



Guidelines for Social Forestry in West Bengal



FOREST DEPARTMENT
GOVERNMENT OF WEST BENGAL

মাননীয় মুখ্যমন্ত্রী
মমতা বন্দ্যোপাধ্যায় –এর অনুপ্রেরণায়



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এই প্রকল্পের আওতায় কোনও পরিবারে নবজাতক জন্মালে পরিবারপিছু একটি করে নতুন গাছ উপহার দেওয়া হবে।

বিশদ তথ্যের জন্য নিকটস্থ সমষ্টি উন্নয়ন অধিকারণ অথবা বন অধিকারণে যোগাযোগ করুন।



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শুভেচ্ছা বার্তা

সবুজ ভূভাগ স্বাস্থ্যবান পরিবেশের পরিচায়ক। পশ্চিমবঙ্গের সরকারী বনাঞ্চলের পরিমাণ ১১,৮৭৯ বর্গ কিলোমিটার যেটা রাজ্যের মোট আয়তনের ১৩.৩৮ শতাংশ। আমাদের রাজ্যের সবুজ আচ্ছাদন বাড়াতে গেলে বনভূমিতে বন-সৃজনের পাশাপাশি সামাজিক বন-সৃজনের দিকে নজর দিতে হবে। ভারতবর্ষের Forest Policy অনুযায়ী ৩৩ শতাংশ সবুজ আচ্ছাদনের লক্ষ্য পূরণের উদ্দেশ্য উপগ্রহ থেকে পাওয়া চিত্রের বিশ্লেষণ করে জানা গেছে আমাদের রাজ্যে ২১.৩১ শতাংশ সবুজের আচ্ছাদন রয়েছে। বর্তমানে বন-দপ্তর যে নতুন সমাজভিত্তিক বনসৃজন নীতি রূপায়ন করবে, তার মাধ্যমে রাজ্যের সবুজ আচ্ছাদন পর্যাপ্ত পরিমাণে বৃদ্ধি পাবে।

রাজ্যে সবুজায়নের লক্ষ্যে বিগত ৮ বছর ধরে 'সবুজশ্রী' প্রকল্পের মাধ্যমে প্রত্যেক সদ্যজাত শিশুর মায়েদের একটি করে চারা দেওয়া হচ্ছে যা আগামী দিনে প্রাকৃতিক ভারসাম্যকে রক্ষা করার পাশাপাশি রাজ্যবাসীর আর্থসামাজিক বিকাশকে আরও ত্বরান্বিত করে সুরক্ষিত রাখবে বাংলার আগামী প্রজন্মকে। তাছাড়া বন-দপ্তর প্রতি বছর বনভূমিতে বন-সৃজন করছে এবং প্রতি বছর বন-মহোৎসবের সময় ১ কোটি চারা জনসাধারণের মধ্যে বিনামূল্যে বিতরণ করা হচ্ছে যার মাধ্যমে আমাদের রাজ্যে সবুজ আচ্ছাদন বৃদ্ধির প্রয়াস জারি রয়েছে।

এ বছর থেকে বন দপ্তরের উদ্যোগে দক্ষিণ-পশ্চিম বঙ্গে মূল্যবান শ্বেত-চন্দন ও রক্ত-চন্দনের চারা জনসাধারণের মধ্যে বিতরণ করা হবে। কিভাবে এই চারা-গুলি লাগাতে হবে এবং তার পরিচর্যা করতে হবে সেই সম্পর্কে দুটি আলাদা “প্রচার পত্র” প্রকাশ করা হয়েছে যা জনসাধারণের কাছে বিতরণ করা হবে। যেহেতু শ্বেত-চন্দন ও রক্ত-চন্দন খুব দামী কাঠ এবং আন্তর্জাতিক বাজারে এদের প্রচুর চাহিদা রয়েছে, তাই আমরা সিদ্ধান্ত নিয়েছি দক্ষিণ – পশ্চিমবঙ্গে এই দুটি চন্দনের চাষ বন-ভূমিতেও করা হবে। এর ফলে বনাঞ্চলের লাগোয়া বসবাসকারী বন-সংরক্ষণ কমিটির সদস্য-সদস্যদের আর্থ-সামাজিক অবস্থার উন্নতি ঘটবে। চন্দন গাছ চাষের পদ্ধতি ও পরিচর্যার জন্য বনবিভাগ একটি পুস্তিকা প্রকাশ করছে।

