Air pollution linked to destruction of green belts in Delhi: a harsh reality

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Deteriorating air quality in Delhi has recently made the unpleasant headlines both nationally and internationally. After the intervention of Supreme Court (SC) and National Green Tribunal (NGT), Delhi Government has taken multiple steps to clean the city environment. The issue was thoroughly debated by environmental experts, activists, policy makers, government agencies, print, electronic, social media, etc. The issue was discussed at length on news channels on daily basis and bulk of information and suggestions flowed to address the grave challenge. Concerned with the dangerous situation gradually building up in the city, I too followed the story which continued for several days.

Some of the steps taken by the Delhi Government on SC and NGT directives to check rising air pollution include, odd-even rule, encourage people to use mask (especially Delhi Traffic Police), ban the registration of luxury SUVs and diesel cars above 2000 cc, increase the green tax by 100% for commercial vehicles entering Delhi, all taxies to switch to CNG by next year, ban on burning of leaves, and waste, make efforts to gradually phase out diesel vehicles, imposing fine on builders for violating environmental norms, improve public transport in future and improve fuel quality standards. Unfortunately, after such a hue and cry, it is not clear if the foul Delhi air has actually improved!

The unfortunate truth is that Delhi is loosing its green cover at an alarming rate due to ruthless felling of trees in the name of infrastructure projects and regulation pruning. Moreover, no sincere afforestation drive has been made to compensate for the tree loss. According to the first comparative satellite-based study conducted during 1999–2012, the National Capital Region (NCR) has lost 32,769 ha of green area and 1,464 ha of water bodies due to various developmental works and rapid urbanization. During the same period, the study found that built-up area in NCR grew up by a massive 34%, bringing 95,803 ha of land into the construction zone. The study was conducted by the National Remote Sensing Centre (NRSC) at the instance of the NCR Planning Board (NCRPB)[1]. Its most striking finding was the substantial loss of green cover across Delhi and regions of UP, Haryana and Rajasthan. The other alarming indicator due to unsustainable growth in NCR was the loss of water bodies which was reduced by 1,464 ha. The NRSC report also shows that environmentally fragile areas such as the Yamuna riverbed, wetlands, ridge areas and forests were being steadily encroached upon for developmental activities.

The fundamental reason for this pathetic situation in Delhi is that the Forest Department, which is responsible for maintaining, monitoring and increasing the green belt in the city, is facing acute shortage of manpower to work on ground and enforce green laws. Recently, NGT has ordered the Delhi government (after a petition filed by an environmental activist) to fill all the vacant posts in the Forest Department and submit a compliance report in three months time[2]. The National Forest Policy, 1988 recommends at least 33% of green cover in each state; Delhi has just 20.22% (ref. 3) and ground realities are even more grim. According to the official figures of Delhi Forest Department, the green cover has reduced from around 34% in 2006 to less than 10% in 2015 (ref. 4). The Public Work Department (PWD) was responsible for cutting 48,000 trees and the Delhi Metro Rail Corporation (DMRC) for over 52,000 trees. The number of trees felled for different developmental projects during the financial year 2013–14 and 2014–15 was 8,196 and 6,058 respectively. An environmental activist recently informed the SC that more than 1 lakh trees were cut between 2006–2010 without any re-plantation for the green loss. The ridge is considered as Delhi lungs but encroachment in the past has wiped out around 532.5 ha of land despite being declared as a protected area by the Government order 20 years ago.

In my opinion, urban forests need to be managed, maintained and increased if we seriously wish to negate the environmental damage caused by air pollution. Trees in the urban areas are known for their aesthetic and recreational values apart from the unique ecosystem services they provide in an urban environment. Some of the ecosystem services include: temperature regulation (urban heat island), climate and rainfall, enhance biodiversity, enhance soil nutrients, removal of dust, toxic air pollution, particulate matter, improve water holding capacity of soil, sequester carbon, release oxygen, etc. The urban biodiversity in Delhi comprises of *Azadirachta indica*, *Bombax ceiba*, *Cassia fistula*, *Delonix regia*, *Ficus religiosa*, *Jacaranda mimosifolia*, *Syzgium cumini* and several other species which have adapted to the semi-arid conditions quite well. Studies have shown that such trees have found a more suitable place in the urban environment[5] which can be planted as road side and street trees. Moreover, plantation of urban trees also requires studies of the local ecological relationship with human environment[6].

Thus, evaluating the ecosystem services which trees provide in an urban environment, the Delhi Government should prioritize their goals and actively support the Forest Department with adequate manpower to strictly implement the already existing laws. A long-term policy should be made to conserve and increase the urban greenery despite continuous urbanization which is inevitable. A healthy balance between urban population and tree cover should be maintained at all costs. Moreover, scientific management of forests is required to maximize the ecological benefits. Though other initiatives taken at present are equally important but prime focus should be on increasing the green cover of the city. This holistic approach should be implemented upon as a long-term strategy so that we can make Delhi agreeable place to live and work in.

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5. Pokhriyal, T. C. and Subba Rao, B. K., *Indian For.*, 1986, **112**, 573–582.
6. Chakre, O. J., *J. Human Ecol.*, 2006, **20**(2), 135–138.

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