

# **PLANNING FOR URBAN CLIMATE RESILIENCE- CASE STUDY FROM A CITY IN INDIA**

**2013 Humanitarian Action Summit  
13-14 May 2013  
Harvard University  
Boston, USA**

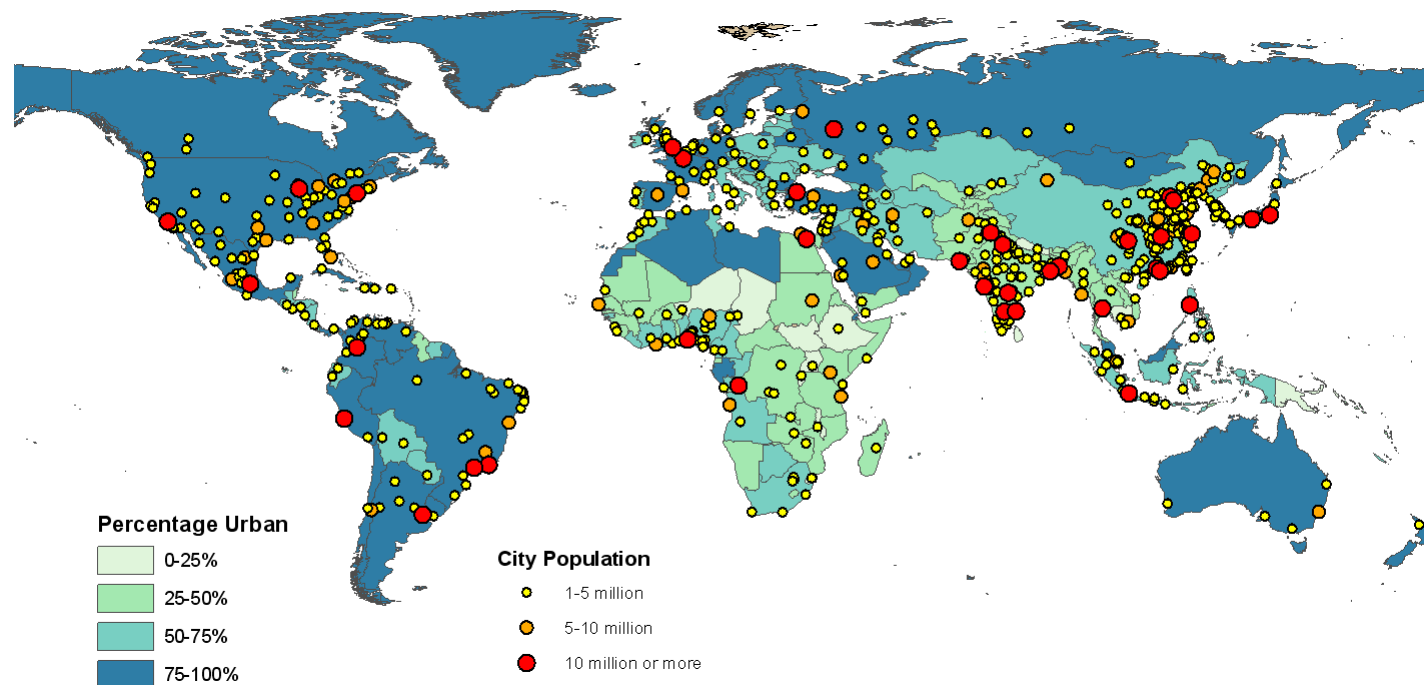
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Transport Systems  
The Energy and Resources Institute(TERI)  
Delhi, India**

# More and more people would live in urban areas



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***By 2030 nearly 60 percent of the global population is projected to be urban with the developing world housing nearly 80% of this population.***



