Bhubaneswar

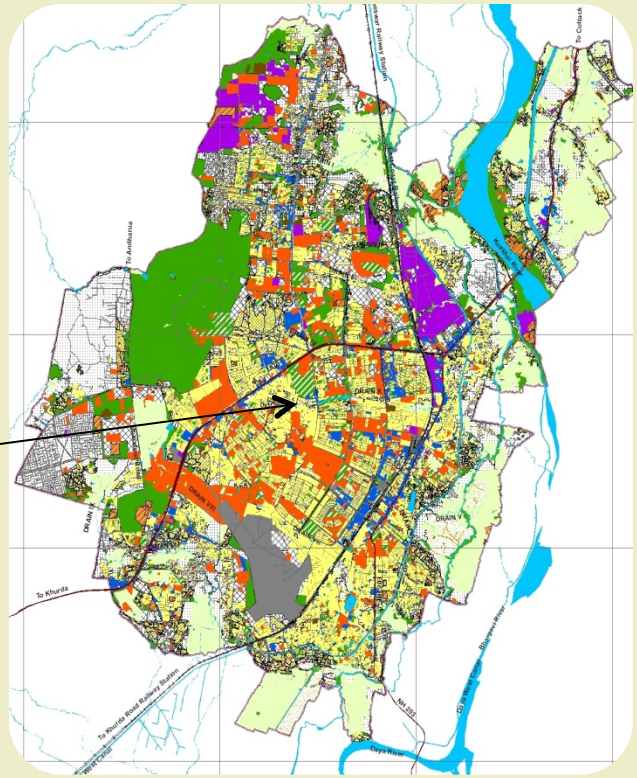
LGNet

Local Governance Network

Indian Cities

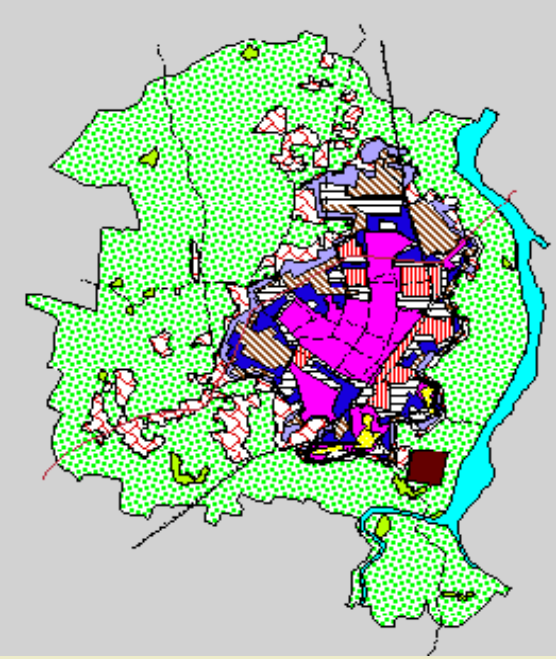
India has the 2nd largest urban system in the world. 310 million live in 5161 cities and towns. 35 cities more than million, 6 mega cities of which 3 with population over 10 million and 3 with Population above 5 million. In the next 30 years, another 400 million will Migrate to these cities. by 2030, India's urban population is estimated to reach a staggering 575 million.

