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Government of India
Ministry of Environment , Forests & Climate Change
Forest Policy Division

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New Delhi: 110003

Dated 11.07.2014

OFFICE MEMORANDUM

Sub: **Draft** Guidelines for conservation, development and management of Urban Greens-reg.

The undersigned is directed to inform that the Ministry of Environment, Forests and Climate Change has prepared a draft **Draft** Guidelines for conservation, development and management of Urban Greens. The Draft Guidelines are enclosed herewith.

2. Before brining out the final version of the Guidelines in this regard, all State/UT Governments, Ministry of Urban Development, other concerned Ministries/Departments and other stakeholders including individuals and NGOs, etc., are requested to kindly send their comments/suggestions on the Draft Guidelines to the Ministry within one month from the date of posting on the website both in hard copy and soft copy at e-mail: subhaash.chandra@gmail.com / jitesh.kumar@nic.in or Telefax:011-24695278.

Encl: as above.


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To

1. Ministry of Urban Development, New Delhi and other concerned Ministries/Departments.
2. The PCCFs of all States/UTs.
3. All other stakeholders/NGOs/Individual
4. Guard file

Guidelines for conservation, development and management of Urban Greens

1. Background:

Cities and towns are emerging as centres of domestic and international investments where most of the commercial activities take place. However, cities are facing a number of environmental challenges including dwindling of tree/ green cover. Urban population in India has increased from 17% in 1951 to 31% in 2011 and is expected to reach 55% by the year 2050.

Tree and forest cover are critical component of Urban & Peri-urban environment, which moderate microclimate, enable ground water recharge, provide shade and conserve local biodiversity, improve quality of life for city dwellers by providing recreational avenues, much needed public space for better social cohesion, significant health benefits, aesthetics as well as mitigating climate change. Urban forests like the Ridge Forest in Delhi not only act as green lungs of the city but also provide highly valuable ecological and environmental services. Trees on the roadsides often serve as a shelter/ resting place providing relief to the poor in harsh climate. Green spaces in urban areas also serve as insurance against natural disasters. Tree covers and urban greens significantly reduce the cost of management of urban areas as well as positively impacts health of its residents. Trees as such are an important component of the urban infrastructure as they provide significant amelioration against urban heat island effects and flooding due to storm water¹. The trees also serve as reservoir of urban biodiversity and loss of trees adversely impacts biodiversity. The virtual extinction of the common sparrow from cities' landscapes is a matter of serious concern.

2. Tree conservation in Urban areas:

Currently responsibility for development, protection and management of trees in urban areas lies with number of agencies like local bodies, revenue & forest departments etc. From a legal perspective also, this space is covered under various Acts and Rules like the Municipal Acts, Indian Forests Act, Land Revenue Code, Master Plans, and Bye Laws etc. As such the actual functioning and details varies from state to state. Some states have enacted Tree Preservation Acts and established statutory authorities like the Tree Officer for protections of trees and other related incidental issues, whereas in other states, these functions are carried out by Revenue and Municipal officers. In some other states, special Acts regarding felling of trees in non-forests and private lands are also applicable in urban areas.

In addition there are Country and Town Planning guidelines governing allocation of space for green areas while laying out of town plans. Most of these green areas are Neighborhood Parks, District and Regional Parks, and other green areas. The extent of areas that are to be set out as greens under these town planning rules and guidelines have mostly followed empirical guidelines and are not based on scientific findings and requirements. As a result these guidelines have most often fallen short in demarcating adequate land cover under greens resulting in sub-optimal benefits to environmental, health and other related issues. As is the practice, regulatory authorities entrusted with protection of trees do not have a proactive role to play in planning of green areas in urban landscapes. Multiplicity of agency has proved to be more of an obstruction than help in protecting and conserving tree cover and urban greens.

