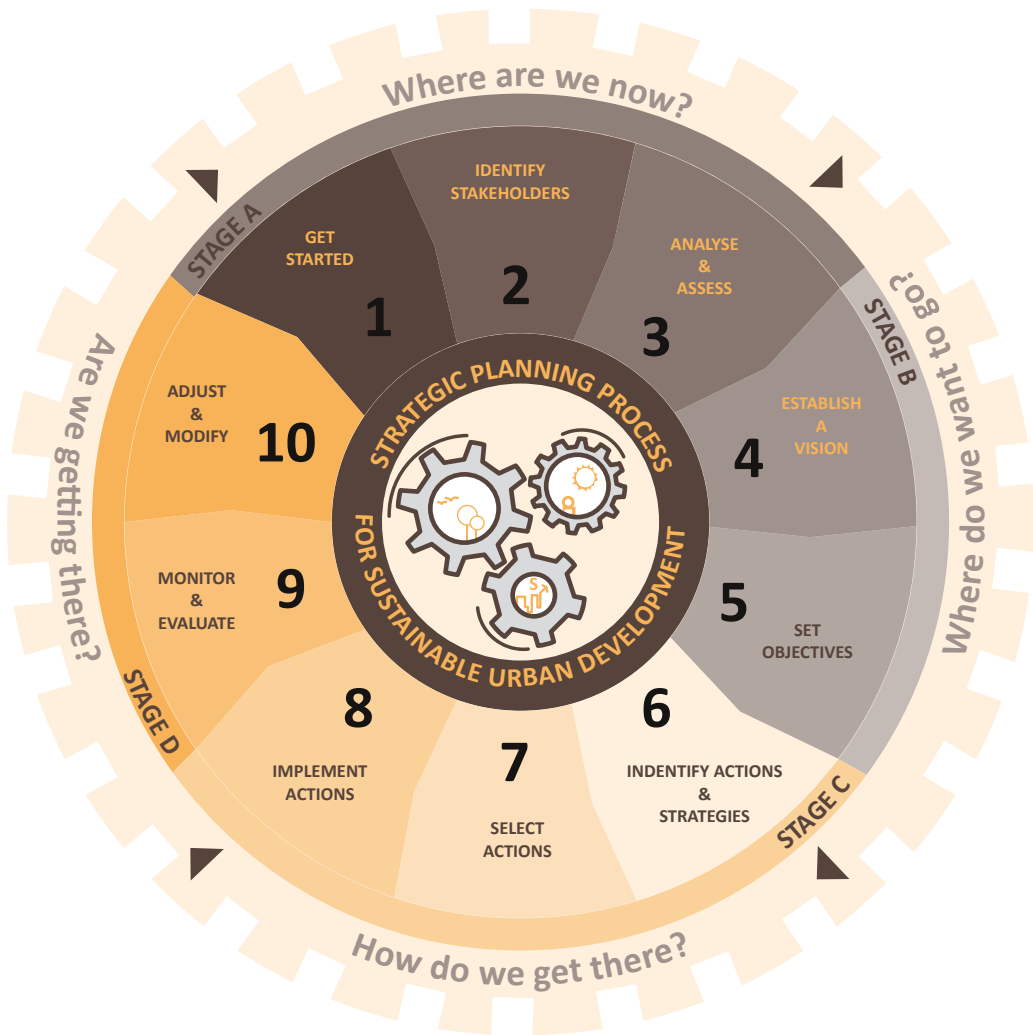
### 9.2 CITYWIDE PLANNING: TAKING ONE STEP AT A TIME

The following section will cover each step in the strategic planning process, highlighting important points that policy/decision makers need to keep in mind in order to facilitate an efficient and inclusive planning process.