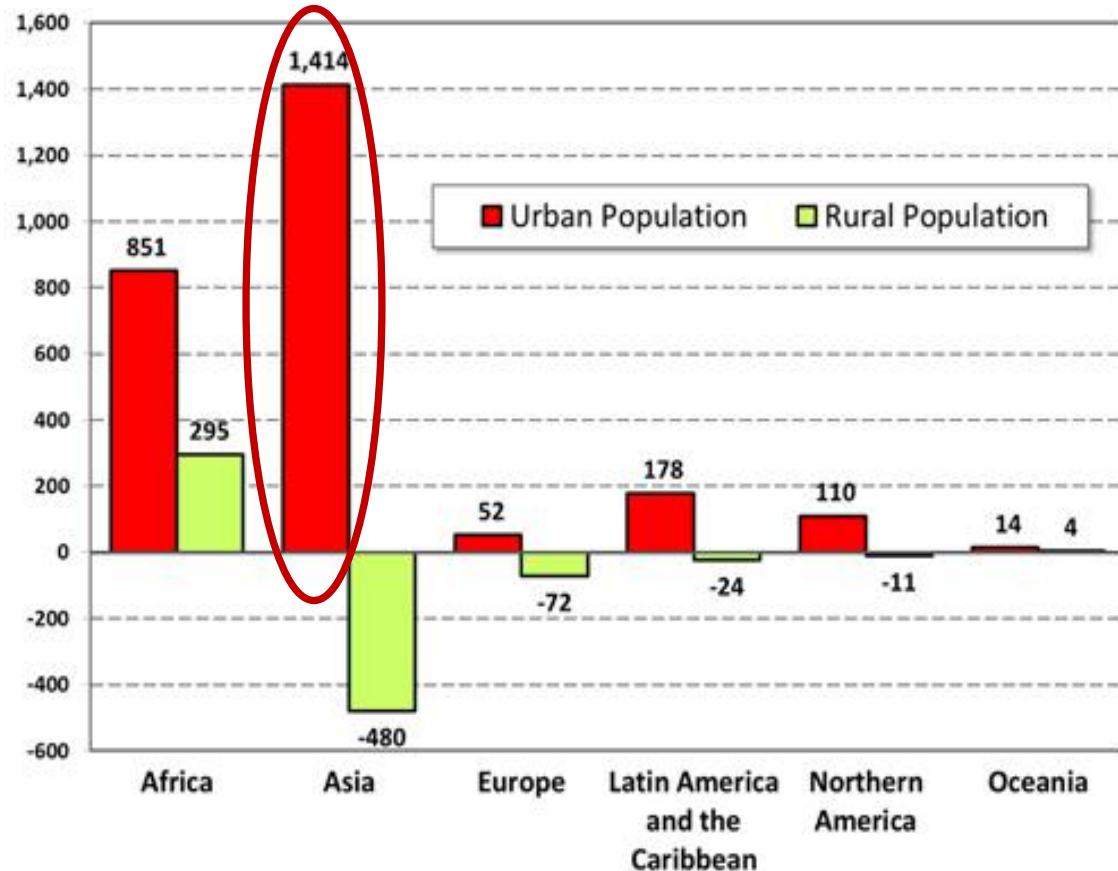
Source: United Nations, Department of Economic and Social Affairs, Population Division: *World Urbanization Prospects, the 2011 Revision*. New York 2012

## By 2030, more than 55% of the population of Asia will be urban.

Source: [ADB Competitive Cities in the 21st Century](#)

Over 90 per cent of urban growth is occurring in developing countries, which add an estimated 70 million new urban residents each year.

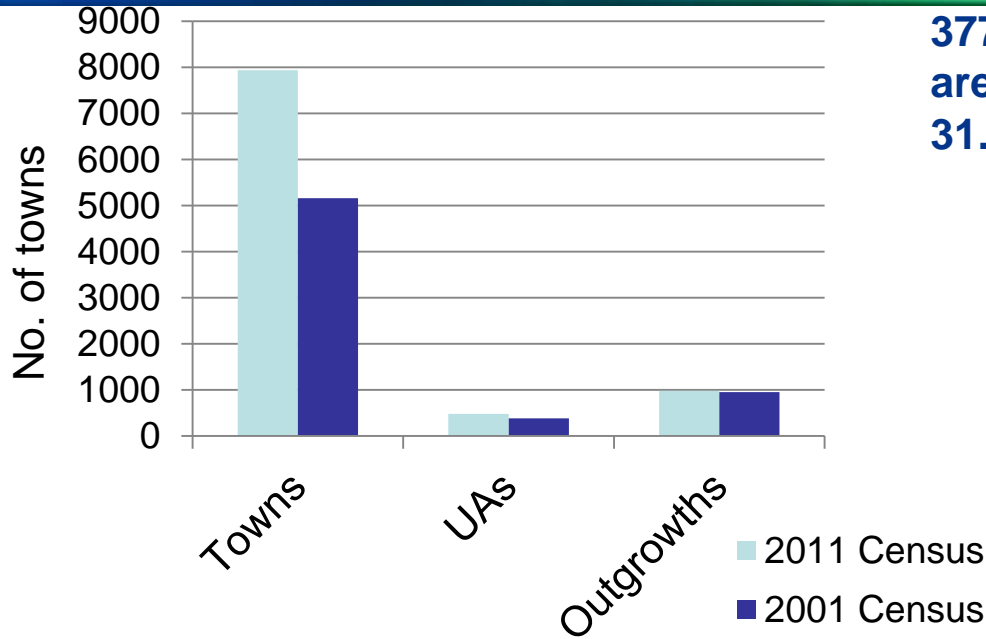
By 2030 all developing regions, including Asia and Africa, will have more people living in urban than rural areas.