¹ http://www.systemecology.com/4_Past_Projects/SanAntonio_low%20res%20final.pdf

3. Tree cover in urban India:

There is dearth of information about tree cover in urban areas especially for tier 2 and tier 3 cities and urban agglomerations, as this work has not been attempted in a systematic manner by Government Departments, academic organizations or NGOs. However information about some cities and towns is available which gives some perspective about the status of tree cover in urban areas of the country.

FSI has estimated around 20% of the geographical area under tree and forest cover in Delhi and 14.9% in Chandigarh, although green space (tree cover + parks and garden, grass cover in play ground, grass cover in open space, etc.) is high. The tree cover in Hyderabad is 5% of the geographical area. The estimate for Bengaluru Urban district is 6.85%². As per a study, the tree cover of Gandhinagar is 53.9 % of the geographical area whereas it is 4.6% and 16.29 % for the municipal areas of Ahmedabad and Vadodara respectively³. However, the tree cover in the Nagar Palika areas of Gujarat is 8.8% of the geographical area. The average tree outside forest cover (TOF) is 2.76 % of the geographic area⁴. As per ISFR, 2013, urban tree cover exists on 12,790 sq. km. (16.40%), out of the total 77,997 sq km of urban area⁷.

4. Standards for urban tree cover:

With a view to maintaining the environmental balance, the National Forest Policy envisages an average forest and tree cover of 33% of the geographical areas for the whole of the country. Further it has been qualified that 2/3rd of the land area should be under forest and tree cover in hills.

On the global level, for example in the US, the general recommendation for urban tree cover is overall tree cover for all zone is 40% of geographical area, 50% for suburban residential zones, 25% for urban residential zones and 15% for central business district⁵. Comparatively, the average tree cover in the twenty main metropolitan areas in the US has been estimated to be 27.1% of the geographical area⁶.

The Municipal Acts of various States/UTs also prescribe a minimum area for parks and gardens. While in the older areas of the cities, redevelopment and demarcation of exclusive areas for parks and greens is most often next to impossible, in the new development areas. Further, creation of green areas is not being done uniformly. Some of the cities and towns of the country are fortunate to have forests within its city limits, but as a matter of rule, notifying new forests areas within cities may not be feasible and increasing green cover in urban areas will therefore depend more on the trees growing in non-forest land irrespective of its ownership.

Tree Preservation Acts in some of the States and Cities though regulate felling and protection of trees and provide for compensatory plantation but do not prescribe minimum area required for trees / greens, their management plan.

5. Issues on conservation of urban greens and trees in city environment:

² India State of Forest Report, 2011, Forest Survey of India, Dehradun

³ <http://www.currentscience.ac.in/Volumes/104/10/1294.pdf>

⁴ India State of Forest Report, 2011, Forest Survey of India, Dehradun, pp 45.

⁵ http://wrc.umn.edu/prod/groups/cfans/@pub/@cfans/@wrc/documents/asset/cfans_asset_113677.pdf

⁶ Nowak, D. J., Hoehn III, R. E., Crane, D. E., Stevens, J. C. and Walton, J. T., Assessing urban forest effects and values, Washington, DC's urban forest. Resource Bulletin NRS-1. US Department of Agriculture, Forest Service, Northern Research Station, Pennsylvania, 2006, p. 24.

⁷ India State of Forest Report, 2013, Forest Survey of India, Dehradun, pp

It is often seen that urban green spaces and trees are sacrificed for development of other infrastructure such as road widening, parking space, buildings of flyovers, hospital, public transport and so on. There are instances of concretization around trees, use of parks for car parking, purposes and damage to trees in view of overhanging wires. The willingness to compensate for the loss of trees/ green cover in cities is often lacking. Expenditure on greens is often seen as non essential and elitist. Another observation is that the less than optimal tree cover in urban areas is also not evenly distributed throughout the cityscape. Even in cities which enjoy relatively higher tree cover, situation is fast changing as trees and green areas are under threat with ever increasing development and construction activities. There are multiple authorities managing urban greens coupled with multiplicity of rules and regulations governing urban green and trees implemented by different departments/ agencies. As such, conservation, management and development of urban greens which include trees, parks and gardens, city forests, avenues, green belts, etc. pose enormous challenges to the city administrators, planners and managers of the greens.

