



## Key messages

- Natural ecosystems in peri-urban areas, along with the goods and services they provide, are critical not only for people living in these areas, but also for those in adjacent cities.
- Peri-urban areas face unique challenges – from rapid urbanisation to the ambiguous nature of their boundaries and administrative status. These challenges often lead to the neglect of ecosystems during planning.
- Cities fulfil many of their natural and human resource requirements from peri-urban areas. Moreover, ecosystems such as open spaces and agricultural lands in peri-urban areas promote resilience in a city.
- India's National Urban Policy Framework of 2020 puts the onus on states to plan for the development of urban and peri-urban areas. States should work together with peri-urban stakeholders to plan for inclusive development that appreciates the significance of peri-urban ecosystems.
- An integrated approach to management of peri-urban areas can potentially bridge the rural-urban divide and integrate planning at the district level, bringing together multiple stakeholders for decentralised, local governance.

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## Peri-urban ecosystems: The potential for a planned approach in India

**With India's rapid rate of urbanisation<sup>1</sup> (Figure 1), people are settling on the peripheries of cities where relatively more affordable services, such as housing, cheap land and commercial goods and services, are available. Natural ecosystems play an important role in these spaces in enhancing climate resilience and sustainable urban development. However, these ecosystems are typically neglected to give way to mainstream development, and this results in significant consequences related to environmental degradation.**

This brief examines the importance of peri-urban ecosystems and outlines possible policy responses in India to preserve and manage these areas to contribute to sustainable and climate-resilient development. While the brief provides a general overview of peri-urban areas in India, we acknowledge that approaches to these areas need to be sensitive to the dynamics of that particular context.

While there is no consensus around the definition, peri-urban areas are generally characterised as regions of transition from rural to urban areas, where the features of both often blend together. For example, these areas tend to have diverse land-use patterns, ranging from agriculture and forestry to residential and industrial uses. They are also marked by patterns of migration where rural populations first settle on the peripheries of cities, and then move into the urban area<sup>2</sup> where the demand

for affordable labour in services and manufacturing industries is higher.

Due to unclear administrative boundaries and associated governance challenges, peri-urban areas and their ecosystems are often neglected, and this tends to affect livelihoods and the environment.<sup>3</sup> With limited access to modern infrastructure or a supply of clean water and sanitation facilities, these areas face increased vulnerability to the impacts of climate change.<sup>4</sup>

### Rapid urbanisation and governance challenges in peri-urban areas

The ambiguity over peri-urban boundaries creates various challenges. Given their expanding nature, these areas often fall between different administrative boundaries, and sometimes even beyond them. As a result, these areas experience

unplanned or informal development, with negative consequences for ecological health.<sup>5</sup>

Because of large-scale migration to the fringes of urban areas, the local administration cannot cope with the transformation and management of ecosystem services.<sup>6</sup> Moreover, the mix of economic activities, with people engaged in agriculture, daily wage labour and industrial activities, leads to competition over natural resources and unequal distribution of risks and rewards.<sup>7</sup>

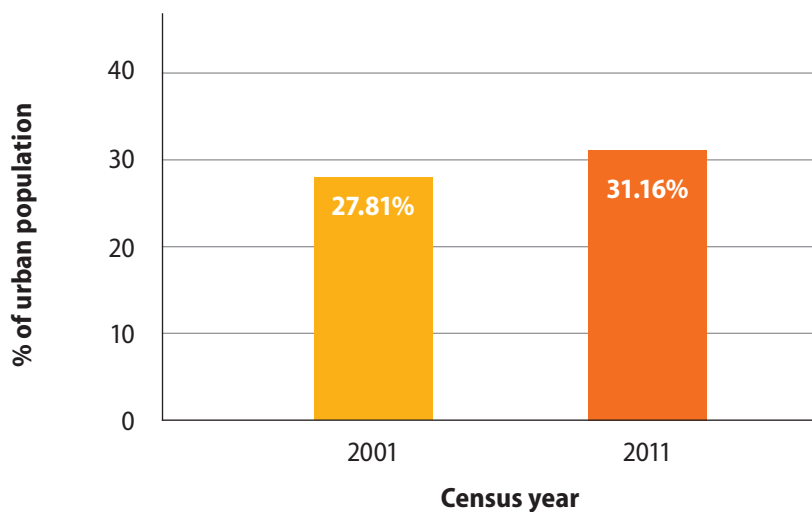
### Development and climate benefits of preserving and managing ecosystems in peri-urban areas