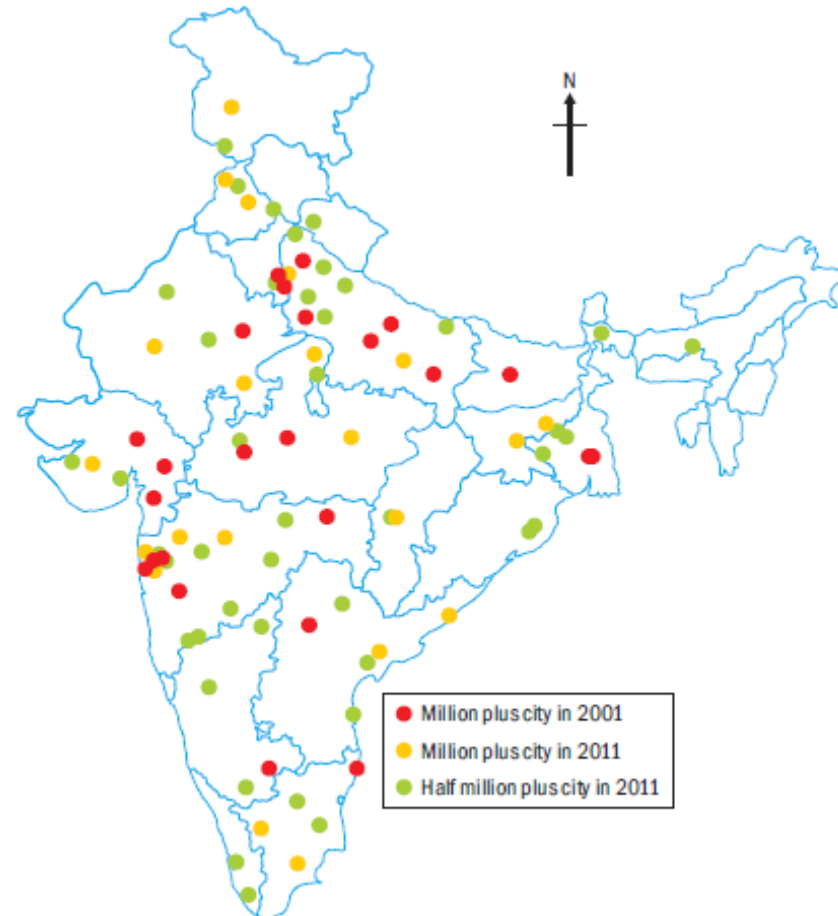
# Urbanization In India



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**377 million persons live in the urban areas of the country, constituting 31.16% of total population**



**As per Census 2011, For the first time since independence, the absolute increase in population is more in urban areas than in rural areas**

**53 Million Plus UAs/Cities housing cities(42.6% of the urban population of India)**

Source: Census of India, 2011

UAs: Urban Agglomerations

# Urbanization and climate change



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**The effects of urbanization and climate change are converging in ways that seriously threaten the world's environmental, economic and social stability.**

**The dynamics of urban centers closely linked to geography, climate and location of the city**

**The poor would be disproportionately impacted by the impacts of climate change on urban areas.**



Flood-related issues for the next 30 years or more. IIT Guwahati will also have its own terms and conditions and we will proceed accordingly.

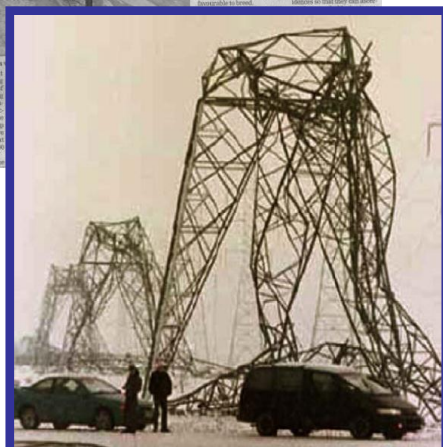
The study will be submitted to a permanent and a committee to find out the best ways to prevent flash floods.

The recent heavy rain had swept several low-lying areas in the city, cutting off those areas from the rest of the city.

The floodwaters were as high as the main floor, and many of the houses were submerged.

