CONSERVING PERI-URBAN AGRICULTURE AND ECOSYSTEMS FOR BUILDING URBAN RESILIENCE

The Case of Gorakhpur City, India

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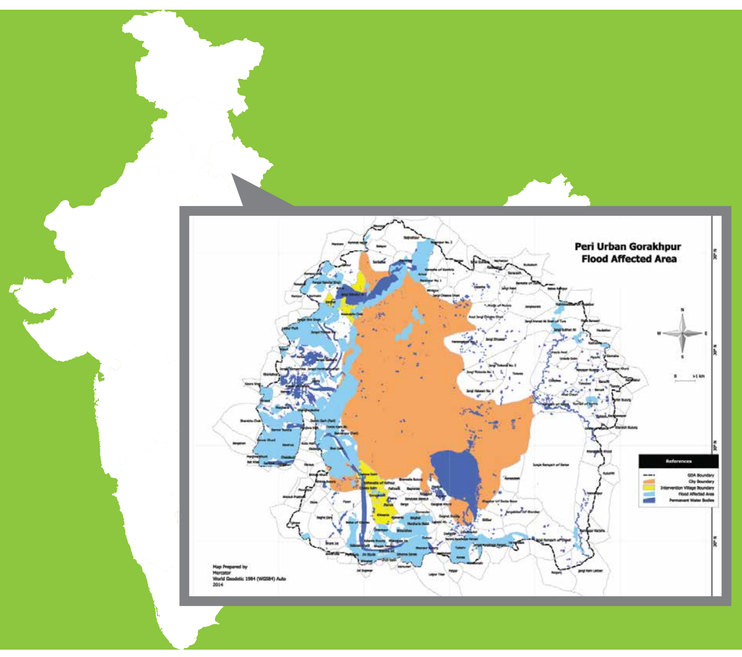
"Peri-urban areas are the zones of transition from rural to urban land-uses located between the outer limits of urban and regional centres and the rural environment."

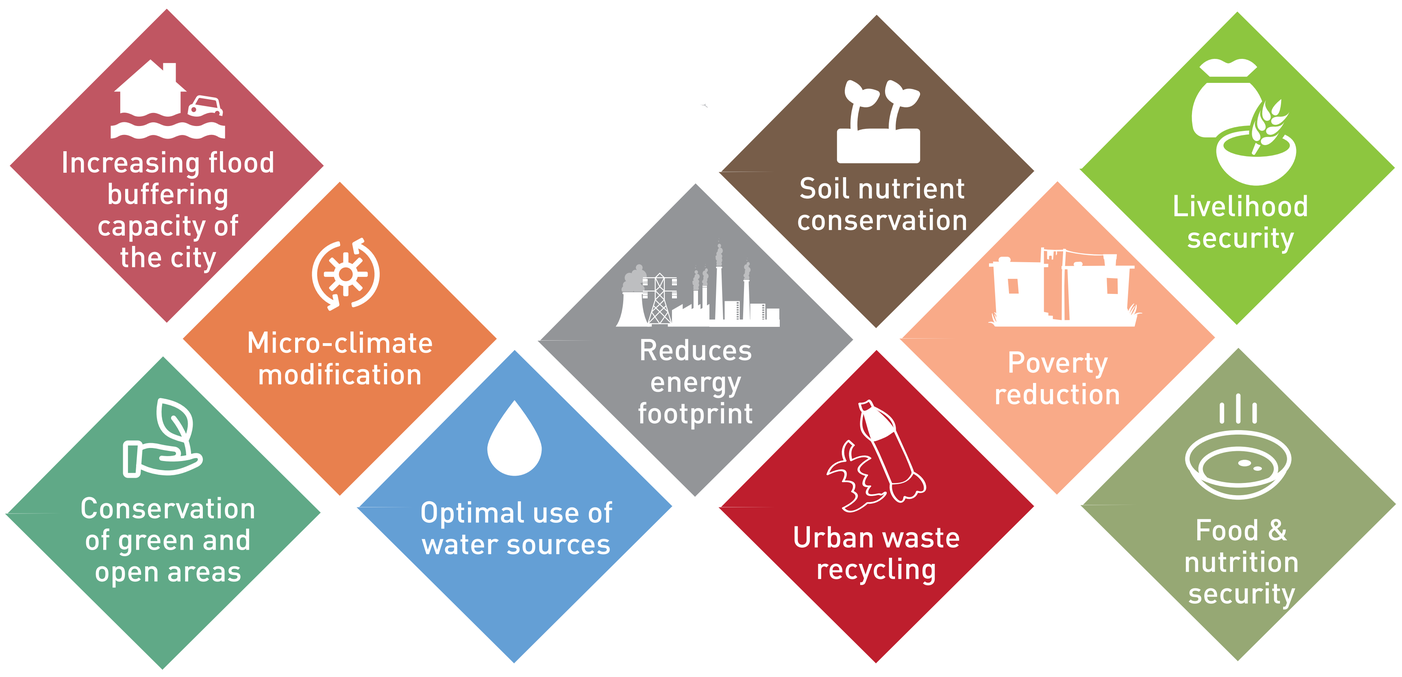
- Constant threat of deteriorating quality of life of inhabitants prompted by loss of ecosystem services resulting in pollution, water depletion, deforestation, poor mechanisms of sewage disposal and other hazards.
- Lack of clear cut conceptions and related concrete policies from national to local relating to peri-urban areas.