Ecosystems in peri-urban spaces provide significant benefits to both urban and peri-urban areas. Water bodies like rivers and lakes, agricultural lands, coastal spaces and open spaces offer provisioning services (food and water); regulating services (waste treatment and carbon sequestration, storm and erosion protection); cultural services (spiritual and recreational benefits); biodiversity services (habitat for a range of species, such as pollinators), and supporting services (maintaining living conditions and providing ecosystem-based livelihoods).<sup>10</sup>

Ecosystems provide the following specific services in urban and peri-urban environments:

**1. Flood control:** Open spaces and agricultural land act as buffers in times of flood. For instance, waterlogging due to climate change-induced flooding can be managed by wetlands that drain excess water and support infiltration of water into the soil. Wetlands store some water in their soil during drought and also recharge underground aquifers. However, when these spaces are replaced with unplanned infrastructure, it severely affects the resilience of the city.<sup>11</sup>

**Figure 1. India's urban population in two consecutive census years**



In 2011, the National Population Census highlighted India's rapid urbanisation, capturing for the first time a greater absolute increase in the urban population relative to the rural population. The level of urbanisation rose from 27.81% in 2001 to 31.16% in 2011. With the rural population migrating to urban and peri-urban areas, the stress on ecosystems has been on the rise.<sup>8</sup>

#### Box 1: Karhera village: Understanding the complexity of peri-urban areas

Formerly an agricultural village, Karhera village is located between Delhi and Ghaziabad in the National Capital Region. Urbanisation and land-use changes have given rise to industrial clusters, which offer diverse livelihood options. Increased in-migration has been accompanied by significant economic diversification. Meanwhile, the river that runs through Karhera, which was previously a source of water for domestic purposes and irrigation, has now been polluted by industrial waste discharge. At the same time, access to urban markets has made spinach farming a lucrative option here. Women, who already have household responsibilities, bear the extra burden of increasing the productivity of the spinach farms, while men are engaged in selling the produce.<sup>9</sup> But the polluted air and water make food safety a concern.

- 2. Sustainable livelihoods:** Peri-urban populations depend on ecosystems for their livelihood and for maintaining a healthy living environment. For example, peri-urban agriculture is one of the sources of income and it also provides ecosystem services by potentially contributing to nutrient recycling, air and water purification and flood control.<sup>12</sup>
- 3. Food security and resilience:** Peri-urban agriculture can improve food security in its own population as well as in the urban areas, making food systems more resilient.

Further, locally-grown food can reduce pollution and greenhouse gas emissions and aid mitigation efforts, since the food travels shorter distances to reach the city. In the city of Gorakhpur, however, a speculative land market due to changing land-use patterns led to agricultural lands being replaced by housing infrastructure, which, in turn, affected the overall resilience of the city.<sup>13</sup>

- 4. Regulating the microclimate:** Ecosystems help mediate temperature changes and filter air pollutants. Replacing green

spaces with built infrastructure can give rise to 'heat islands', which reduces the adaptive capacity of a population.

## Policy implications and recommendations: What can be done?

### Regulating development and infrastructure

**Issue:** In the absence of building regulations and proper urban planning due to unclear administrative status of peri-urban areas, industries and real estate markets often encroach into their open spaces.<sup>14</sup> This unregulated development typically overlooks the benefits of these peri-urban ecosystems and disrupts the essential functions they provide.<sup>15</sup> For example, a 2013 study by the Delhi School of Economics highlighted that Delhi's satellite towns could end up under floodwater due to the loss of 36% of forests and 22% of shrubs, simply as a result of being converted into settlements.<sup>16</sup>

**Recommendation:** While developing land-utilisation policies, states should take a cue from the National Land Utilisation Policy, 2013 (Draft). The Policy aims to "protect agricultural lands from land-use conversions so

as to ensure food security, to meet consumption needs of a growing population and to meet livelihood needs of the dependent population". To do so, the Policy recognises that any development must ensure the "preservation of areas of natural environment and its resources that provide ecosystem services".<sup>17</sup> Thus peri-urban land, particularly that which supports agriculture and ecosystems, is essential to the resilience of the region. Further, valuation of land should not just be economic, but should also consider the myriad ecosystem services that it provides and the risk of obliterating them.