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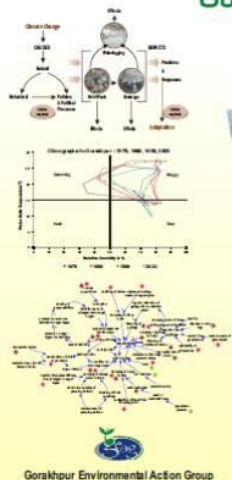
# Resilience planning

London, New York, Cape Town, Gorakhpur, Surat and Indore.....

Need to scale up these interventions  
Learn from each other  
Mainstream policies



Towards a Resilient  
Gorakhpur



## Mainstreaming Climate Resilience in Urban Areas A case of Gorakhpur City

SYNTHESIS REPORT  
AUGUST 2012



# Key steps



1. Understanding risks and vulnerabilities
2. Planning for resilience
3. Steering governance processes, regulations and institutions for long term benefits
4. Locating finance
5. Involving community throughout

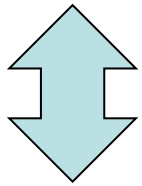
# Actions at all levels



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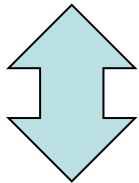
**International  
community**

**Access to information, finance and support for  
cities**



***National  
Governments***

**Planning and implementation of adaptation and  
mitigation strategies  
Putting together mechanisms and  
processes/institutions and regulations to support  
Incentives for climate proofing and bringing in  
energy efficiency and use of clean energy  
Encourage appropriate climate responses  
Develop partnerships with non government actors**



***Local  
Governments***

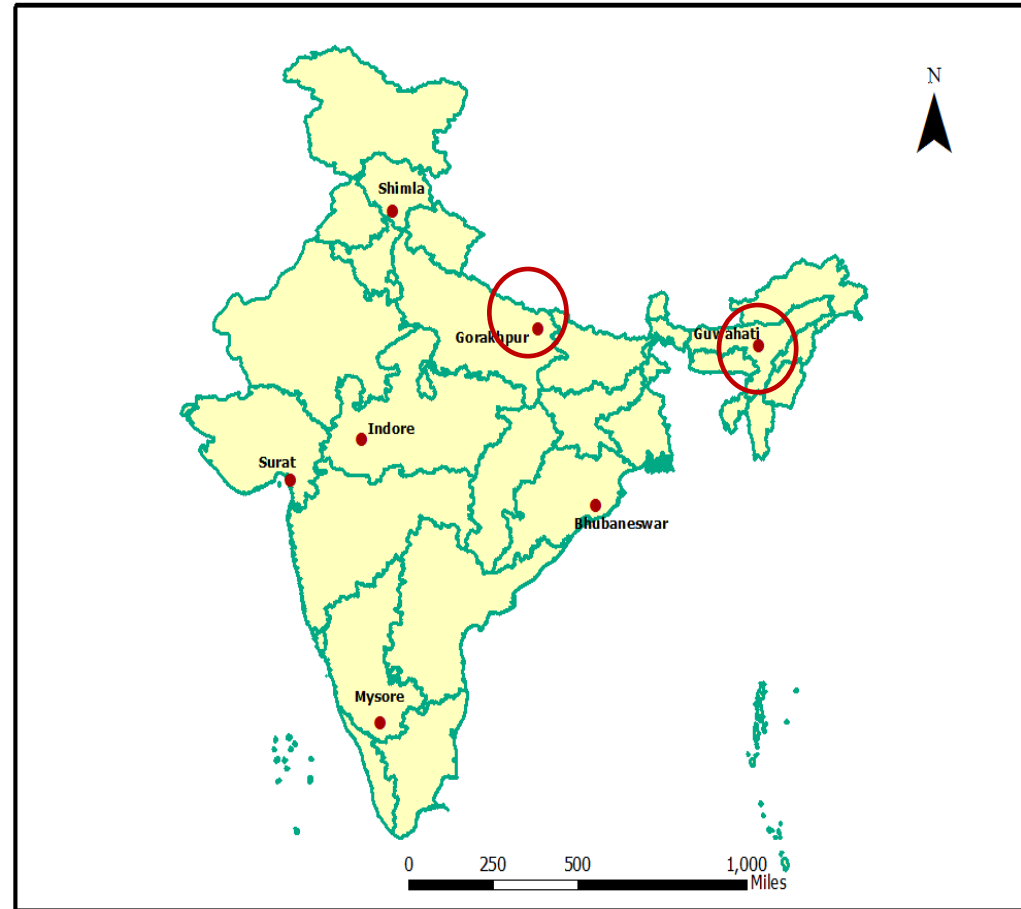
**Understand and assess vulnerability of the city and  
its components to climate impacts  
Relate climate responses to the future vision of the  
city  
Community participation, inclusive participatory  
processes  
Engagement with non government actors at city  
level**