#### WHY IS STRATEGIC PLANNING IMPORTANT?

- It is able to 'catch' and mobilize different resources towards a common vision, and shared goals and objectives.
- Engaging in a strategic planning process offers a way to improve the necessary interaction among businesses, government, labourers and the poor.
- If done well it provides a way to achieve competitive advantages, identify cooperative opportunities for win-win solutions, craft innovative options and generate actions that better achieve local priorities.
- On a practical scale, it can provide better information for decision-making by highlighting the real costs and benefits of various alternatives. (ESCAP, UN HABITAT, 2011)

GRAPH 9.1: THE STRATEGIC PLANNING PROCESS



Source: ECLAC, UN-HABITAT, ESCAP and Urban Design Lab (2011)

**STEP 1: GAINING POLITICAL SUPPORT, LEADERSHIP AND OWNERSHIP**

When deciding to embark on a strategic planning process, it is first necessary to ensure that there is adequate political support for the initiative and its goals at the local, and at times national, level. In addition to the support of officials and authorities it is also important to inform and include civil society; this will ensure that peoples' needs are heard and that women's rights and marginal and vulnerable groups are represented, with a clear understanding and reflection of on-the-ground reality. Later on, these groups will act as watchdogs - helping make sure the plan is carried out.

**STEP 2: CREATING RESPONSIBILITY FOR MANAGING THE PROCESS**

All administrative and technical local/national government bodies involved in urban planning need to be given a clear definition of their managerial responsibility for the process. Too often this is not done, which in turn creates confusion, overlap and overall inefficiency.

**STEP 3: REACHING A COMMON UNDERSTANDING**

What does city wide strategic planning mean to a particular city? It is necessary to gain a clear understanding of the context of the city. Through this it is possible to identify the particular entry point(s) through which stakeholders wish to address certain issues. There are no standard solutions to strategic planning therefore it is necessary for each city to recognize its opportunities and shortcomings and be able to adapt the process according to local needs and priorities.

**STEP 4: FORMULATING A VISION**

Information gathering is an essential component of the process. Any and all sector studies, reports, plans and policies that preceded the current initiative should be reviewed along with other development strategies, making use of existing frameworks or discovering where things may be lacking. This will also help identify priorities and discover and/or create links to other programs. Based on the information gathered, it will be possible to establish a vision of 'where we want to be in the future'. The key to creating a vision is to have the involvement of all key stakeholders and for it to be realistic and achievable.

**STEP 5: IDENTIFYING OBJECTIVES**

These define the priorities in the way infrastructure should be developed. Objectives are the core of the decision-making process because the ambitions stated in them will lead to actions to achieve them. Therefore, objectives need to be absolutely clear. The following tasks can help you set objectives: identifying important city issues, organizing those issues, restating issues and objectives, ensuring that the objectives are eco-efficient, selecting related indicators.

**STEP 6: ACTIONS AND STRATEGIES**

Once objectives are set, the next step is to compile a list of actions needed to address them. In this context, actions are seen as individual ideas for achieving objectives while strategies are a group of actions working together to maximize the effectiveness of each action within and throughout sectors. These actions need to be scrutinized according to their relevance to achieve the set objectives and their feasibility.

### STEP 7: SELECTING ACTIONS

The next step is to decide which actions are better equipped to meet the identified objectives, while addressing social, environmental and economic issues, and fitting with current urban planning priorities and gaps. When doing this it is necessary to assess the consequences of actions and groups of actions (strategies), and using this information to prioritize the best ones. It is also useful to evaluate mainstreaming opportunities and then refine actions and strategies to take advantage of these.

### STEP 8: IMPLEMENTING ACTIONS

Generally, when moving from ideas to actions, planners often tend to be less effective. Ideas are generally poorly implemented due to a variety of reasons such as lack of political will, lack of cooperation between sectors, funding and resources not coming through, etc. Considering these issues at an early stage can increase the possibility that ideas actually become actions.