### Managing ecosystems for resilient development

**Issue:** The National Urban Policy Framework (2020) by the Ministry of Housing and Urban Affairs has acknowledged that a business-as-usual scenario for urbanisation puts natural ecosystems in urban and peri-urban areas at great risk of degradation. Presently, urban areas view ecosystems as natural resources that can be monetised, disregarding their ecological role. This adversely impacts the micro-climate of the city as well as livelihoods dependent on ecosystems.<sup>18</sup>

Furthermore, ecosystem management in regional silos can have unintended consequences. As seen in the case of Karhera (Box 1), changing agricultural practices related to livelihood and access to urban markets can reduce material poverty on the one hand, but also give rise to other issues, such as negative health outcomes due to intensive farming and increased time spent on farm work by women who are the main agricultural labourers.<sup>19</sup>

**Recommendation:** States should understand the strong interdependence between urban and peri-urban areas and how natural ecosystems serve a different purpose than agricultural land. The National Urban Policy Framework provides guidelines to states, keeping in mind the relationship between cities and peri-urban areas, and asks institutions to look beyond municipal boundaries.<sup>20</sup> Policy-makers also need to recognise commons, such as wetlands, for their multiple uses, including supporting biodiversity, livelihoods, and not just as resources ready for 'extraction'. Planning strategies should seek to maximise not only food and livelihood security, but also climate adaptation measures.



Open land in the outskirts of Delhi, India. Shutterstock





Makeshift houses in the middle of a planned colony in a suburb in Bengaluru, India. Shutterstock

Natural ecosystems and built infrastructure also have unique roles, protecting against certain environmental and climate risks, and meeting developmental needs of inhabitants respectively. Infrastructure should be planned for and designed in harmony with natural ecosystems. Cities and peri-urban areas also need to collaboratively manage ecosystems to balance trade-offs. For instance, industrial pollution in peri-urban areas adversely affects agricultural production, in turn affecting the health and food security of urban and peri-urban residents. Stricter law enforcement and regulation can potentially ensure safer production of crops, while still allowing for new industry to flourish.<sup>21</sup>

### **Bridging the rural-urban divide**

**Issue:** With various patterns of urbanisation and the emergence of peri-urban regions across the country, it is difficult to demarcate rural-urban boundaries. Consequently, planning that depends on the rigid delineation of rural-urban boundaries can potentially threaten peri-urban ecosystems, since it

disregards the unique features of these areas and their many interlinkages.

**Recommendation:** Integrated, flexible planning can bridge this rural-urban disconnect. In Vijayawada and Solapur, for example, the district administration that looks after rural areas has successfully adopted a RURBAN platform to bring together rural and urban stakeholders and collaborate with the city administration. This allows stakeholders to focus on shared common natural resources, such as water.<sup>22</sup>

Constitutionally, states are mandated to form District Planning Committees and Metropolitan Planning Committees to prepare integrated plans for districts, with a focus on environmental conservation, spatial planning and infrastructure development. However, these committees are non-functional in most states.<sup>23</sup> Kollam, with its district development plan in the 11th Five Year Plan, is a good case of how integrated planning with consultations from all levels of local governments can work effectively.<sup>24</sup> States should take measures to revive these planning

committees to ensure that planning has a 'regional view' at the district level, as opposed to a siloed approach.