# About the Project



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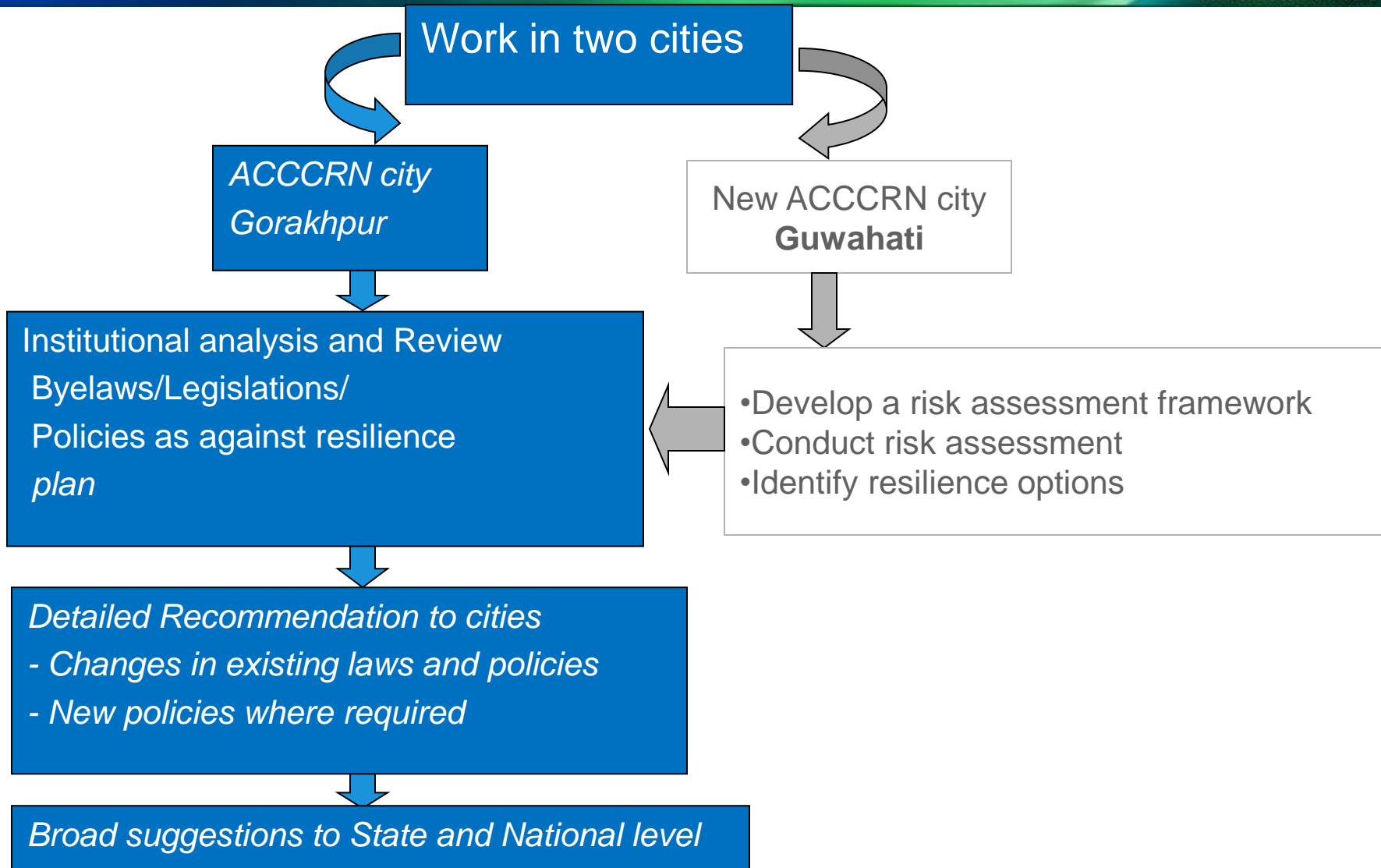
**Part of the Rockefeller  
Foundation's  
Asian Cities Climate Change  
Resilience Network(ACCCRN)**