PERI-URBAN AREAS OF GORAKHPUR CITY

- A secondary city with population of 4.5 million.
- Bowl-shaped topography, proximity to Himalayas and discharge of excess water from Nepal, increase the susceptibility to floods and water-logging in peri-urban areas.
- 8089 hectares of land in peri- urban area is prone to flooding.
- Every year water-logging takes place for 2-3 months affecting small and marginal farmers.
- Rapid encroachment of agricultural land is affecting the vital ecosystems services provided by peri-urban areas.

ROLE OF PERI-URBAN AGRICULTURE AND ECOSYSTEMS IN BUILDING URBAN CLIMATE CHANGE RESILIENCE



FACTORS AFFECTING PERI-URBAN AREAS

Lack of clear conceptualisation

- Peri-urban areas are 'nobody's children' as they neither fall in the urban purview nor in the rural.
- Not served by Municipalities and rural departments for basic services.

Lack of Institutional Collaboration

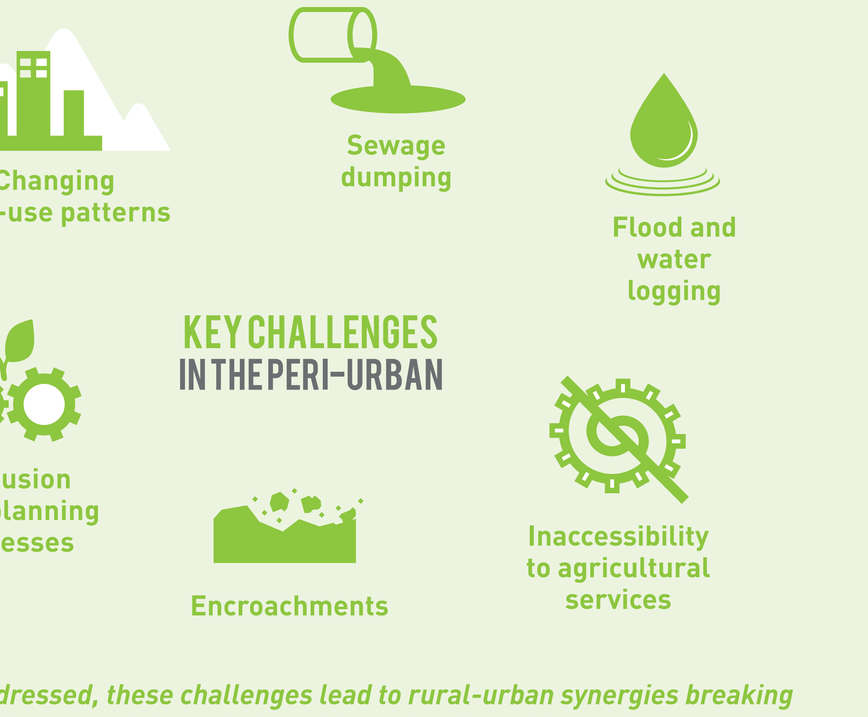
- Lack of coordination and convergence between different departments hamper the governance mechanisms which eventually hinders good development of peri-urban areas.