### **Promoting inclusive planning – Increasing the role of community and civil society**

**Issue:** The Rurban Mission of Government of India has a vision to "develop a cluster of villages that preserve and nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban in nature".<sup>25</sup> The Rurban Mission activities, however, fall short of clarifying how the emphasis on inclusiveness will contend with the typical development problems of token participation and elite capture and whether other measures might need to be adopted.<sup>26</sup>

**Recommendation:** Civil society and the local community can provide a better understanding of how socio-economic status, livelihood requirements, and the local context and culture contribute to existing modes of ecosystem governance that might be

taking place outside state mechanisms. Encouraging decentralised, participatory planning at the community level can help to balance the relationship between environment, poverty and health.<sup>27</sup> Moreover, planning processes must proactively include the representation of peri-urban areas in the formulation of plans and not reactively once the plans are drafted. It is important to acknowledge that the 'community' in the peri-urban

context is highly heterogeneous, with groups engaged in agriculture, daily wage labour and industry, all having differential vulnerabilities.

States should, therefore, focus on long-term and equitable engagement with communities and local governments. In Madurai, Tamil Nadu, DHAN Foundation worked with grassroots organisations and the municipal corporation to identify climate-resilient development

projects for the city and neighbouring settlements and slums. Participatory decision-making helped to ensure the success of the project, which went on to form a 'Zonal Council' to restore rivers by harnessing local knowledge and building trust between communities and the local government.<sup>28</sup> Given this successful case, the Rurban Mission should increase its promotion of active citizen and civil society participation through its activities.

## Endnotes

- Shah, K., Tandel, V. and Agrawal, H. (2019). 'Why India has the fastest-growing cities'. *Livemint*. Retrieved from: <https://www.livemint.com/news/india/why-india-has-the-fastest-growing-cities-11580053066942.html>.
- Narain, V., Anand, P. and Banerjee, P. (2013). 'Peri-urbanisation in India: a review of the literature and evidence'. Report for the project – Rural to Urban Transitions and the Peri-urban Interface. *SaciWATERS*. India. Retrieved from: <http://www.saciwaters.org/east-west-center/pdf/status-paper.pdf>.
- Aijaz, R. (2019). 'India's peri-urban regions: the need for policy and the challenges of governance'. *ORF Issue Brief No. 285*. Retrieved from: <https://www.orfonline.org/research/india-peri-urban-regions-need-policy-challenges-governance-49274/>.
- Dahiya, B. (2012). 'Climate change threatens the poor in cities'. *Inter Press Service News*. Retrieved from: [https://www.academia.edu/10358211/Climate\\_Change\\_Threatens\\_the\\_Poor\\_in\\_Cities\\_Inter\\_Press\\_Service](https://www.academia.edu/10358211/Climate_Change_Threatens_the_Poor_in_Cities_Inter_Press_Service).
- Aijaz, R. (2019) Op cit.
- Ecosystem Services for Poverty Alleviation (ESPA). (no date). 'Risks and responses to urban futures: integrating peri-urban/urban synergies into urban development planning for enhanced ecosystem service benefits'. Retrieved from: <http://www.espa.ac.uk/projects/ue-1001292-1>.
- Narain, V., Anand, P. and Banerjee, P. (2013). Op cit.
- Narain, V., Anand, P. and Banerjee, P. (2013). Op cit.
- Ecosystem Services for Poverty Alleviation (ESPA). (2018). 'Making the most of peri-urban ecosystem services'. Retrieved from: <http://www.espa.ac.uk/files/espa/Peri%20urban%20ecosystems%20web%20final.pdf>.
- Rockefeller Foundation. (2013). 'Degradation and loss of peri-urban ecosystems'. Retrieved from: <https://www.slideshare.net/RockefellerFound/external-peri-urban-ecosystems-did>.
- Gorakhpur Environmental Action Group (GEAG). (2016). 'Peri-urban ecosystems', *Issue Brief 2*. Retrieved from: <https://geagindia.org/publications/issue-brief-2-peri-urban-ecosystems>.
- Ecosystem Services for Poverty Alleviation (ESPA). (no date). Op cit.
- Ecosystem Services for Poverty Alleviation (ESPA). (2018). Op cit.
- Aijaz, R. (2019). Op cit.
- Shah, K., Tandel, V. and Agrawal, H. (2019). Op cit.
- Bedi, J.S. (2014). 'Urbanisation, development and housing requirements in the National Capital Region (NCR)' in *Background Paper on Issues Related to Land Economics*. National Council of Applied Economic Research, New Delhi, India. Retrieved from: [http://www.ncaer.org/publication\\_details.php?pid=229](http://www.ncaer.org/publication_details.php?pid=229).
- Department of Land Resources, Ministry of Rural Development, Government of India. National Land Utilisation Policy (Draft). (2013). Retrieved from: <https://smartnet.niua.org/content/b74035e9-e2bb-4112-898e-dace0b9e8cd1>.
- Gorakhpur Environmental Action Group. (2014). 'Urban food, nutritional and livelihood security', *Issue Brief 4*. Retrieved from: <https://geagindia.org/publications/issue-brief-4-urban-food-nutritional-and-livelihood-security>.
- Ecosystem Services for Poverty Alleviation (ESPA). (2018). Op cit.
- Marshall, F. et al. (January 2017). 'Why peri-urban ecosystem services matter for urban policy'. Retrieved from: [www.steps-centre.org/wp-content/uploads/2017/03/Peri-urban\\_Ecosystem\\_briefing.pdf](http://www.steps-centre.org/wp-content/uploads/2017/03/Peri-urban_Ecosystem_briefing.pdf).
- Ministry of Housing and Urban Affairs, Government of India. (2018). National Urban Policy Framework 2018. Retrieved from: <http://www.indiaenvironmentportal.org.in/files/file/nupf%20final.pdf>.
- Urban Water Management India. See generation information at: <http://urbanwatermanagementindia.org>.
- School of Planning and Architecture New Delhi. (2019). 'Framing guidelines for model land uses, development controls, and service level benchmarks with appropriate enforcement mechanisms for rurban clusters'. Retrieved from: <http://rurban.gov.in/doc/Model%20Planning%20Guidelines%20for%20Rurban%20Cluster.pdf>.
- Oommen, M.A. (2016). 'Decentralisation has fallen off the agenda'. *BusinessLine*. Retrieved from: <https://www.thehindubusinessline.com/opinion/decentralisation-has-fallen-off-the-agenda/article9272167.ece>.
- Shyama Prasad Mukherji Rurban Mission, Ministry of Rural Development. (no date). Retrieved from: [rurban.gov.in/assets/download/pdf/FOI\\_book.pdf](http://rurban.gov.in/assets/download/pdf/FOI_book.pdf)
- Singh, C and Rahman, A. (2018). 'Urbanising the rural: reflections on India's National Rurban Mission'. *Asia & the Pacific Policy Studies*, 5(2): 370-7.
- Ecosystem Services for Poverty Alleviation (ESPA). (no date). Op cit.
- Ibid.