**Study cities: Gorakhpur (UP) and  
Guwahati (Assam), INDIA**

# Broad Methodological Framework



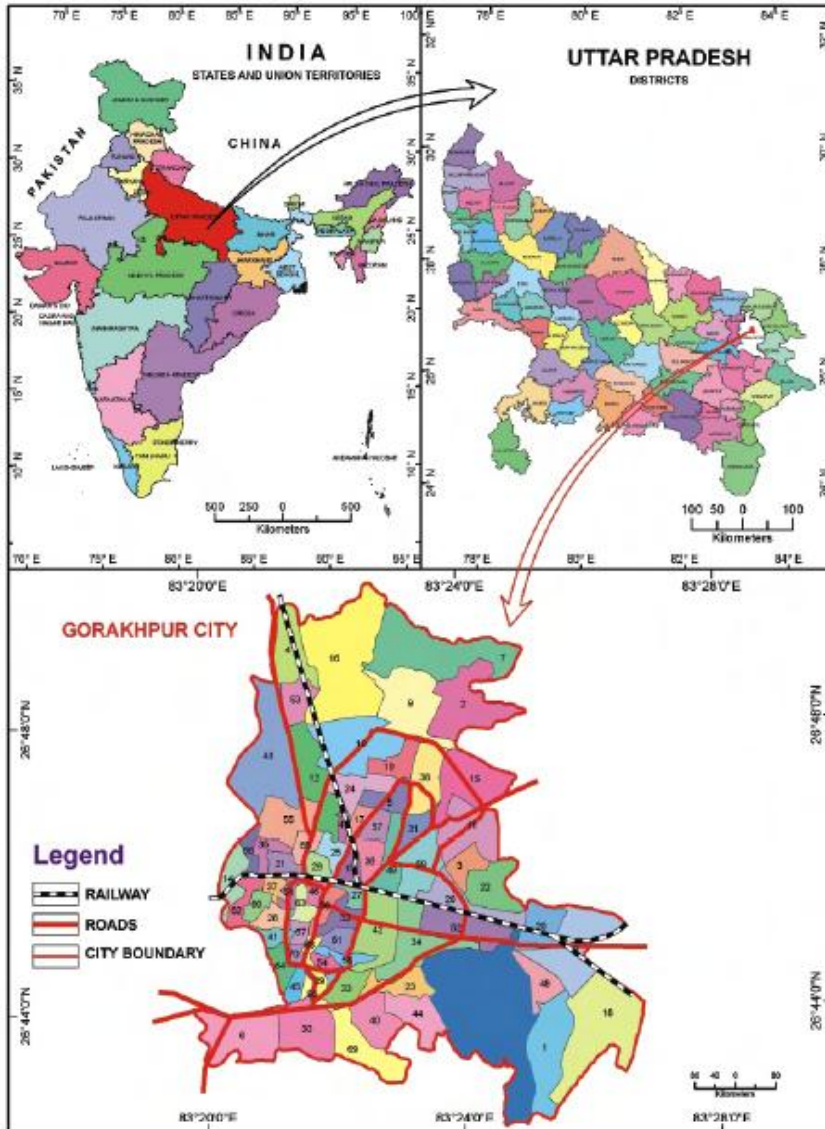
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# About Gorakhpur



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Medium sized city in the State of Uttar Pradesh

Population -692,519 (UA area, 2011)

Location- 26° 45' N and 83° 24' E

Height- 80m above sea level

Set in the foothills of the Himalayas, in the 'terai' region at the convergence of Rapti and Rohin rivers

# Gorakhpur



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trends

## Gorakhpur: Encephalitis death toll rises

Shreya Dhoundial, CNN-IBN

Published on Oct 04, 2012 at 23:33



Gorakhpur: The official toll of encephalitis deaths in Uttar Pradesh in 2012 has gone up to 400. However, if we factor in deaths that haven't been reported, the figure will touch around 1000. The National Child Rights panel has finally taken note after CNN-IBN highlighted encephalitis deaths. But why is the government a mute spectator as children continue to die?

CNN-IBN had met a five-year-old boy fighting for his life at the BRD Medical College in Gorakhpur who was admitted with symptoms of acute encephalitis. Later, CNN-IBN found out that the child, Ankit, succumbed to his illness.