Some of the important issues with respect to conservation of urban greens and trees are mentioned below:

- i. Absence of long term planning resulting in frequent changes in landuse. As a result, there is lack of integration of trees/ greens with planned development process and trees are often planted as an afterthought.
- ii. Land covered with trees is viewed as loss of opportunity cost when compared to the land put to commercial and infrastructural uses. There is tremendous pressure on green areas/ trees for competing land uses especially for expanding infrastructure.
- iii. Limited space available for tree planting. Trees are often viewed as obstruction to development and therefore become the first casualty in the process.
- iv. Water scarcity, refractory soil and stressful growth conditions impact proper growth and health of trees, leading to high cost of development and maintenance. Lack of trained manpower for management of greens is also poses serious problem.
- v. High public pressure on urban greens due to high floating population. Urban poverty and homelessness encourages squatting in open areas reserved for trees.
- vi. Lack of respect, sensitivity and care often from different cross sections of the society. Green spaces/ young plantations/ saplings prone to vandalism.

6. Strategy to enhance tree cover in urban areas:

Urban greens would include forest land if any, tree groves, parks, tree lined avenues in public land as well as in private and institutional property. There is a need for a well defined strategy for enhancing tree cover in forest areas. The strategy should consist of a multipronged approach to integrate development of tree cover as a part of the development plans of cities by viewing them as a component of urban infrastructure. There is a need for a specific policy with enough flexibility so as to strike a balance between the requirement of protecting and enhancing tree cover and overall urban development. It is necessary to develop certain uniform standards for urban tree cover and green spaces. The policy could also dwell on providing incentives and disincentives to encourage efforts for urban greening. Urban greens including trees should be considered as an integral component of urban renewal projects implemented by the governments. This should be supported with appropriate legal framework for protection and

conservation of trees and by bringing in institutional changes by realigning the role and responsibility of the various agencies responsible for the same. Approach should also focus on effective public participation for the cause of protection of trees. There should be adequate focus on investment not only in tree plantations but also in capacity enhancement of the relevant institutions. Use of modern technologies like remote sensing & GIS for resource assessment and planning should be promoted. Preparing baseline data for assessment of urban greens and tree cover for the entire urban landscape of the country should be given high priority. High quality satellite imageries of urban areas can be used for planned expansion of tree cover to co-exist with the other land uses. Conservation of trees in the old city areas needs to be given due importance.

7. Policy & Legal Framework approach for Conservation of Urban Greens:

Urban Greens including trees have an important role in making cities sustainable by providing ecological and environmental services, preserving biodiversity, health and recreational benefits to citizens. However, urban greens are normally covered in the master plans and city development plans in the form of District, Zonal, Regional, colony parks and other greens. There are also few notified forests lying in the midst of cities. Some states have Tree Preservation Acts, whereas Forest and revenue laws are applicable in others. There is a need to have common standards based on professional and scientific approach for promoting conservation, development and management of urban greens and trees in urban areas. This will require a policy and legal framework so that planning and development of urban greens is institutionalized. Trees take much longer time span often spanning multiple generations to get established and provide optimal benefits, therefore the planning should be consistent to offer long term support for development of tree cover in the urban landscape. There is need for uniform policy framework for the following:

- i. Integration of existing woodlands/ trees/ parks in the Development Master Plans of cities Greens:** Urban greens including woodlands need to be incorporated in the Master Plans of respective cities/ peri-urban & urban areas as essential part of green infrastructure to provide statutory protection from land use change from greens to other purpose.
- ii. Resource assessment:** Tree resource assessment should be undertaken in urban and peri-urban areas by the concerned landowning agencies in coordination with respective Forest Departments. Data should be compiled in appropriate formats to have uniform information on tree species, location, growth and health status etc. This information should be used to prepare suitable management plans. There should be efforts for treatment of diseased and old trees and for their proper replacement after they attain useful life. The record of trees should be maintained on appropriate GIS platform using latest technological applications which should be periodically updated preferably at 5 year intervals.
- iii. Guidelines for maintenance and enhancing tree cover:** **There is an urgent need to have common guidelines for maintaining and enhancing tree cover based on sound scientific principles, inputs from communities and global best practices and local climatic and geographic situations. If possible, these guidelines should be given effective legal backing to make them mandatory in nature throughout the country.**