## Acknowledgments

We are grateful to our external reviewers Dr Vishal Narain (Management Development Institute, Gurgaon) and Dr Jayahari KM (Food and Land Use Coalition) for their critical feedback and for their continued support in helping to conceptualise the policy brief. Thank you to Lisa McNamara and Charlotte Scott (SouthSouthNorth), Mairi Dupar (Overseas Development Institute) and Bedoshruti Sadhukhan and Ritu Thakur (ICLEI South Asia) for their review and editorial support, and Emma Baker (SouthSouthNorth), Subuhi Parvez and Saira Kurup (ICLEI South Asia) for production support.

We would also like to thank Dr Shiraz Wajih (Gorakhpur Environmental Action Group), Nivedita Mani (Gorakhpur Environmental Action Group), Zeenat Niazi (Development Alternatives), Dr Bhawna Bali (TERI School of Advanced Studies) and Meghana Kshirsagar (GIZ) for their valuable inputs for this brief.

Editing and design by Design for Development.

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This work was carried out with the aid of a grant from the Ministry of Foreign Affairs of the Netherlands and the International Development Research Centre (IDRC), Canada, as part of the Climate and Development Knowledge Network (CDKN) Programme. The views expressed herein do not necessarily represent those of the Ministry of Foreign Affairs of the Netherlands, or of the International Development Research Centre (IDRC) or its Board of Governors, or of the entities managing CDKN.

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