UN-HABITAT in collaboration with EcoPlan International has developed detailed tools for varying planning challenges following the planning wheel approach. They include “Promoting Local Economic Development through Strategic Planning” and “Planning for Climate Change”. The process was adapted for the ECLAC, UN-HABITAT, ESCAP, Urban Design Lab “Guidelines for developing eco-efficient and socially inclusive urban infrastructure”

### STEP 9: MONITORING AND EVALUATION

Planning is a continuous process. This step helps answer the question: “Are we getting there?” Monitoring involves a continuous process of measuring progress and performance of each step in the planning process to identify successes and failures as early as possible. Evaluation on the other hand, utilizes the information gained from monitoring to see if changes need to be made.

### STEP 10: ADJUSTING AND MODIFYING

As cities are rapidly and constantly changing, objectives and plans too need to change and adapt to current situations on a regular basis. New information and knowledge that may develop along the way should also be taken in and given consideration. Long-term plans and strategies should be reviewed and if deemed necessary, adjusted. This should occur every 5 years.



Seoul © UN-HABITAT

## 10 POLICY RECOMMENDATIONS

### 10.1 FUTURE POLICY CONSIDERATIONS FOR LOCAL GOVERNMENTS

#### Planning considerations:

- Plan in advance for rapid population growth, allocating the required reserved land for guided urban expansion.
- Plan according to the scale of the problems, acknowledging that each city has different characteristics and needs.
- Plan incrementally, starting with streets and following with basic services such as water and sanitation, drainage, energy, etc. This gives priority to improving the proportion of land allocated to streets and in turn supports service delivery and progressive taxation.
- Assure the proper design of the urban network for more efficient sustainable transport and energy provision.
- Encourage (or maintain) mixed land use and multi-functional spaces to assure a suitable density that facilitates economies of scale and enables social cohesion.
- Promote public participation in urban planning. It will increase the engagement and awareness of city dwellers regarding urban planning processes.

#### Economic considerations:

- Special attention should be paid to informal economies with sustainable measures taken to enable them to play a more positive role in employment generation and housing production.
- Cities must build the institutional capacity and strategic vision to manage economic growth in a more inclusive manner.

- Cities must look to incorporating green economy principles and technology into the economy to harness the potential of its growth and corresponding opportunities.

#### Social considerations:

- Ensure that all initiatives take into account social justice and inclusivity by incorporating a more holistic, integrated and citywide approach.
- Local authorities need to make more concerted efforts to reduce urban inequality.
- Unlawful evictions that destroy the economic and social networks of poor neighbourhoods should be avoided. Where slum eradication is necessary it should be done ensuring fair relocation and compensation.
- As most growth is predicted to occur in cities, then cities must be where climate change should be addressed in an urgent manner.

#### Environmental considerations:

- Efforts must be taken to utilize solid waste as a useful urban resource to both ease environmental stress as well as provide opportunities for the poor.
- Energy-efficiency of infrastructure must be kept in mind in order to reduce greenhouse gas emissions.
- Increase focus on renewable energy techniques and technologies with special attention on local renewable resources.

#### Governance and management:

- Policy makers in medium and small-sized cities should focus on their infrastructure and basic urban services and increase urban governance capacities.
- Create less hierarchical and more interactive ways of working within the urban planning system to encourage cooperation, flexibility and cooperation both within and between different sectors and groups of actors.

- It is important to allow and encourage inclusive participatory systems as these can enrich the exchange of knowledge and ideas, leading to better plans. Likewise, communities that are allowed to participate are more likely to take ownership of planning initiatives, which is important for long-term sustainability of outcomes.
  - Focus on innovative measures, especially when faced with limited resources and legitimacy. Building public support for regulation should be considered essential.
  - Policy makers should focus on holistic, integrated and citywide approaches. Key sectors may provide strategic entry points thorough which the transformation process to sustainable development can take place.
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Rapid urbanization -- together with climate change -- is emerging as the most challenging issue of the twenty-first century. As the region with the highest percentage increase in urban population over the last two decades, Asia faces fundamental economic, social and environmental challenges to its continued development. However, well planned and effectively governed and managed cities can provide the solution to many of these challenges. With the right economic policies and more equitable growth, poverty and slum reduction are achievable goals. Putting cities on the right path now can result in thriving, dense, green, resilient and sustainable cities.



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