STATUS OF TREES OUTSIDE FORESTS (TOFS) IN BASTI DISTRICT OF EASTERN UTTAR PRADESH

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ABSTRACT

Trees Outside Forests (TOFs) refers to trees on land not defined as forest or other wooded land and generally include trees on farmlands, in cities and human settlements, orchards, sides of roads, pastures, banks of rivers, streams and canals and as shelterbelts which are less than 20 m wide and 0.5 ha area . The status of agro forestry is in very primitive stage in villages of the Basti district of Eastern U.P. The region has an agricultural economy and there is tremendous scope of agro forestry by growing tree species on bunds of the agricultural fields and in combination with the crop. Thus, to assess the status of Trees Outside Forests (TOFs) in rural area of the Basti district, a study has been undertaken for important tree species *viz.* Teak (*Tectona grandis*), Mango (*Mangifera indica*), Babool (*Acacia nilotica)*, Neem (*Azadirachta indica*), Kathal (*Artocarpus hetrophyllus*) and Shisham (*Dalbergia sissoo)* for selection of deficit species in plantation programmes and agro forestry. The trees were enumerated for all six species with respective girth classes in the selected villages of the district. In case of Teak, a total of 501484 trees, for Mango 326503 trees and 77559 trees of Neem were found in different girth classes. In case of Kathal, a total of 8644 trees and for Shisham, 236901 trees were enumerated. The status of Kathal and Babool is very critical in the district as very few trees were recorded in villages. Thus, to maintain sustainable availability of these species in future, they should be incorporated in future plantation programmes of state forest department/plantation agencies on sustainable basis.

KEYWORDS: Trees Outside Forests, Eastern UP, Agroforestry, Plantation Programmes

The district Basti lies in Tarai region of Eastern Uttar Pradesh. The status of agro forestry is in very primitive stage in villages of the district. There is tremendous scope of agro forestry by growing tree species on bunds of the agricultural fields and in combination with the crop. The farmers are used to grow tree species for their needs of fruits, fuel wood, fodder, small timber etc. on their land but this practice is not systematic and is limited to only some big farmers. Trees Outside Forests (TOFs) refers to trees on land not defined as forest or other wooded land and generally include trees on farmlands, in cities and human settlements, orchards, sides of roads, pastures, banks of rivers, streams and canals and as shelterbelts which are less than 20 m wide and 0.5 ha area . It is now being increasingly argued that the role of TOF in providing food, wood and fuel to rural masses, carbon sequestration, prevention of soil erosion, biodiversity conservation, checking desertification, establishment of wildlife corridors and microclimatic stabilization, is quite substantial meriting a detailed inventory (Bhattarai , 2000). Share of wood energy from non-forest lands used for cooking in rural India is 59% while that of biomass energy is 90% (Saxena, 1997). TOFs contribute about 25 per cent of India's woody growing stock and are estimated to produce about 80 per cent of industrial round wood and 75 per cent of wood-fuel (FSI, 2009).Thus, to assess the status of Trees Outside Forests (TOFs) in rural area of the Basti district, a study has been undertaken for important tree species *viz.* Teak (*Tectona grandis*), Mango (*Mangifera indica*), Babool (*Acacia nilotica)*, Neem (*Azadirachta indica*), Kathal (*Artocarpus hetrophyllus*) and Shisham (*Dalbergia sissoo)* for selection of deficit species in plantation programmes and agro forestry. Besides these, assessment of trees outside forests in rural area of the district will further lead to status of current trend of species in the region.

