

UN HABITAT

GLOBAL REPORT ON HUMAN SETTLEMENTS 2011



## RISKY CITIES: THE DEADLY COLLISION BETWEEN URBANIZATION AND CLIMATE CHANGE

*By 2050 there could be as many as 200 million climate change displaced people*

Unprecedented disaster, wide-scale disruption and loss face many of the world's cities because of climate change. This is the stark warning in **Cities and Climate Change: Global Report on Human Settlements 2011**.

At the same time, more than half of the world's population now live in urban centres. Soon it will be two-thirds. The growing demands of cities in terms of consumption and lifestyle compound the pace of climate change and increase the risks.

With a call for immediate action by cities of the world, the report states that, if concerted action is not taken to reduce greenhouse gases and promote more environmentally sustainable and fairer urban development, there will be a deadly collision between urbanization and climate change.

This collision has been, and continues to be, fuelled by two human-induced factors. The first is urbanization, and the second is the impact of greenhouse gases that this report describes as having been 'unleashed by development and manipulation of the environment'.

'Urban enterprises, individual use of vehicles and rising consumer populations are key sources of greenhouse gases. Not only are cities major contributors to climate change, but with ever-increasing densities, they will also be the hardest hit when nature strikes back,' said Joan Clos, the Executive Director of UN-HABITAT. "We have to have robust local level responses to climate change if we are to have any real impact."

According to this report, many cities exceed the recommended annual average figure of 2.2 tonnes of CO<sub>2</sub> equivalent value per capita. 'A dynamic, complex and strong link exists between economic development, urbanization and CO<sub>2</sub>'; our models of growth may be fundamentally flawed.

### SOME OF THE POSSIBLE EFFECTS ON THE WORLD'S CITIES:

- As many as 200 million people will be displaced by climate change by 2050.
- It is predicted that sea level rise and its associated impacts will, by the 2080s, affect five times as many coastal residents as they did in 1990.
- In coastal North African cities, a 1-2 degree increase in temperature could lead to sea level rise exposing 6-25 million residents to flooding.
- By 2070, almost all cities in the top ten exposure to flooding risk category will be located in developing countries (particularly in China, India and Thailand).
- Today around 40 million people live in a 100-year flood plain. By 2070 the population living at this risk level could rise to 150 million people. The estimated financial impact of a 100-year flood would also rise from US\$3 trillion in 1999 to US\$38 trillion in this time.
- In Latin America, 12-81 million residents could experience increased water stress by the 2020s. By the 2050s this number could rise to 79-178 million.

### REAPING THE WHIRLWIND

Cities will need to brace themselves against an assault of powerful natural forces. Increased oceanic warming, melting and thawing of ice and the subsequent sea level rise presents a threat to millions living in coastal cities.

With it will come more frequent storm surges - causing flooding and physical damage, inundation, coastal erosion, increased salinity and obstructed drainage.

Natural disasters, such as Hurricane Katrina in 2005 or the 2010 flooding in Pakistan, will only become more common, and affect the thousands of major coastal cities in developed and developing countries alike.

Climate change is likely to hit the social fabric of cities and increase poverty through the high costs of damaged water supply, transportation systems, health services, and energy provision, industry and commerce and the very ecosystems themselves.

Furthermore, the disruption to local economies is likely to lead to mass migration and possible conflict. One conservative projection indicates that by 2050 there could be 200 million climate change-displaced people looking for new homes or new countries.

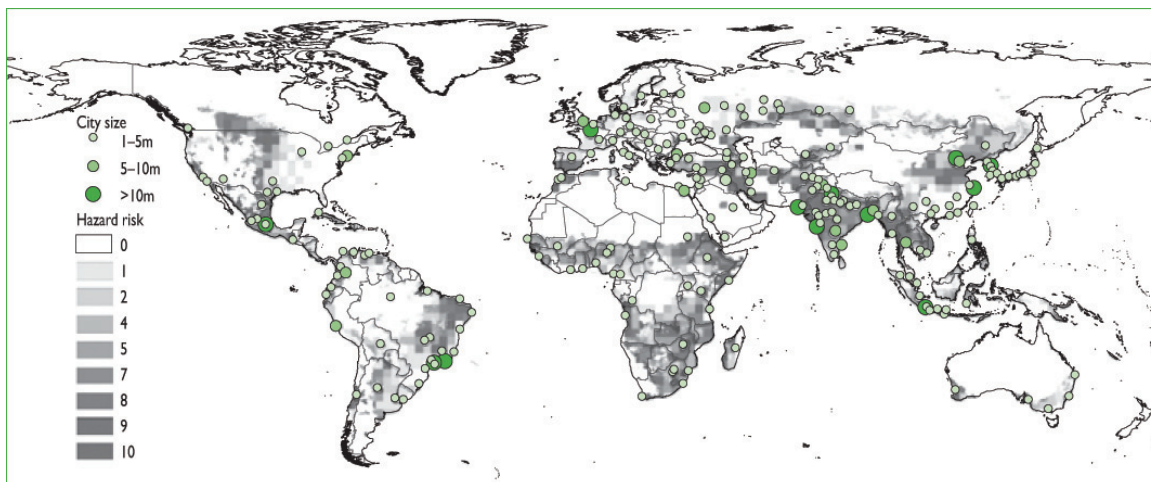
## EXPANDING CITIES BY THE SEA

An estimation quoted in this report, says that while cities take up approximately 2 per cent of the Earth's land mass they cause up to 70 per cent of the world's total CO<sub>2</sub> emissions. But not every country contributes to global warming at the same level. The history of urbanization is predominantly a coastal phenomenon, and its recent history is one of voracious energy use linked to increasing greenhouse gas emissions. Unless they act fast to change climate change's current course, this report warns, they will reap a whirlwind.

Sea level rise projections from 2030 to 2050 indicate that Egyptian cities in the Nile Delta will be severely impacted including Port Said, Alexandria, Rosetta and Damietta. Low lying coastal cities such as Copenhagen, Denmark will be especially vulnerable to sea level rise. Many small island communities in the South Pacific are also at risk and some could become completely submerged, leaving their populations displaced.

Cities will face increased tropical cyclones as well as heavy rains with increased flooding and landslides; they will also be hotter with more frequent drought conditions – the pressure on food supply and water availability could be severe with potential civil unrest expected.

**FIGURE 1.1: CITIES IN RELATION TO CURRENT CLIMATE RELATED HAZARDS**



**Note:** The urban areas included in this figure have populations greater than one million. The hazard risk represents a cumulative score based on risk of cyclones, flooding, landslides and drought. '0' denotes 'low risk' and '10' denotes 'high risk'.

**Source:** Based on de Sherbinin et al, 2007, Figure 1

## POOR AND VULNERABLE

The present rapid pace of urbanization is unprecedented, with an almost five-fold increase of the urban population between 1950 and 2011. The fastest rates of urbanization are currently taking place in the least developed countries. In fact, that is where more than 90 per cent of the world's urban population growth is occurring.

At the same time many of those people are forced to live in slums and informal settlements that are often built on marginal or dangerous land that is not deemed suitable for permanent residential structures, such as steep slopes, flood plains or industrial areas. Faulty construction methods and missing or inadequate infrastructure design contribute further to slope degradation. These populations are even more vulnerable to the impacts of climate change, such as heavy rain, flash floods and landslides.

According to the report, cities and climate change are on course for a deadly collision.