**WHO'S TO BLAME FOR DEATHS?**

Gorakhpur



# Gorakhpur Resilience Strategy



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*Broad Methodology as adopted by GEAG in ACCCRN Phase I*

*Climate scenario building carried out by ISET*

*Detailed risk assessment and vulnerability analysis exercise conducted by GEAG.*

*Preparation of Resilience strategy prepared by GEAG*

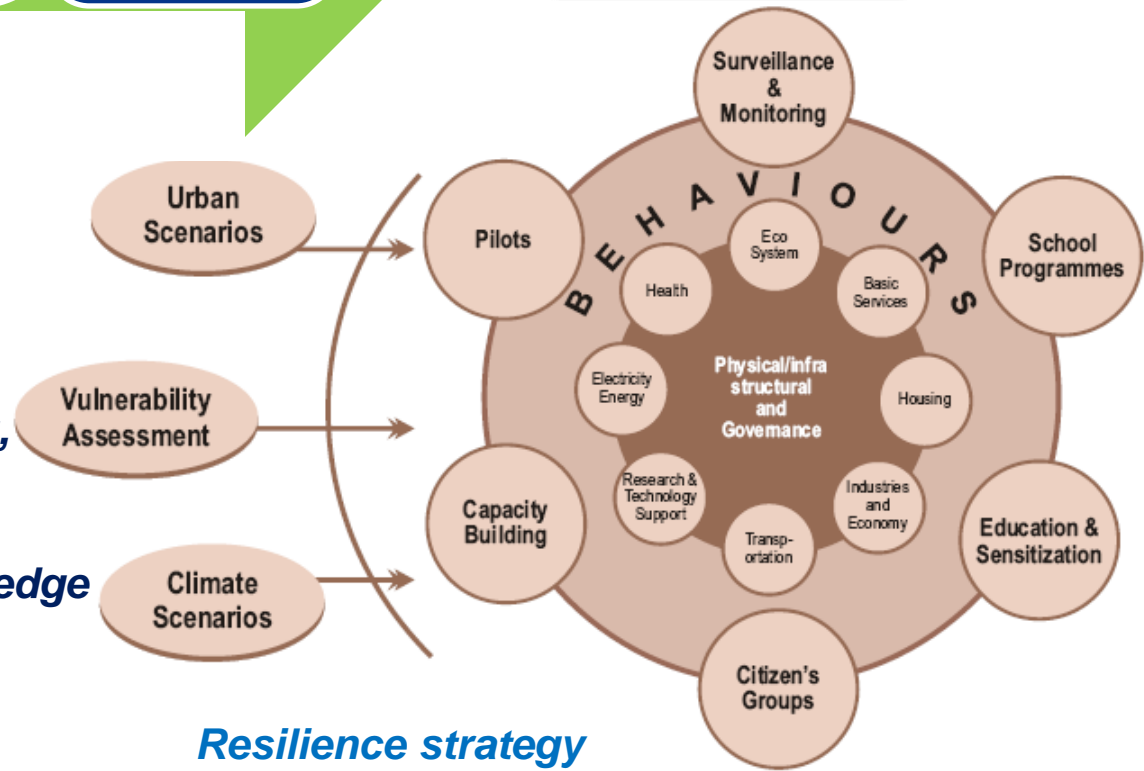
**TERI steps in to propose mainstreaming plan**

**An evolutionary resilience strategy**

**Focuses on capacity building**

**Targeted physical and institutional actions to improve drainage, housing, health and communications systems**

**Calls for information, data and knowledge focused activities to establish the evidence base required for long term planning**



**Resilience strategy**

# TERI's Intervention-The Process-

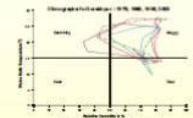
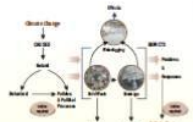


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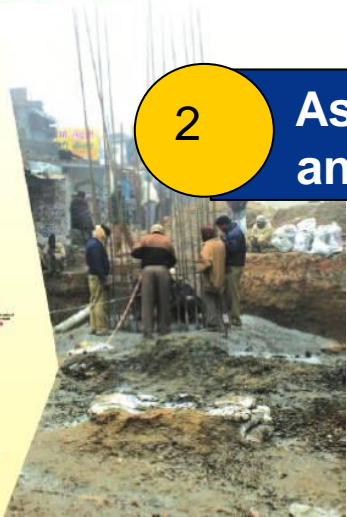
## 1 Analytical Review of previous work



Towards a Resilient  
Gorakhpur



Gorakhpur Environmental Action Group



## 2 Assessment of institutions and regulatory environment

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## 3 Suggested Action plan to help implement and mainstream resilience strategy

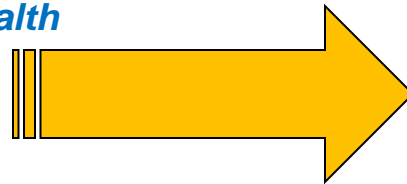
# TERI's Intervention-Resilience Mainstreaming Plan



