Yes, No, It’s Complicated: Is planting saplings a solution to the felling of trees?

New eco-friendly sapling bags introduced by the Social Forestry Department. | Photo Credit: Thulasi Kakkat

Not creating essential urban infrastructure will only lead to a deteriorating quality of life

City clusters are economic growth engines. In India, the world’s fastest growing economy, the urban population (nearly 32%) contributes over 60% to the GDP and is projected to contribute around 75% in the next few years. Globally too, megacities (a megacity contains more than 10 million inhabitants) have played a significant role in the economic growth of nations. More than 12% of global city dwellers lived in the 28 megacities in 2014, of which Tokyo, Delhi and Shanghai were among the biggest. Delhi is projected to become the most populous city in the world by 2028, according to the United Nations.

Invest in urban infrastructure

With the inevitability of migration to urban areas, the share of agriculture and allied services in GDP has shrunk to around 15% even as the sector continues to engage around 70% of our working age population. This has led to subsistence living and distress in rural India. Thus, rural India cannot provide sustainable livelihood to the youth. On the contrary, the GDP contribution of megacities and metropolitan regions is disproportionately high. With large-scale migration to the cities, we must focus on making our cities economically viable and environmentally sustainable so that they remain economic growth engines that provide employment. Investing in our urban infrastructure will lead to enhanced economic activity and result in large-scale employment generation and an improved quality of life. This is a much-desired socioeconomic outcome in a young nation where the majority of urban migrants are youth who are either unemployed or underemployed.

But is it possible to create large-scale urban infrastructure to support the burgeoning urban population and provide high economic growth while ensuring environmental sustainability?

This question has always bothered urban planners and administrators. And more often than not, environment has been the casualty. The high economic growth and prosperity of China came at a huge environmental cost, which the country is trying to address now. In Indian cities, there is lack of basic infrastructure and a deteriorating quality of life. This is reflected in the fact that nine of the 10 most polluted cities in the world are in Indi. Delhi is among them.

Least harm to the environment

It is not an easy task but we have to work hard to ensure that our urban infrastructure causes least harm to the environment and has a net positive impact on our quality of life. Whether it is metros or elevated corridors, a net environment impact assessment must be conducted to justify the felling of trees and harm to water bodies. While the immediate direct environmental impact of cutting trees is obvious, there is a need to inform the stakeholders about the long-term positive

impact of these urban infrastructure projects to justify their necessity. Environmental pollution caused by daily hour-long traffic jams on a 10-km stretch will do more harm to the environment and to people's health than felling 1,000 trees to build a metro line or an elevated corridor. This data needs to be compiled and shared on public forums to educate people.

Care must be taken to avoid any harm to the environment. This can be done by going either underground or elevated. Large-scale compensatory afforestation should be provided in the immediate vicinity, to the extent possible. But not creating essential urban infrastructure will only lead to a deteriorating quality of life. The line between development and environment is a fine one. We must tread it carefully.

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Forest and tree conservation laws have fueled more ecological loss and destruction by relying on offsets like compensatory afforestation.

Compensatory afforestation (CA) is not new in India. Several national- and State-level laws permit change in use of forest land or cutting of trees as long as the damage can be offset. This is done by bringing more land under forest area, or planting more trees than what would be lost, or both. CA is seen as a compromise between ecological requirements and developmental aspirations.

In recent months, the idea of CA or plantations has sparked a huge debate. Can we continue to lose the large number of trees being cut for the Goa airport, housing complexes in Delhi, highways, and the bullet train, and expect the damage to be offset through plantations?

Shared habitats

There are three reasons why the policy of CA should be rejected. First, growing trees is not a substitute for altering shared habitats. Urban green spaces, like forests, support a variety of life including birds and animals. In cities they are important public spaces for shelter and recreation, just as forests are culturally revered by tribal and village communities. These spaces perform critical ecological functions including water recharge. For forest-dependent communities, loss of these places means giving up livelihoods, homes and property. The value of such ecologies cannot be substituted by plantations.

Second, discussions in the Supreme Court since the late 1990s and reports of the Comptroller and Auditor General have identified four reasons why CA has not worked, the foremost being the availability of land where plantations can be raised without encumbrances. Further diversion of these CA lands for other uses is a challenge. Audits have also indicated delays in fund disbursements by agencies seeking change in land use, and poor utilisation of funds by the forest department that is tasked with ensuring plantations. They are not mere implementation hassles if they have lasted so long.