Location of Bhubaneswar in India



Bhubaneswar

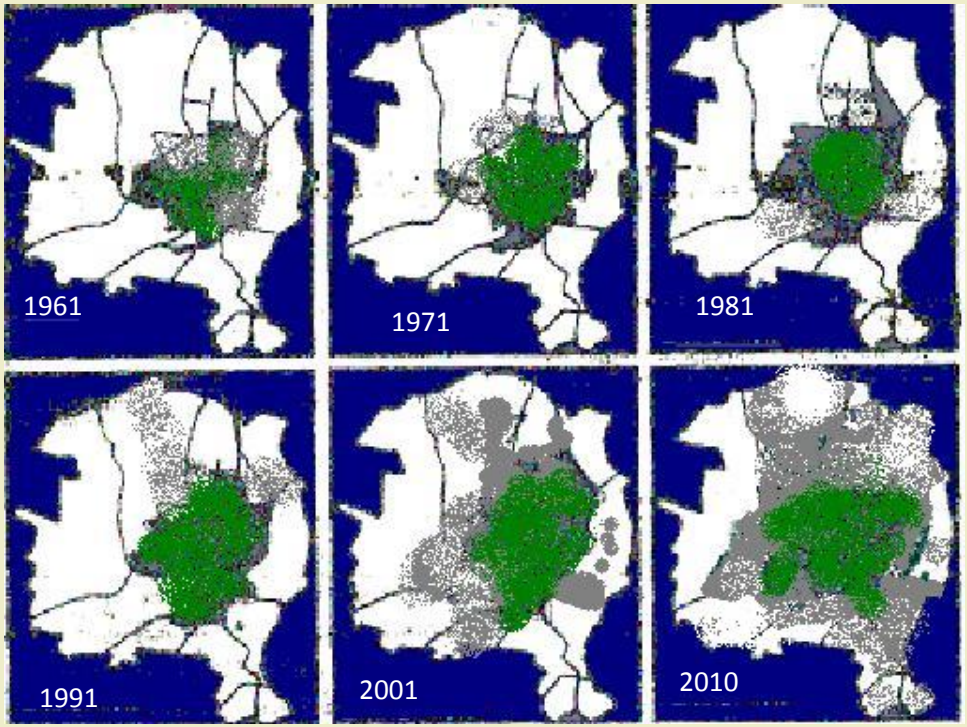
Bhubaneswar Profile



- Capital of Orissa with history dates back to 300BC
- Area-135 Sq. Kms.
- Population - One Million Plus
- Density - 4800 per Sq. Km.
- Number of Wards - 60
- Height from Sea level -45 Mtr.

The Temple City

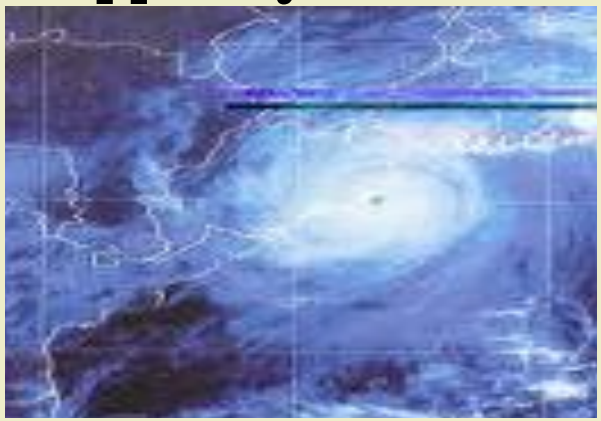
Spatial Growth of Bhubaneswar



- 1961-71 with 176.67% which is highest in India
- Municipal Area Increased from 26.09 km2 to 124.70 km2 in a period of 40years 1951-1991 and 135 Sq Km in 2008
- Density from 633 to 3300

Disasters that Surprised Bhubaneswar

Supper Cyclone 1999



Heat Wave 1998

Floods 2001

Urbanization

Climatic & Natural Risk

Every summer is becoming hotter surpassing mid of monsoon, night temperature is getting hotter, winter is becoming colder and most of the rainfall taking place in lesser days, more rainfall due to cyclone than monsoon.

Orissa Super Cyclone 1999

- Unprecedented Disaster in Modern times
- Claimed about more than nine thousand lives
- All services are out for a week
- Govt. seriously thought of Disaster Management





Actions for Safer Community

- Setup multilevel institutions for overall Disaster Management
- Change in approach from Post to Pre Disaster Management Programme
- Initiated Climate Change programme in line with Low Carbon Future
- Revisited its Land use Plan & Building Codes
- Integration of Disaster Management Education Programmes in Academics & Change Management
- Upgrading key infrastructures i.e. waster, sewerage, transport etc.

Multilevel Approach

- Multi layer institutional mechanism for disaster management
- Formal recognition to roles of various stakeholders.
- State setup Orissa Disaster Management Authority, which was first in the country become model for many other states and National Disaster Management Authority (NDMA)
- Community engagement, participation of Civil Society, School Children, Media etc
- Sifted approach from post Disaster action to more preparedness, risk mapping, prevention, awareness measures.

Bhubaneswar Climate Policy

Bhubaneswar City Recognizes that Climate Change is likely to be one of the key drivers of change within our community in coming years

We acknowledge that

- **Evidence continues to mount that climate change is occurring.**
- **By 2030, two third of humanity will live in urban centers, where today more than 50% of world population lives and more than 75% of all energy is consumed.**
- **All cities are highly vulnerable to the impacts of climate change, especially frequent & severity of disasters.**
- **Climate Change will have far reaching efforts on cities economy, society and environment**

Low Carbon Future Initiatives

- City has developed various actions to demonstrate its commitment on reducing impact on Climate Change i.e. use of solar power, design based street lighting, preservation of water bodies and increasing the green vegetation, etc

