



*Re-Imagining Inclusive Urbanisation - People Building Better Cities*

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**Bhopal 2012**



# **Participatory Planning in India's Low Elevation Coastal Megacities: Climate change mitigation and adaptation towards sustainable and equitable cities**

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Re-Imagining Inclusive Urbanisation Conference

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# Imagining Sustainable Cities



**Sino-Singapore Tianjin Ecocity Project**

# Coastal Defences Against Flooding

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The Thames Barrier

[http://s0.geograph.org.uk/photos/17/53/175396\\_4ab433f9.jpg](http://s0.geograph.org.uk/photos/17/53/175396_4ab433f9.jpg)

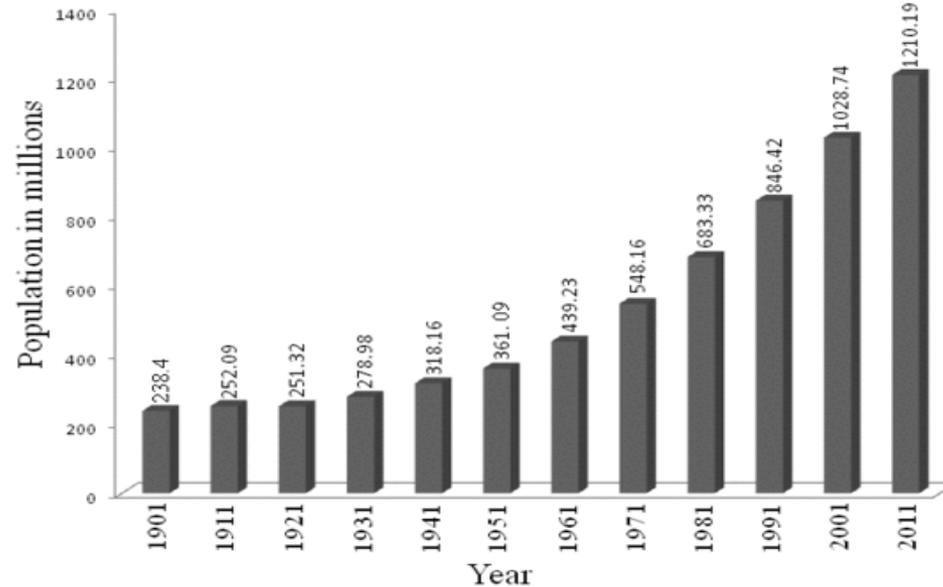


London if the Thames Barrier Failed

[http://images.google.com/imgres?imgurl=http://news.bbc.co.uk/nol/shared/spl/hi/pop\\_ups/07/](http://images.google.com/imgres?imgurl=http://news.bbc.co.uk/nol/shared/spl/hi/pop_ups/07/)