Third, the afforestation overdrive by government departments is done in floodplains, grasslands and other ecosystems that are often not suitable for tree cover. Administrations do not carry out impact assessments of sites where CA is to take place. These areas are demarcated, and letters permitting land use change enlist these areas as designated zones for plantations. This is a form of dumping saplings in sites that are empty and where trees are not appropriate. For Delhi, one popular place for compensatory plantations is the Yamuna river floodplains. Citizens are rightfully questioning whether the floodplains should be where saplings should be dumped in lieu of fruit

and flowering trees being cut to construct a World Trade Centre in the heart of the city.

Laws have not helped

Laws like the Forest (Conservation) Act of 1980 and the Delhi Preservation of Trees Act of 1994 were enacted with the objective of conserving and preserving trees, and preventing forest loss. However, using the route of compensatory afforestation, these laws have legitimised the loss of an average of 35,000 hectares of forests annually to development projects. Over 400 billion has been collected as funds by systematically allowing for loss of forests and felling of old growth trees.

In effect, forest and tree conservation laws have fuelled more ecological loss and destruction by relying on offsets like compensatory afforestation.

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Urban redevelopment can be taken forward with ecological considerations

Tree felling for urban development inspires opposing positions. Those who want development projects are convinced that trees are a necessary casualty for urban living, while conservationists and activists opposed to tree felling are accused of being anti-development.

Extreme positions do not facilitate a search for solutions. India is hurtling towards urbanisation at breakneck speed. Indian cities are estimated to add 300 million new urban residents by 2050. To accommodate people at this scale, we have to build at scale. Sadly, the only land available in most cities is wooded land — urban forests, parks, tree-lined streets. Cutting trees is an inevitable sacrifice for development, according to the urban pragmatist.

Trees and saplings

Can people in cities live well in the absence of trees? Urban trees reduce air pollution, cool cities, and increase ground water infiltration. Our research in Bengaluru shows that street trees reduce PM10 levels by 75%, reduce atmospheric temperature by 3-5°C and road asphalt temperatures by 23-25°C.

Most urban development projects provide grandiose claims of replacing each mature tree felled with 2-10 saplings. But a mature, decades-old tree has an incredible capacity for pollution control, biodiversity support and cooling. Large trees can absorb and sequester as much carbon as 90 small trees. Trees in cities are 4-6 times more useful in removing carbon from the air compared to rural trees, because urban air is overloaded with carbon emissions. Saplings will take decades to provide the same scale of environmental services.

Planners seek to compensate for the loss of these trees by selecting fast-growing species. This is to compare apples and oranges. Many popular fast-growing species used for urban afforestation, such as Eucalyptus and Acacia auriculiformis, deplete groundwater and affect soil quality. They cannot replace the environmental services provided by a giant native peepal, mango or tamarind. Stretching the interpretations of a tree to ludicrous extremes, ornamental palms are also planted as CA.

The location of compensatory plantation poses another challenge. Once trees are felled for development, there is often no space to replant trees in the same location. Saplings are planted in distant locations outside the city, or in gated inaccessible locations such as defence land, and corporate or educational institutional premises. Trees that were public resources are compensated by saplings that are inaccessible to the citizenry.

Faulty planning

Does this mean we can never cut down a single tree? Of course not. The fault lies in the planning process. Typically, designs for redevelopment, road widening, or metro construction are developed by engineers with no background in ecology and with little interest in it. With coordination between municipal engineering and forest departments, and genuine public consultation, designs can be innovatively modified to save a number of trees. Widened roads can accommodate large trees in the median, and can be curved to accommodate a heritage tree at the corner or centre. Similarly, if metro planning was truly consultative, routes could be altered to spare old tree-lined boulevards and historic parks. The redevelopment of south Delhi could have been designed to save most of the existing trees, for example by building vertically. CA, when needed, must be done locally, using the right species. These species should be watered and protected to ensure long-term survival. Reducing the tree and sapling question to a yes and no debate between development pragmatists and environmental romantics is meant to misrepresent. We must not be fooled.

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