METHODOLOGY

The important tree species of timber and fire-wood value were screened which are also important for farmers, *viz. Dalbergia sissoo* (Shisham), *Tectona grandis* (Sagaun) , *Acacia nilotica* (Babool*), Mangifera indica* (Mango*), Azadirachta indica* (Neem) and *Artocarpus heterophyllus* (Kathal) for the study. A total of 2 % of villages of the district has been selected under study. On structured questionnaire, girth class wise recording of trees has been done for selected species. The methodology adopted for conducting the study was stratified random sampling method to survey selected villages. The collected data were

compiled tehsil-wise and tabulated. By PRA technique, the villagers were asked to come along with the researchers using transect method for physical verification of species wise trees in the field. In large plantation patches, sampling method was done for recording of data. In all tehsils, species wise number of trees were tabulated in respective girth classes *viz*. 0-30, 31-60, 61-90, 91-120, 121-150, 151-180, 181-210, 211-240, 241-270 and 271-300 cm. After combining data of all tehsils , the number of TOFs per unit village in rural area of district was assessed. On the basis of per unit village data, assessment for whole rural area of the district has been done for species wise total number of trees.

STUDY AREA

In Basti District**, t**he tract comprising the present district was remote and much of it was covered with forest. But gradually the area became inhabitant. The district presently has four tehsils namely Basti Sadar, Harraiya , Rudhauli and Sonaha Bhanpur. The district lies between the parallels of 26° 23' and 27° 30' North Latitude and 82° 17' and 83° 20' East longitude. Its maximum length from north to south is about 75 km and breadth from east to west about 70 km. The district lies between newly created district Sant Kabir Nagar on the east and Gonda on the west. On the south, the Ghaghra river separates it from the Faizabad and newly created district named Ambedkar Nagar. While on the North it is bounded by district Sidharth Nagar. The district covered an area of 7,309 sq km and with regard to size it occupies 7th place in the state. The district has two main river systems namely, the Ghaghra and Rapti, both of which ultimately form a part of the great Gangetic system. The climate of the district is more equable than the adjoining districts to the south. The average annual rainfall in the district is 1166 mm.

Figure 1: Map of Basti district

RESULTS AND DISCUSSION

Table 1 gives complete picture of enumerated trees of selected species in villages of Basti district in different girth classes. The total enumerated trees for all six species with respective girth classes in the district has been depicted in Fig. 1 & 2 (i-vi). In case of Teak, a total of 501484 trees, for Mango, 326503 trees and 77559 Neem trees were found in different girth classes. The majority of mango trees were in 121-150 cm while lowest in 60-90 cm girth class. In case of Kathal, a total of 8644 trees and for Shisham, a total of 236901 trees were enumerated .Likewise, for Babool, a total of 8353 trees were enumerated. For Teak, majority of trees were in 0-30 cm girth class and trees were also found in 31-60 cm girth class. In other girth classes, teak tree were almost negligible. It clearly shows that despite of huge demand of Teak wood, its supply position is very limited. Many plantation agencies have taken up the plantation programmes specifically for Teak by supplying quality seedlings . Though its plantation is very much popular in farmers in present scenario in agro forestry but more attention is needed for its extensive plantations. For Shisham species, trees were enumerated in different girth classes in the district, out of which majority were in 0-30 and 31-60 cm classes whereas very few were present in other girth classes. It clearly shows that Shisham plantation is being taken up by the farmers on a regular basis during past years. It is second to Teak for timber value in popularity among farmers but farmers are not taking up its plantations in large numbers due to mortality effect .The status of Kathal and Babool is very critical in the district as very few trees were recorded in villages. For Babool, Kathal and Neem, young plantations have been initiated well but overall number of trees very less. In Basti district ,the number of trees is highest for Teak followed by Mango, Shisham and Neem.

The young plantations of these species are urgently required in the region.

In view of the increasing gap between supply and demand of timber in a burgeoning economy with an increasing population, it is time to consider tree investment programmes as a serious enterprise in India. Kinhal (1995) suggests that the Government of India must encourage such investments by offering incentives in the form of subsidized lending, disaster insurance and tax exemptions to fulfill the forest policy mandates of the country. The introduction of these species in large areas / private land of farmer may be a viable option for minimizing demand supply gap as well as to increase the tree cover. Planting material of these species may be provided to the villagers by SFD by establishing village nurseries etc. Government and NGOs can play an important role in creating awareness amongst farmers to introduce these species on their farm bunds or degraded land under agro forestry models. Thus, to maintain sustainable availability of these species in future, they should be incorporated in future plantation programmes of state forest department/plantation agencies.