আমি আশা রাখছি, বন-দপ্তরের সকল আধিকারিক এবং কর্মচারীদের নিরলস প্রচেষ্টার মাধ্যমে রাজ্যের সবুজায়ন উত্তরোত্তর বৃদ্ধি পাবে, আর্থ-সামাজিক অবস্থার উন্নতি ঘটবে এবং দূষণমুক্ত পরিবেশ গড়ার লক্ষ্যে এগিয়ে যাবে।



(জ্যোতিপ্রিয় মল্লিক)

ভারপ্রাপ্ত মন্ত্রী

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শুভেচ্ছা বার্তা

পশ্চিমবঙ্গ জীববৈচিত্র্য পূর্ণ একটি রাজ্য। এই জীববৈচিত্র্য উত্তরে হিমালয় পর্বত থেকে দক্ষিণে সুন্দরবনের বাদাবন পর্যন্ত বিস্তৃত। জীববৈচিত্র্য সংরক্ষণের জন্য উপযুক্ত আবাস স্থলের প্রয়োজন, আমাদের রাজ্যের ২৩ টি জেলার মধ্যে উত্তরবঙ্গের আলিপুরদুয়ার, জলপাইগুড়ি, কালিম্পং, দার্জিলিং আর দক্ষিণবঙ্গের ঝাড়গ্রাম, পশ্চিম মেদিনীপুর, বাঁকুড়া, পুরুলিয়া, বীরভূম, আংশিক বর্ধমান এবং দক্ষিণ ২৪-পরগণায় বনভূমি আছে। বাকি জেলাগুলিতে সমাজভিত্তিক বনসৃজনে সবুজায়নের মাধ্যমে সবুজের আচ্ছাদন বাড়ানোর প্রয়াস নেওয়া হয়েছে।

বর্তমানে বনদপ্তর নতুন সমাজভিত্তিক বনসৃজন নীতি প্রণয়ন করেছে। সবুজায়নের এই নীতি রূপায়িত হলে, আমার বিশ্বাস পশ্চিমবঙ্গে সবুজের আচ্ছাদন আরও বৃদ্ধি পাবে। আমরা বিগত ৮ বছর ধরে 'সবুজশ্রী' প্রকল্পের মাধ্যমে প্রত্যেক সদ্যোজাত শিশুর মায়েদের একটি করে চারা বিতরণ করছি, পাশাপাশি বনদপ্তর প্রতি বছর বর্ষাকালে বনমহোৎসবের সময় প্রায় ১ কোটি চারা বিতরণ করে। এই উদ্যোগের ফলে পশ্চিমবঙ্গের সবুজের আচ্ছাদন বাড়ছে এবং উপগ্রহ প্রেরিত চিত্রের মাধ্যমে জানা গেছে আমাদের রাজ্যে ২১.৩১% সবুজ আচ্ছাদন তৈরি হয়েছে। আমাদের লক্ষ্য ৩৩% সবুজের আচ্ছাদন। সবুজায়নের এই সাফল্যের ফলে আমরা বেশী করে কার্বন বনভূমিতে ও গাছে আবদ্ধ করতে সক্ষম হচ্ছি, এতে পরিবেশের দূষণ কমবে, প্রাকৃতিক ভারসাম্য বজায় থাকবে এবং বিশ্ব উষ্ণায়ন কমাতে সাহায্য করবে।