# Population Increase in India

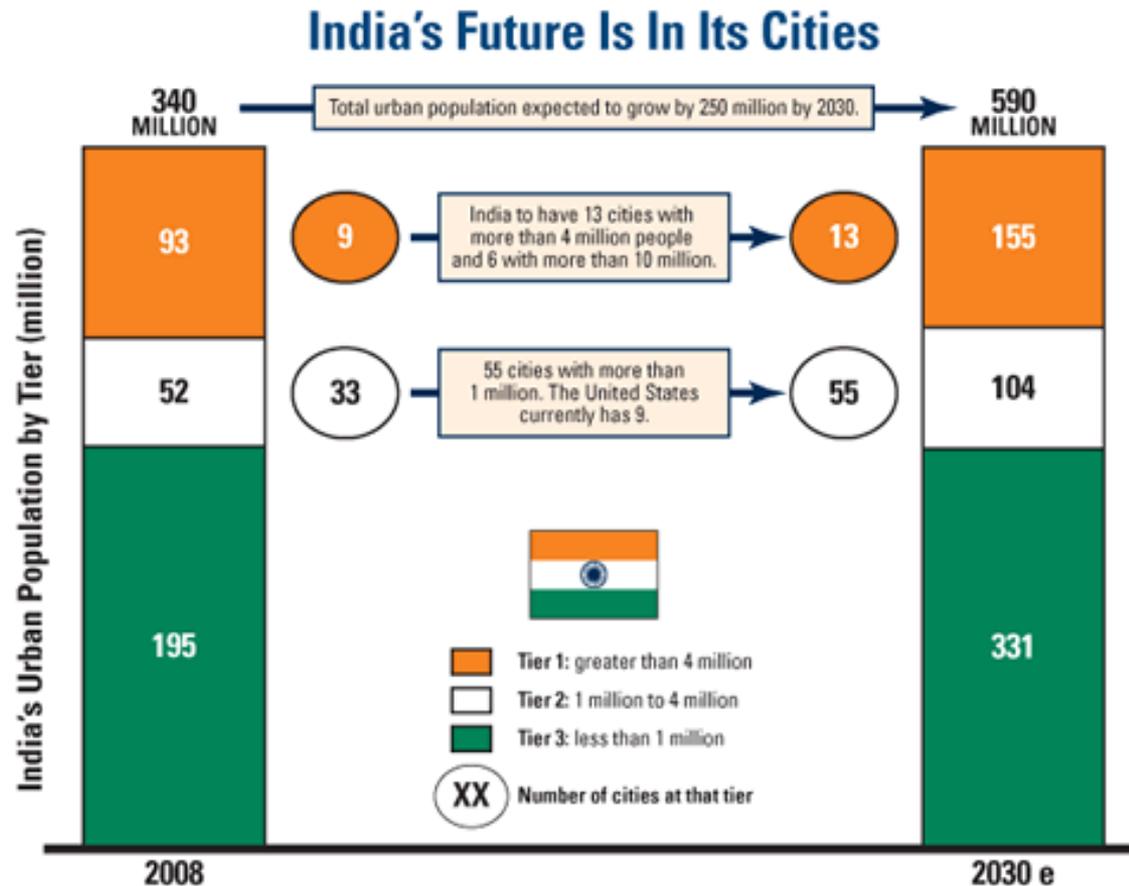
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[http://images.google.com/imgres?  
imgurl=http://upload.wikimedia.org/wikipedia/commons/d/de/India\\_  
population\\_increase.GIF](http://images.google.com/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/d/de/India_population_increase.GIF)

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- India is the world's 2nd most populous country.
  - The provisional population of India at the 2011 Census was 1210.2 million people.
  - This represents 17.5 per cent of the world's population living on only 2.4 per cent of the world's land mass.
  - The population increased by 181 million people in the decade 2001-2011.
  - Based on trends prior to 2011, much of this increase is likely to have occurred in the cities.

# The Projected Growth of Indian Cities



Source: India Urbanization Econometric Model; Census 2001; McKinsey Global Institute Analysis

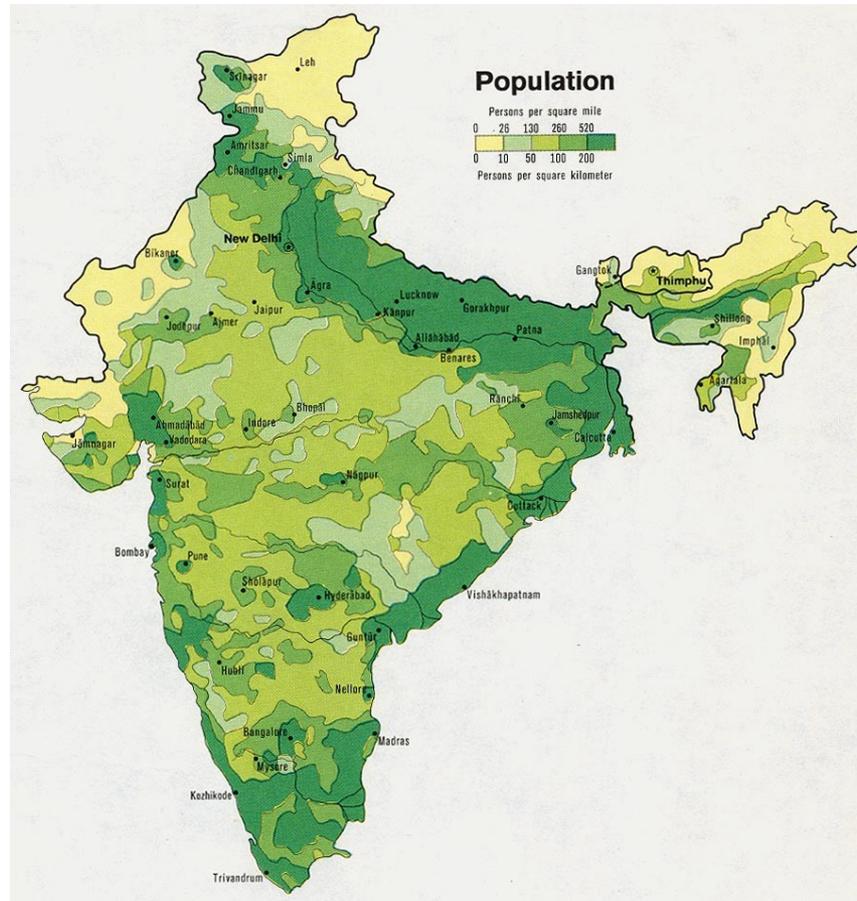
<http://dailyreckoning.com/files/2010/05/IndiaUrbanPopulation.gif>