Table 1: Total trees of selected species in different girth classes in Basti district

Girth class (cm)	*Mangifera indica*	*Dalbergia sissoo*	*Acacia nilotica*	*Artocarpus heterophyllus*	*Tectona grandis*	*Azadirachta indica*
0 - 30	34821	116392	1420	3724	484729	28896
31-60	30305	96111	1360	1603	12384	17532
61-90	62989	21369	1593	1020	840	8596
91-120	37783	1214	863	777	590	5488
121-150	56967	324	1913	583	720	6945
151-180	39775	515	389	340	624	5779
181-210	35501	390	250	210	582	3157
211-240	16415	256	220	202	425	728
241-270	11947	330	345	185	590	438
Total	**326503**	**236901**	**8353**	**8644**	**501484**	**77559**

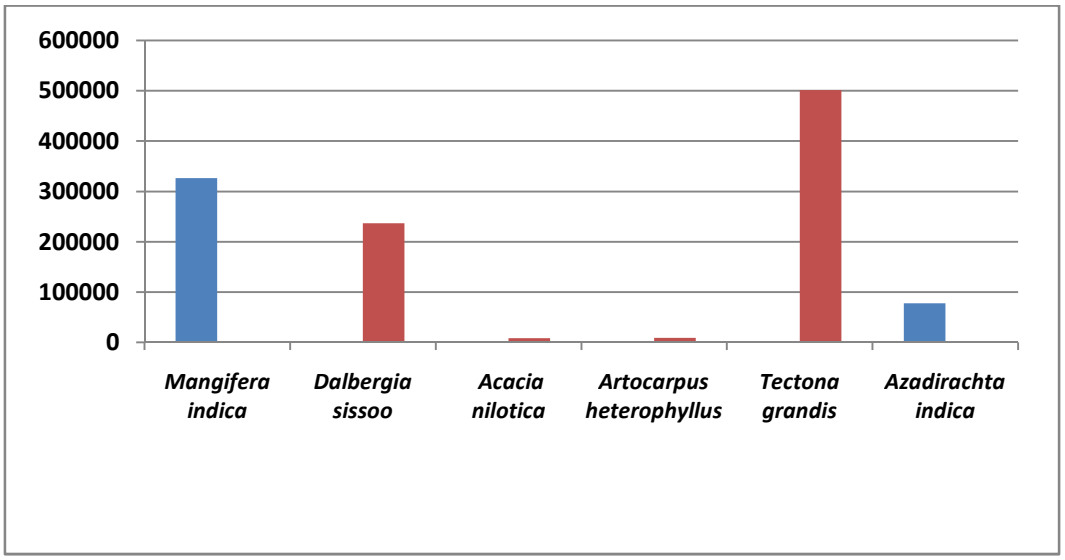
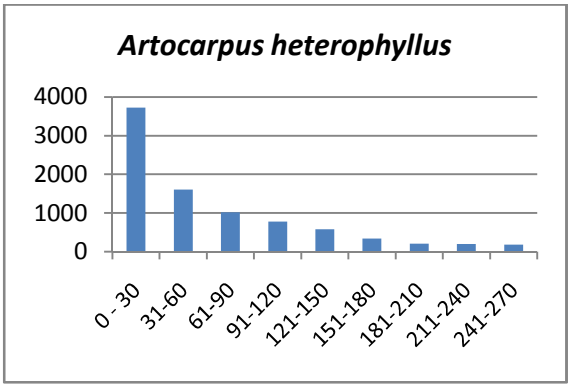


Figure 1: Species-wise total number of trees in rural area of Basti district



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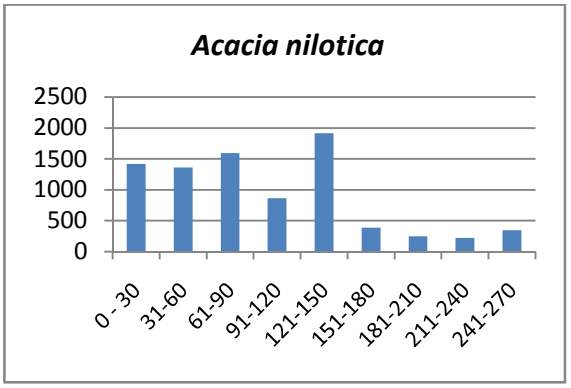