- iv. **Organization structure for looking after tree cover and greens in Urban areas:** Suitable organization structure including manpower and other resources should be put in place to implement this policy. Necessary facilities should be developed for training and capacity building, transfer of technical knowhow, awareness raising and information dissemination among citizens for promoting tree growth in urban areas.
- v. **Guidelines for felling/ removal, pruning and lopping of trees in urban areas:** Felling/ removal of fully grown trees wherever required in respect of a specific project, should be thoroughly examined at the site after exploring all possible options to save the maximum number of trees.
- vi. **Financial support for urban greening:** Urban greening is different from normal plantation/ afforestation activity, requiring appropriate cost norms for plantation & maintenance. Maintaining tree architecture, shapes and balance for health of the plants as well as for aesthetics is important which require regular care and maintenance. Plants in urban areas also have to face more hydrological stress, higher temperatures and pollutants. Essentially tree plantation and maintenance in urban areas is more cost intensive than routine afforestation works. Financial investment, therefore, needs to take care of these specific issues into consideration. There is a need for dedicated funding for improving tree cover in urban areas from Central, State Governments and Municipal Bodies which can be augmented with fees, cess or other such sources by the respective authorities. To increase the funds that can be made available to this sector, it is essential to explore funding from all possible sources to support urban greening.

8. Technical guidance for development and maintenance of trees and greens in urban areas:

The following guidelines should be considered by the concerned agencies for conservation and management of existing trees/ greens and development of new greens in urban/ peri-urban areas.

- 1) In order to achieve the national goal of 33% of forest and tree cover at national level, it is desirable to have appropriate proportion of urban green spaces in city planning and designing of new habitations/cities with the minimum provision of 20% tree cover in new housing, industrial or other related projects in plains and 60% in hilly areas keeping in view the goals enshrined in National Forest Policy, 1988. The participation of citizens, communities and private sector in creation and management of urban greens should be encouraged and provided appropriately in the town planning and byelaws with roles and responsibilities.
- 2) One of the principle objectives of the city planning should be to have a uniform well distributed tree/ green cover so that citizens are equally benefitted. This would require integration of forest departments with the civic authorities for comprehensive planning. It would be desirable to divide city's area into uniform grids of appropriate size say 1 Sq. Km/ 5 Sq. Km or 10 Sq. Km and plan afforestation programmes to achieve uniform green standards.
- 3) Protection of existing greens/ trees should be given high priority. It is necessary to carry out tree census periodically. A five (5) year interval may be considered depending upon resources. Participation of concerned departments, civil society/ citizens, schools, NGOs and suitable institutions may be encouraged to carry out tree census under the

supervision of forest departments. It will be appropriate to make use of GIS for mapping of urban greens and trees, which alongwith census data should be placed on websites for general information.