# Indian Cities

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- 1986 12 cities with 1 million or more residents.
- 2006 23 cities with 1 million or more residents.
- Three megacities; Mumbai, Delhi and Kolkata with over ten million people.
- 2025 70 cities anticipated to have 1 million or more residents.
- According to City Mayors, India has 25 of the world's 100-fastest growing urban areas while only 8 of these urban areas are in China.

# Population Distribution



<http://www.opinionpoll.in/files/images/pollimages/20090333/india.jpg>

# India's Major Ports

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[http://www.marinebuzz.com/marinebuzzuploads/MinorPortsInIndia\\_B5C7/Major\\_Ports\\_India.jpg](http://www.marinebuzz.com/marinebuzzuploads/MinorPortsInIndia_B5C7/Major_Ports_India.jpg)

# Mumbai Floods of 2005

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<http://www.merineews.com/article/miseries-rain-in-mumbai-causing-deluge/135429.shtml>



<http://images.google.com/imgres?imgurl=http://3.bp.blogspot.com/>

# Mumbai Floods and Climate Change

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- Between 500 and one thousand people died in Mumbai in 2005.
- This figure is likely to be dwarfed by climate change impacts.
- The projected economic cost 'could triple compared with [the] current situation ... due to climate change alone' (Ranger et al, 2011, 140).
- Mumbai could reduce its economic losses by a projected 70 per cent based on a 1 in 100 year flood if the entire drainage system was upgraded (Ranger, et al, 2011).

# Mumbai's vulnerability

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[http://www.thehindu.com/multimedia/dynamic/00022/IN09\\_URBAN\\_22440f.jpg](http://www.thehindu.com/multimedia/dynamic/00022/IN09_URBAN_22440f.jpg)

# The Vulnerability of Mumbai's Poorest Citizens



<http://www.mumbailocal.net/2938/dharavi-slum-mumbai/>

# Megacities in the Low Elevation Coastal Zone

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- Mumbai - 2.8 million people currently exposed to flooding. By 2070, under predicted climate change scenarios, 11.4 million people.
- Kolkata - just over 1.9 million people exposed today. 14 million people in 2070.
- These cities are in the Low Elevation Coastal Zone (LECZ), 'the contiguous area along the coast that is less than 10 metres above sea level' (McGranahan, et al, 2007, 17).



# Government Policy and the Media

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- The development of widespread actions that are equitable and participatory, and result in meaningful adaptation to climate change, require supportive government policy and media support.
- Without these conditions, isolated actions and examples of best practice can emerge and make a difference in particular situations, but they will remain isolated.

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- India wants to avoid emissions restrictions that can reduce its ability to grow and reduce poverty .
  - The Indian economy has grown by about 6 per cent each year over the past decade.
  - Between 1994 and 2007, India's GHG emissions grew by 58 per cent.
  - India emitted 1.73 billion tonnes of GHG in 2007, approximately 4-5% of the world's total.

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- Climate change is seen as a responsibility of the “northern” countries. It is the result of historical industrial processes, thereby making India not responsible for current, and near-future, emissions and their impacts.

# Mitigation

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- The best way for India to mitigate climate change, thereby assisting to protect the lives and the long-term livelihoods of people in the urban areas that are most vulnerable to climate change impacts, is to work with the international community on measures to limit GHG emissions.
- This is a national government responsibility, although the actual planning of industry and the monitoring of operations is likely to be decentralized to lower levels of government.