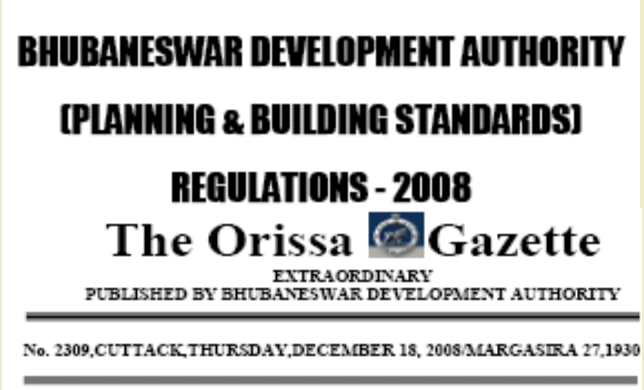
- An initiatives in 2008 led all informal vendors replaced their 100w, 200w incandescent bulbs and 40w tube lights with 18w CFLs bulbs, resulted saving 82% of electricity or 492.34 tonnes of CO_2 per year.

Up gradation of Infrastructure

- The city invested in upgrading inclusive public infrastructure
  - Congested narrow streets into six lanes with two dedicated lanes for pedestrian & cyclist.
  - New Drainage, sewerage, cycling and pedestrian paths.
  - Introduced public transport system

Revisited building regulations & land use planning

- New building laws in place complying measures of Disaster Management.
- All new buildings are designed with proper engineering intervention, safety against natural hazards, particularly Schools & Hospitals and Old buildings are retrofitted
- Revisited city master plan with identifying zones for habitable or non habitable. Allowing people understand on Risks before processing for development actions.


BHUBANESWAR DEVELOPMENT AUTHORITY

(PLANNING & BUILDING STANDARDS)

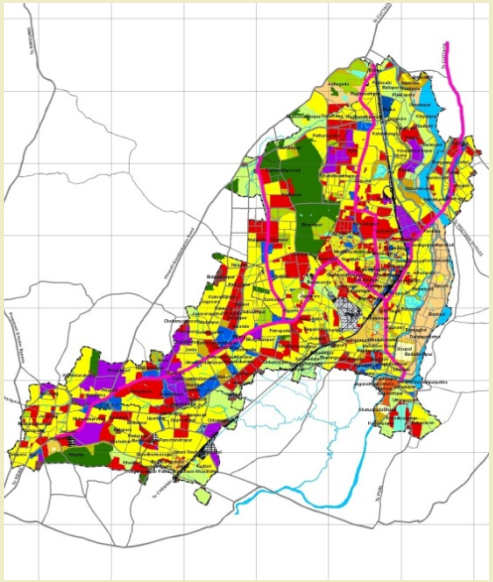
REGULATIONS - 2008

The Orissa Gazette

EXTRAORDINARY

PUBLISHED BY BHUBANESWAR DEVELOPMENT AUTHORITY

No. 2309,CUTTACK,THURSDAY,DECEMBER 18, 2008/MARGASIRA 27,1930



Education programmes

- Disaster management as a core curriculum introduced in the school and integrated in the academic curriculum of undergraduate engineering and architecture courses.
- Teachers were trained to teach disaster management.

- Local Universities offers course on Disaster Management at the Master levels.
- City officials, Community and civil society etc receives regular capacity enhancement on Disaster Management

Disaster links with Climate

Severe Heat Wave Affects Normal Life in Bhubaneswar

'Heatwave' death rises to 8 in Orissa

Many die in acute Indian heatwave

Killer heatwave sweeps across Orissa, worst in 11 years

Where are the rains?