বনাঞ্চল সংরক্ষণ ও সমাজভিত্তিক বনসৃজনের সঠিক রূপায়ন হলে সমাজের আর্থ-সামাজিক অবস্থার উন্নতি ঘটবে। এই লক্ষ্যে বন-দপ্তর নিরন্তর কাজ করে চলেছে। আর্থ-সামাজিক অবস্থার আরও উন্নতির জন্যে বন-দপ্তর সামাজিক বন-সৃজন ও সবুজ-শ্রী প্রকল্পে মূল্যবান শ্বেত-চন্দন ও রক্ত-চন্দন চারা বিতরণের উদ্যোগ নিয়েছে। এই চন্দন চারাগুলি কিভাবে লাগানো ও পরিচর্যা করা হবে সেই বিষয়ে বনদপ্তর দুটি আলাদা "প্রচার পত্র" প্রকাশ করেছে যা জনসাধারণের মধ্যে বিতরণ করা হবে। তাছাড়া পশ্চিমবঙ্গের দক্ষিণাঞ্চলের বনভূমিতে এই দুই চন্দনের চাষেরও উদ্যোগ নেওয়া হয়েছে। দুই প্রকার চন্দনের চারা তৈরি ও চাষের পদ্ধতি সম্বন্ধে বনদপ্তর একটি পুস্তিকা প্রকাশ করেছে যেটা বনকর্মচারীদের এবং আগ্রহী সাধারণ মানুষদের এই চাষে সাহায্য করবে। এর ফলে বন সংলগ্ন অঞ্চলে বসবাসকারি বন সংরক্ষণ কমিটির সদস্য- সদস্যগণ অনেক বেশী পরিমাণ সুফল পাবে।

আমি আশা করি বন-দপ্তরের সকল বনাধিকারিক ও বনকর্মচারীবৃন্দের সক্রিয় অংশগ্রহণ ও সহযোগিতার মাধ্যমে এই ঐকান্তিক প্রচেষ্টা সাফল্য মন্ডিত হবে।

বিরবাহা হাঁসদা

(বিরবাহা হাঁসদা)

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Guidelines for Social Forestry in West Bengal

Introduction

Social Forestry is defined as “Forestry outside the conventional forests which primarily aim at providing continuous flows of goods and services for the benefit of people. The objective of Social Forestry is to provide environmental sustainability, windbreak and soil improvement, supply of fuel wood, timber, fibre, food, shade and fodder thereby contributing significantly to improving rural livelihood.

In 1976 the National Commission on Agriculture in India popularised the concept of social forestry to encourage those who were dependent on fuelwood, fodder and other forest products, to meet their own needs through various activities in order to reduce the burden on the forests and to provide employment opportunities and to increase family income considerably to alleviate poverty, reclamation of degraded lands, conservation of soil and moisture, improvement of agricultural production and prevention of environmental deterioration and to help restore ecological balance. Thus, Social Forestry is also called as “forestry of the people, by the people and for the people”.

In West Bengal Social Forestry had a golden innings during 1970s and 1980s. The old glory of Social Forestry in the State should be revived. Emphasis is to be given on planting of Agro-forestry and Farm-forestry species, and for this it was felt that a suitable guideline needs to be framed.

Forests provide a wide range of tangible benefits like timber, fuel wood, fodder and Non-Timber Forest Produces (NTFPs), and intangible benefits like ecological services, hydrological benefits, soil conservation, flood control, carbon sequestration, biodiversity resources etc.

In recent times, the value of less tangible services, such as climate control, water filtration, soil fertility, as well as recreational and cultural services has become more apparent. As understanding deepens about human dependence on natural processes across varying temporal and spatial scales, so too does the need to measure and value these 'ecosystem services' within economic and management frameworks.

Human societies have long been aware of their reliance on the goods and services provided by nature, especially food, fuel and fibre. The ever-expanding human population of the State requires an enormous amount of wood, which in turn, puts intense pressure on the existing forest wealth of the State. As land is a limited resource, further expansion of recorded forest area has almost reached its limits. Therefore, exploration of other domain areas such as Social Forestry is the need of the hour.

Agro-forestry and farm forestry have taken deep roots in the country and Trees Outside Forests (TOF) are contributing to the increase in tree cover and enhancing ecosystem services, while meeting a bulk of the country's wood demand and providing climate resilient incomes to the farmers.

It is, therefore, imperative that to meet the burgeoning demand more areas outside recorded forests in the State be brought under Social Forestry, in service to the people of the State. Promotion of wood use obtained from sustainably managed forests and trees would play a significant role in mitigating effects of climate change, ensuring sustainable living and achieving economic parity.