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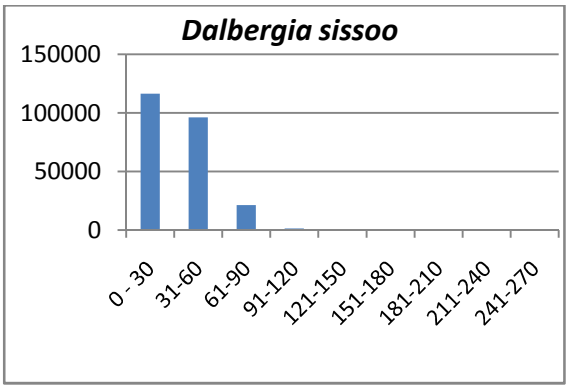

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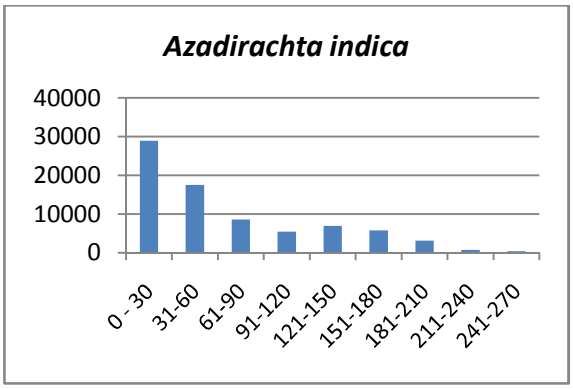

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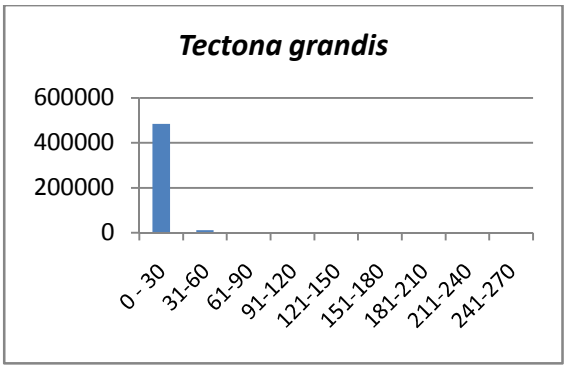

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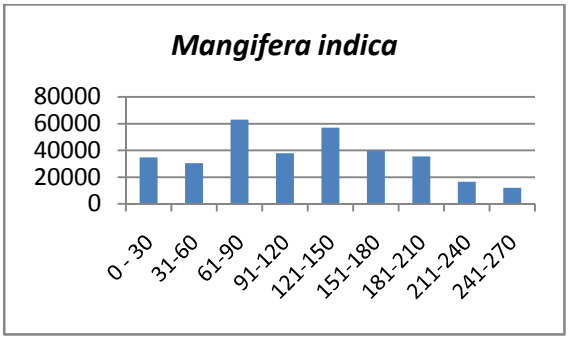

iv

Figure 2(i-vi): Species-wise number of trees in different girth classes in Basti district

REFERENCES

Bhattarai, T.; 2000. Trees Outside Forests: The Wood Fuel Production Context, Wood Energy News, Wood Fuel for Non Forest Areas, Vol 15. No.1, RWDEP.

FSI. ; 2009. Country report: India for FAO Global Forest Resource Assessment 2010. Dehradun, India, Ministry of Environment and Forests.

Kinhal, G.A. ; 1995. Technical and financial evaluation of green equities. *Indian Forester*, 121(6): 566-571.

Saxena , N.C. ; 1997. The Wood fuel Scenario and Policy Issues in India , Regional Wood energy development Programme in Asia (RWEDP) Field Document No.49.