**UN Climate Change**

[http://topnews.in/law/files/climate-change\\_logo.jpg](http://topnews.in/law/files/climate-change_logo.jpg)

# Adaptation and Sustainable Cities

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- The need to make Indian cities more sustainable encompasses a range of related issues
  - energy use,
  - biodiversity conservation,
  - improved education and health care provision
  - and the reduction in vulnerability to risks such as climate change impacts.
- Adapting to climate change is important. It should fit within the larger objective of making cities more sustainable on a range of issues.

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- One of the greatest challenges facing India's large coastal cities is demographic change.
  - One of the first adaptation decisions to be made is whether it is possible to reduce the vulnerability of existing residents and business *in situ*.
    - What are the financial, social and economic costs of doing so?
    - Are people willing to accept these costs?
  - The second decision is about planning alternative urban settlements, and transport links, close to the rapidly growing cities, but less exposed to the potential impacts of climate change.

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- Tuler and Webler (2010), studying the public participation preferences of 117 people who were actively involved in the participation processes on ten cases in the USA, formulated four different approaches to public participation. These were;
    - science-centered stakeholder consultation,
    - egalitarian deliberation,
    - agency-centered stakeholder consultation, and
    - informed democratic collaboration.

# Science-centered stakeholder participation

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- Is action-oriented, requires strong leadership and good scientific analysis.
- Participants 'should have a voice about what studies to do, although it is not so important for them to be involved in deciding how to do them' (Tuler and Webler, 2010, 258).
- The efficacy of this approach in the context of urban poverty, political marginalisation and illiteracy is questionable.
- Specific scientific studies relevant to poor and vulnerable people is an important strategy to both involve people in this issue and to obtain information relevant to local circumstances.

# Egalitarian deliberation

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- This approach 'emphasizes empowering participants and resists domination of the agency over the process' (Tuler and Webler, 2010, 259).
- In this approach, strong leadership is not considered necessary as 'stakeholders can be relied upon to participate meaningfully and effectively and make decisions wisely (Tuler and Webler, 2010, 259).
- This approach is unlikely to succeed in this context given
  - illiteracy issues,
  - the abstract character of much climate change information,
  - the imperative for action in a limited time-frame, and
  - the necessity to achieve outcomes in particular neighbourhoods and coordination across neighbourhoods.

# Agency-centered stakeholder consultation

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- This approach is oriented towards providing recommendations for the agency to make decisions.
- This is necessary in some cases, particularly at larger metropolitan and regional scales and where the impact of decisions in one neighbourhood impact on others.
- This approach should not be the central organising philosophy because it is not genuine participation.

# Informed democratic collaboration

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- This is an 'ends-oriented process that makes progress on the key problem through collaboration among stakeholders and the sponsoring agency' (Tuler and Webler, 2010, 260).
- This approach requires 'getting the right information, using the best available science for analysis, justifying recommendations with evidence, validating information to make sure it is correct, and exploring uncertainties ... sharing all information, and being open to outcomes that are not necessarily those desired' (Tuler and Webler, 2010, 260).
- This is necessary in the Indian urban context because the issue of climate change and human vulnerability is too critical to be process-oriented at the expense of achieving important outcomes.

- One of the most significant challenges will be how to handle outcomes that are very different from what the agency anticipates and desires.
  - If vulnerable people are not prepared to relocate, should the government in the interests of protecting the lives of citizens, forcibly relocate people who are very vulnerable to climate change impacts, perhaps to protect other people from those same impacts?



Mumbai

<http://images.google.com/imgres?imgurl=http://www.travelingfamilycircus.com/wordpress/wp-content/uploads/2009/11/dharavi2.jpg>

# Conclusion

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- The first responsibility of any government is to protect the lives of people within its territorial boundaries.
- This means the Indian government participating in efforts to avoid dangerous and irreversible climate change.
- Adaptation means different actions in various parts of the country - climate change issues and vulnerability differ.
- Low-lying coastal cities are the most vulnerable urban areas, with poor squatter and migrant populations living on coastal floodplains their most vulnerable populations.
- In some cases, relocation of neighbourhoods may be necessary to prevent loss of life, or to engineer defences against storm surge and flooding.
- Leadership in explaining scientific analyses of climate change and vulnerability is important, as is listening to the lived experiences, hopes and concerns of poor people.
- The costs of action are high, but given our best knowledge about climate change and its impacts, the costs of inaction are unacceptably high by almost any financial, environmental and ethical measure.