- 4) In new projects, efforts should be made for accommodating existing trees and greens. Their removal should be an exception and subject to detailed scrutiny. Provision of dedicated strip of sufficient width for supporting plantation of trees along the roadside should be made mandatory. Where it is not possible to leave a dedicated green strip for compensatory as well as normal tree plantation, a minimum soft space of 2 M X 2 M should be provided for trees/ tree plantation. Every tree is important in the urban environment as it gives invaluable environmental benefits and replacing of an established tree is often not possible.
- 5) For safety and providing conducive growth environment for trees in city environment, no concreting/ hard surfacing should be done around trees. Due care should be taken while undertaking any digging/ road cutting activities near tree bases so that roots of trees are not damaged irreversibly causing fall of trees.
- 6) In case of trees felled for road widening, construction of flyovers and other infrastructure projects, appropriate provisions for land for compensatory plantation should be in built in the project design. As far as possible the compensatory plantation should be carried out in the vicinity of the area where trees are required to be felled to compensate for the loss of greens/ trees in that particular site. Replacement planting of at least equal number of trees should be planned/ explored at/ near the site(s) from where trees have been/ are being felled.
- 7) It is necessary to maintain uniform spacing of trees depending upon the tree species on a particular avenue. The gaps in rows of trees, if any, should be filled up as soon as possible.
- 8) Obligatory role of citizens for supporting tree preservation and incentives for plantation may be through concessions/ rebates in taxes such as property tax may be considered. Efforts of private companies, PSUs in greening under their corporate social responsibility (CSR) to be encouraged.
- 9) The role of every institution including Local Bodies, Municipalities, Cantonment Boards, RWAs etc including Central & State Government institutions which have land available for enhancing tree cover is important in conserving and expanding tree/ green cover. Awareness campaigns should be regularly organized on trees and urban greens and their benefits to ecology and environment for enlisting continuous public support.
- 10) To support greenery, creation of sufficient nurseries to provide good quality planting stock is important. In city planning adequate emphasis should be given to nurseries, which should be supported with service centres.
- 11) Garden and avenue designing, Green Corridors & Strips should be emphasized in the City Development Planning for environmental and aesthetic propose including their integration with buildings, parking & other facilities.
- 12) Tree management is a specialized skill which needs professional approach and training. Engagement of Arboriculturist, Tree Surgeons etc. should be institutionalized. Formal training in management of urban greens should be organized. R& D for proper management of trees needs to be strengthened.

- 13) While designing urban greens and planning of tree plantations, species selection should be done with great care so as to meet the objectives of tree plantation optimizing benefits and causing minimum inconvenience to citizens/ users.
- 14) Sustained availability of irrigation quality water is a critical requirement for successful creation and management of urban greens. Since cities are facing acute scarcity of water, it is proposed to make all necessary arrangements for treatment of waste water for use in urban greens maintenance. Industries, Hotels, Group Housing Societies, Railways and other Government establishments etc. should be made responsible for treatment of waste water and use it for greening. Urban Local bodies to promote appropriate technologies and guide various agencies.
- 15) To enhance urban greens and tree cover, emphasis should be given to create appropriate green areas in old as well as new cities. Creation of parks/ gardens in old residential colonies including planting in avenues, central verges, roundabouts, drain-sides, colony parks, households, around water bodies, institutional lands, schools/ colleges/Universities, business/ industrial, residential colonies etc. should be explored.
- 16) Residents/ corporate may be encouraged to contribute in innovative designing including vertical/ terrace gardening for enhancing green cover including quality, biodiversity conservation and aesthetics of greens.
- 17) Restoration of Urban Greens such as colony parks, avenue trees should be considered as an essential activity under urban renewal project like JNNURM. It will help in decongestion of cities and reducing impact of natural disaster.
- 18) Need for formal consultation with experts/ foresters on urban greens in respect of projects involving alteration of urban greens/ cutting of trees. The experts on urban greens, horticulturists, foresters should be consulted in the planning of projects which have bearing on tree cover/ greens.
- 19) Surplus lands available with various institutions/ agencies like railways, industries, PSUs, companies, universities & other educational institutions etc. if not required by them in immediate future say 5 years can be used for green use or tree plantations, which will be returned whenever the necessity for the original purposes arise.
- 20) While encouraging green spaces, local species should be planted and alien/ invasive species should be discouraged and to be planted after successful field trial or experiences documented in similar conditions. It is proposed to create a biodiversity park in each District HQ/ City of over 5.00 lakh population to preserve local species and create public awareness.
- 21) There are many trees of historical importance in cities, which need to be identified and preserved. Tree tourism may also be thought of as an activity for generating interest among local people and nature enthusiasts.
- 22) In additions local bodies, district administration, state governments may propose appropriate measures for meeting any specific requirement of a particular area.