The Killer Wave
A cruel 1998 summer claims about 2,500 lives in the country

Heat wave kills 22 in Orissa, schools shut

Orissa town at 45 degrees as heat wave on

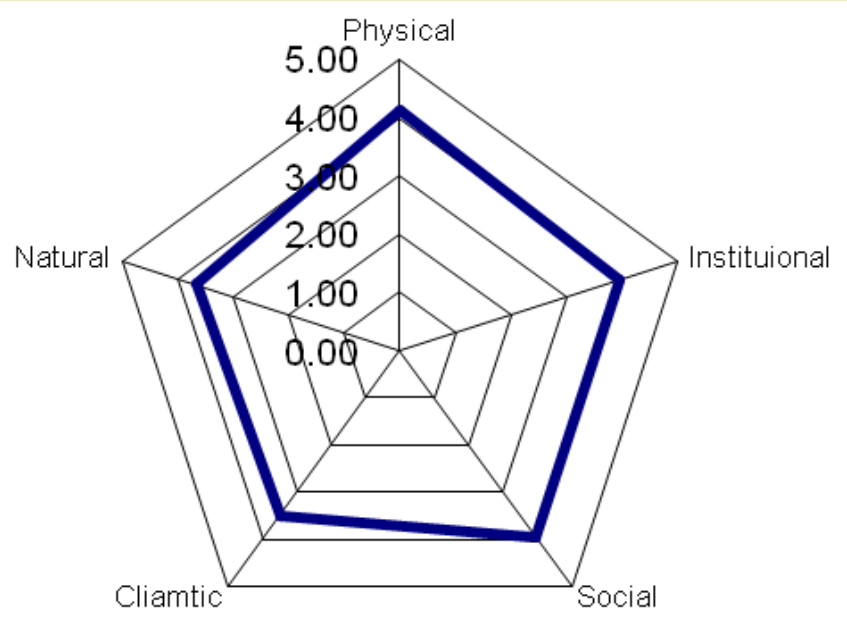
The Application of DRR IN Action

- Mayor holds meetings involving municipal officials, line departments, schools, colleges, red cross, scouts, NCC, NGOs, NSS and Corporate houses to take all precautionary measures for mitigating the heat-wave situation.
- Adequate water tankers were deployed for supply of drinking water and defunct tube wells were replaced / repaired in advance.
- Essential medicines, saline and ORS packets were stored in the Hospitals, Community Health Centres and Primary Health Centres.
- Beds were earmarked for treatment of heat-stroke patients
- IEC materials relating to heat-wave were circulated for general awareness of the public.
- working hour for daily labourers re-scheduled i.e. from 6 a.m. to 11 a.m. and 3 pm to 6 pm and schools from 6.30AM to 10.30 AM.
- Ex-gratia assistance @ Rs.10, 000/- each was provided to the next of the kins of the victims

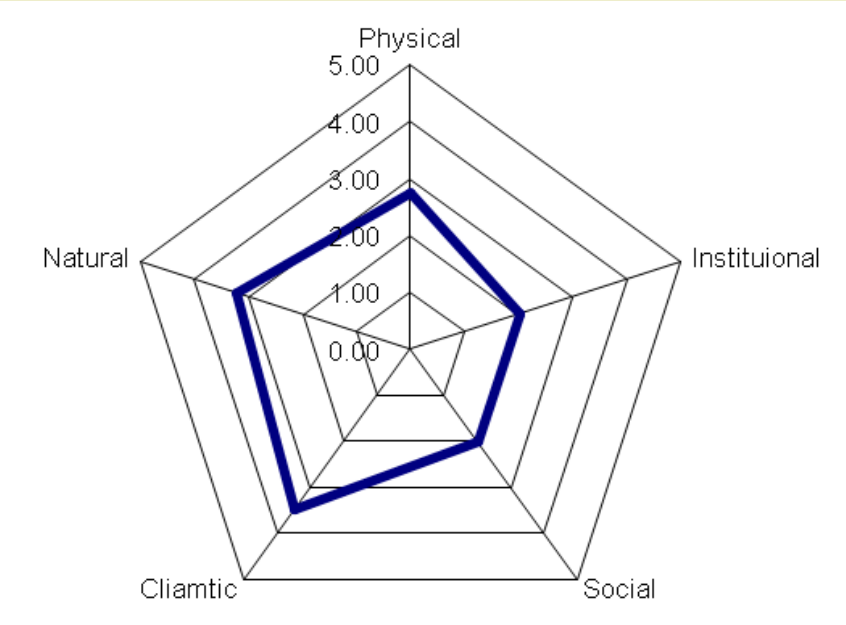
Heat Wave Khorda - Bhubaneswar

Year	No of Deaths	Peak Temperature	Number of Days above 40^0 Cel	Year	No of Deaths	Peak Temperature	Number of Days above 40^0 Cel
1998	123	46.0	13	2004	3	45.1	15
1999	7	41.6	14	2005	39	40.6	15
2000	-	42.2	1	2006	1	41.3	6
2001	1	44.4	17	2007	2	40.4	3
2002	2	45.8	13	2008	6	43.4	7
2003	2	44.7	12	2009	18	44.6	20

Risk Assessment 2003 - 10



Risk Assessment 2003



Risk Assessment 2010

Summary

The outcomes of risk assessment Bhubaneswar learned that over the year intensity of Climatic and Natural related disaster are major challenge City. As a result the city initiated:

- **First,** updated Master Plan along and revisited building byelaws.
- **Second,** undertook massive awareness & capacity building programmes with support of national, state and bilateral agencies.
- **Third,** upgraded its infrastructure i.e. road, sewerage, fire safety, drainage, sanitation, and introduced public transport system.
- **Fourth,** received appropriate institutional mechanism support from both state & national government for setting actions for mitigation as well as post disaster situation.

World Disaster Reduction Campaign

Bhubaneswar, INDIA

Local Governance Network

We are Getting Ready

How About You?

"You must be the change you wish to see in the world." – Mahatma Gandhi

Each day is a new canvas to paint upon.

Thank you

Further information Please Visit www.lgnet.in