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**Sectoral mainstreaming  
actions-regulations  
& institutions**

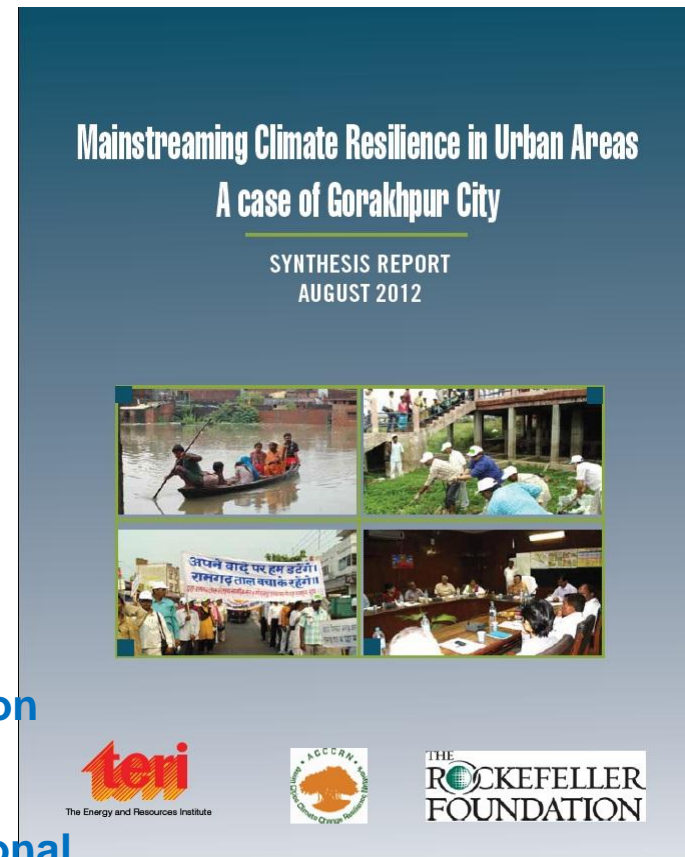
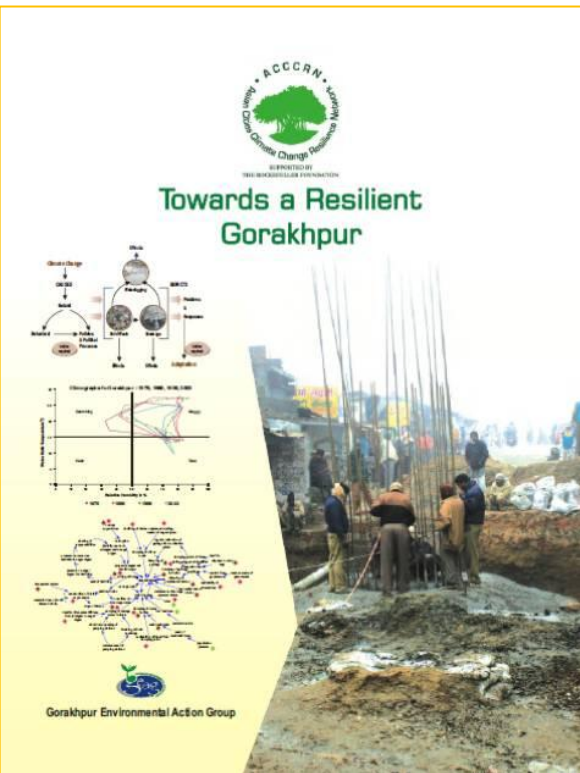
*Housing and urban planning  
Basic services  
Eco system conservation  
Flood management  
Health*



**Recommendations in the  
form of**

**Action plans for implementation  
Identified institutions and  
regulations to mainstream  
Identification of gaps(institutional  
and regulatory)**

**Recommendations to address gaps  
Outlines of broader issues**



The Energy and Resources Institute





# Final Outcomes



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- The city has a climate resilience strategy
- On its way to mainstream resilience and adaptation options
- Is implementing pilot adaptation projects on ground
- Learning and sharing outcomes from the initiative



# Achievements



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**Towards  
Resilient  
Future !**

**Engaged  
Multiple Partners**

**Engaged City  
Govt and  
community**

**Decisions based  
on scientific  
knowledge and  
expertise**

**Decision making  
through shared  
learning  
dialogues**

**Draws linkages  
with current  
urban priorities  
and future climate  
risks**

**Multi sectoral  
studies and  
recommendations**

**Mainstreaming  
for sustained  
long term  
implications**



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Thank You !!

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