

Beyond Urbanization

Editorial

Urbanization is a global uneven phenomenon of transformation in land cover usage that is adversely impacting the health and biodiversity of ecosystems. In modified local and regional climate of large populated cities, small open spaces become the refuges for biodiversity in an otherwise hostile environment that mostly allow generalists to grow and flourish while suppressing several specialist species. Having known that the world's cities are expanding geographically at a higher rate than its population growth, urbanization has occurred at a massive scale around the world. However, it has been particularly rapid in Southeast Asia.

Southeast Asia, a region of hotspots of biodiversity, is known as the host to the world's unique diverse flora and fauna where highest global diversity in birds, mammals and amphibians has been recorded. Despite its well-known and acknowledged significance in terms of biodiversity, Southeast Asia has observed the highest rate of deforestation on the planet in past decade. Almost 15% forest cover was lost in the last 15 years for a progressive increase in the size and populations of its cities. More than 50% of South East Asian urban areas got developed within highly diverse ecoregions that have adversely impacted the protected areas within hotspots of biodiversity. An assessment of urbanization and its impact on biodiversity levels clearly indicates that cities support far fewer species of birds and plants as compared to similar un-urbanized regions. International Union for Conservation of Nature and Natural Resources documents 91,520 species on the IUCN Red List, a list that identifies species that need targeted recovery efforts with special focus on the conservation. The list identifies more than 25,820 species are threatened with extinction globally that include 41% of amphibians, 34% of conifers, 33% of reef-building corals, 25% of mammals and 13% of birds, however, the trend reveals a worrying concentration of Critically Endangered species in southeast Asian hotspots. IUCN Red List of Threatened Species showed that Southeast Asia had by far the highest concentration of species on the edge of extinction of any region in the world as per the comprehensive Global Mammal Assessment, 2008. The region is considered as world's most threatened region for mammals with some parts of the region to lose 98% of the remaining forests in next decade. Similarly, Southeast Asia that supports the highest mean proportion of endemic (national level) bird species, also has the highest mean proportion of threatened bird species of all tropical regions. Deforestation is the most likely major cause of avian losses in Southeast Asia though avifauna of Southeast Asia remains one of the least studied in the tropics.

The loss in biodiversity can bring grim consequences for earth system in terms of ecosystem stability, functions and services. Since the rate of extinction exceeds the rate of speciation, loss in biodiversity can leave any aquatic and terrestrial ecosystem vulnerable to climate change. Such losses of species which are slow to adapt to non-linear change are irreversible. If such losses are allowed to continue, the earth might take several million years to replace the million species

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facing sixth great mass extinction. Several million poor people draw benefits from the Mother Nature and the total global annual economic cost of loss in biodiversity has been estimated to be between 1 to 3 trillion U.S. dollars. This intensification of human impacts on the environment is ringing alarm bells to the conservation biologists and posing vexing questions; what is the best possible way to conserve the diminishing biological diversity under the veil of development and urbanization? Which organisms must be protected and which we can afford to ignore and accept extinction? Two principal approaches that direct the conservation biologists

- i. Conserve the biodiversity for the sake of preserving nature and
- ii. Conserve the biodiversity to safeguard the ecosystem services for humanity. Usually, a small loss in biodiversity is not detrimental to any ecosystem; however, the ecosystem services get halted when any one functional group vanishes.

To bring the policies of conservation into plans of action, first and foremost mapping of the biodiversity is necessary. Secondly, detailed information on functioning of any ecosystem must be known and understood given that the relationship between biodiversity and productivity is not simple and straightforward. Both policy makers and scientists need to work together on the management of ecosystems for conservation of biodiversity and safeguard of ecosystem services. Considering high costs involved in biodiversity conservation, there is a need to create diverse incentives for conservation and integrate the objectives of biodiversity into a larger arena.

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Conflict of interest

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