Basic objectives

- i. Encourage and expand tree plantation in complementary and integrated manner with crops and livestock to improve productivity, employment, income and livelihoods of rural households, especially for the **small holding farmers**.
- ii. Protect and stabilize ecosystems, promote resilient farming systems, and to **reduce the risk of ecological damage** during extreme natural events in vulnerable regions with focus on the hills.
- iii. Promote Mangrove Coastal Shelter Belts in the coastal districts to **minimize cyclone damage** and resource loss.
- iv. Meet the **raw material requirements of wood-based industries** and to **reduce the import of wood and wood products to save foreign exchange**.
- v. Supplement the availability of agroforestry products (AFPs), such as the fuel-wood, fodder, non-timber forest produce (NTFP) and small timber of the rural and tribal populations, thereby **reducing the pressure on existing forests and pastures**.
- vi. Complement **achieving the target of increasing forest/tree cover** with reduction in carbon footprint.
- vii. Develop capacity and **strengthen research in agroforestry** and create a massive people's participatory movement for achieving these objectives and to minimize pressure on existing forests.
- viii. Promote green in urban areas.



20 Point Strategy

Promotion of urban and rural greens and other trees outside forests will be taken up on a mission mode in the State for attaining the national goal of bringing one third of the area under forests and trees cover, and for achieving the Nationally Determined Contribution (NDCs) targets of the country. The following measures are envisaged for West Bengal :

- (i) Boosting of agro-forestry and farm forestry through proportionate operational support systems, including providing scientific interventions and genetically superior planting materials to improve productivity of degraded and/ or underutilized public land.
- (ii) Taking on of a collaborative approach in social forestry with Forest Department as a technical partner and facilitator in collaboration with private tree growers, institutions, companies, cooperatives, other government entities and others.
- (iii) Adoption of the role of a technical guide by the Forest Department to advise on the species choice from a repository list of suitable plant species while safeguarding local biodiversity, preventing exotic and invasive species introduction and their proliferation.
- (iv) Designing of projects on commercial mode with viable business model e.g. on farmlands. Financial viability through robust business plan as part of project design shall be the key for Social Forestry projects to move from planning and initiation stage to build-up, eventually scaling up with wider outreach in course of execution.

- (v) Promotion of cultivation, harvesting, transportation and marketing of timber from trees on non-forest areas by carrying out administrative reforms and implementation of Ease of Doing Business (EODB).
- (vi) Development of suitable location specific Public Private Partnership / Joint Venture models involving State Department, West Bengal Forest Development Corporation, West Bengal Pulpwood Development Corporation Limited and other state PSUs, public limited companies, educational institutions, residential colonies, panchayats and other local authorities, Joint Forest Management Committees and local communities for achieving the target of increased forest and tree cover in the state.
- (vii) Formulation of zone specific plantation models for greening of mined out areas and land beside railway tracks, highways, village roads and median boulevards, keeping in mind the government norms of rail / road and local authorities, including short rotational pulp-wood plantation models for meeting industrial demand, and Accredited Compensatory Afforestation (ACA).
- (viii) Exploring certification of sustainably raised plantations and sustainably harvested forest products including handicrafts to increase international market acceptability and earning of foreign exchange.
- (ix) Assisting in pre-production agreements between the farmers and the forest based industries for price assurance to the farmers.
- (x) Popularization of cultivation of timber species with enhanced economic values such as Agar wood, Red sanders, Sandalwood, etc. in the social forestry sector.

- (xi) Facilitation for inclusion of agro forestry and farm forestry in the agricultural crop insurance scheme.
- (xii) Preparation of management plans for meeting social forestry objectives in consonance with urban development plans for towns and cities.
- (xiii) Inclusion of fruit bearing trees in strip plantations and plantations along avenues, canal bank, river bank and around water-bodies in collaboration with Horticulture Department and agricultural universities, thereby ensuring food and nutritional security for the rural population, and for providing food for wildlife outside forest areas. Such trees are also an invaluable source of traditional medicines for the local communities.
- (xiv) Demarcation of green corridors in vested lands and tea gardens for human-wildlife conflict mitigation and resolution.
- (xv) Introduction of user friendly e-platform / mobile apps to seamlessly integrate project elements like inputs (e.g. nursery raw materials) with actions (e.g. seedlings to be planted at site) and output (e.g. monitoring / protecting trees at site, harvesting, disposal, transit pass, etc.).
- (xvi) Designing, implementation, monitoring and data analysis of scientific research and pilot projects continuously for results, replicability, scaling-up and course-correction in project design based on necessity.
- (xvii) Standardization of nursery techniques in terms of identified seed sources, technology, seedling inventory management, quality management, transport chain to site, etc.