Lack of Strong Enforcement of Policies

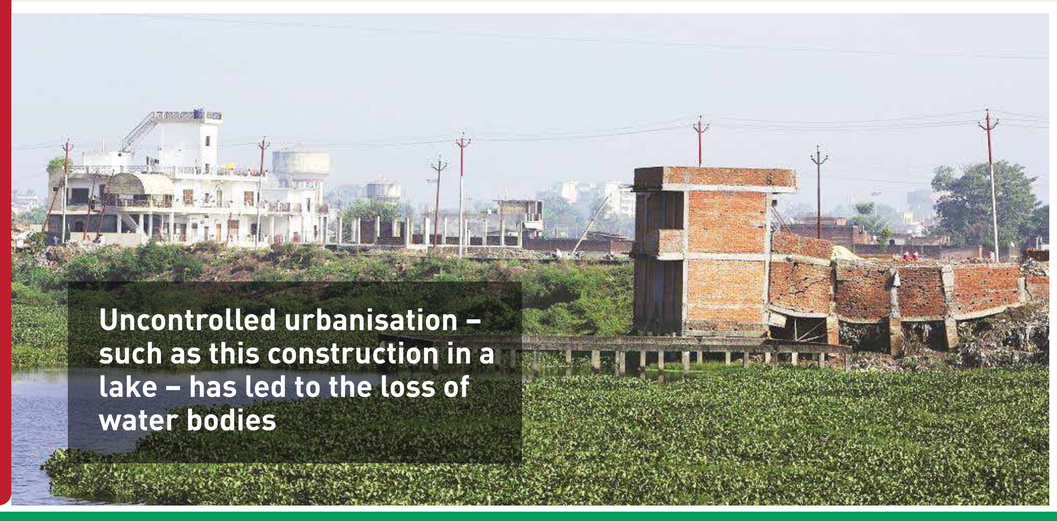
- Contemporary land acquisition policies disregard social equity and environmental integrity, undermining the capacity to adapt to climate change.

Lack of knowledge and information of urbanisation process and its ecological impacts

- This constraints the development planning authorities in analysing, managing and restoring peri-urban ecosystems.



Left unaddressed, these challenges lead to rural-urban synergies breaking down, environmental degradation, rising urban inequities and poverty which could be worsened by the impacts of climate change.


Uncontrolled urbanisation – such as this construction in a lake – has led to the loss of water bodies

INNOVATIONS IN PERI-URBAN AGRICULTURE

Climate Resilient Agriculture

- Adopting principles of integration of livestock-household-agricultural field.
- Enhancing diversity, complexity and recycling processes in farming systems.
- Use of low external bio-inputs, appropriate crop varieties, seed banks and potable nursery systems.

Innovative farming practices

- Integrated and diversified farming systems
- Loft Farming
- Raised low tunnel polyhouse
- Raising crops in thermocol boxes and jute bags
- Flood resilient crop varieties
- Mobile SMS based weather agro advisories
- Promoting Low External Input Sustainable Agriculture

Raised low tunnel polyhouse

KEY OUTCOMES

Household and Farm Level

- Establishment of sustainable and climate resilient models of agriculture in marginal land holdings in peri-urban areas
- Reduced inputs and enhanced net gains for small-scale marginal farmers
- Enhanced livelihood and food security of vulnerable groups in peri-urban areas

Ecosystem Level

- Conservation of agricultural land in peri-urban areas has enhanced flood buffering capacity of the city as a whole
- Enhanced water retention capacity by conservation of water bodies
- Reduced energy footprint

City Level

- Enhanced food security of city population by peri-urban agriculture
- Enhanced buffering capacity of the city against floods and water-logging.

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