**2019 Alinagar
15 Ha Plantation
Falakata**



Let's
Enhance
JO

**Patiram to Hili
2015 Plantation
Balurghat, Dakshin Dinajpur
Raiganj Division**



- (xviii) Encouraging schemes like Nagar Van / Nagar Vatika for municipal areas and School Nursery Schemes to draw benefits from Government of India funding and planning.
- (xix) Campaign for awareness and publicity of extension services for agro forestry and farm forestry for greater public outreach.
- (xx) Building up of cyclone resilience through proliferation of coastal shelter belt plantations, especially of mangroves, and other such interventions.

Major thrust areas for West Bengal

1. Boosting Social Forestry through appropriate support systems

It is important to identify clearly to whom the social forestry project should be addressed: general individuals, the community as a whole, or specific groups. The identification of target groups for social forestry will not be based only on the specific needs of different rural population segments, but also upon more general societal objectives. Therefore, collective planning and action is favoured as a way to allow democratic participation even of poor, landless people, and as a way to distribute benefits equally.

Forest Department can help by providing quality planting material and other inputs for farm forestry / agroforestry species and technical support for raising plantations on available wasteland / revenue / panchayat / private land outside forest. State Government may start nursery outlets for sale of quality seedling in each administrative unit. In addition, private nurseries may be registered under Social Forestry Divisions.

2. Designing Social Forestry projects on a commercial mode

Economically viable social forestry should encompass commercial operations structured and managed to be profitable without adversely affecting the local communities or the environment. In a limited scale social forestry may, in addition, be non-commercial e.g. creation of fully conserved woodlands / avenues for awareness / education on indigenous tree diversity or wildlife corridors. Trees outside forest (trees growing outside recorded forest areas) are vital in generation of valuable ecosystem services in both rural and urban areas of West Bengal. Economically and ecologically trees outside forest impact livelihoods. Timber and wood panel products from social forestry areas reduce pressure on forests as valuable alternatives to timber of forest origin.

3. Administrative Reforms and Ease of Doing Business in Social Forestry sector

Special emphasis is required to be given in organisational restructuring of Forest Directorate by restoring the Social Forestry Wing for optimal achievement of targets of tree cover in the State.

Options need to be explored for reducing the burden on the grower as per the Ease of Doing Business. Amendment in Transit Rules and rules relating to saw mills are essential and are being contemplated to contribute to growth of social forestry in West Bengal.

It has been felt that agroforestry can be promoted more if the Acts and Rules are amended so that those are more of regulatory than of prohibitory in nature. MOEF&CC has also issued guidelines from time to time advising the nature of role of Forest Department to be of giving technical inputs.

West Bengal Forest Produce Transit Rule 2019 exempted 26 species from the ambit of the Transit Rule by a notification issued in 2020. Translocation of trees are being introduced through amended West Bengal Trees (Protection and Conservation in Non Forest Areas) Act, 2006.

4. Development of suitable location specific PPP / JV models for achieving targets of increased tree cover through Social Forestry

Formal collaboration agreement may be executed between companies and beneficiaries who are the owners of encumbrance-free plots of land and who are willing to raise short rotation pulpwood thereon. The Company provides technical and financial inputs for creation, tending and harvesting while the beneficiary provides the land. Protection of the plantation remains a joint responsibility. Harvested produce is sold through auction / tender, negotiation, or allotment to wood-based industries. The sale proceeds are shared between the Company and the beneficiaries on a pre-agreed ratio. In addition the beneficiaries may grow fodder grass / intercrops or collect dried leaves and twigs, but are not allowed to fell trees, cut branches or collect fresh leaves and flowers.

Payments for ecosystem services (PES) are incentives offered to farmers or landowners in exchange for managing their land to provide some sort of ecological services their lands produce while adopting sustainable land use management techniques such as agroforestry and Farm forestry. PES schemes involve payments to the managers of land or other natural resources in exchange for the provision of specified ecosystem services. Specific ecosystem services were identified and assessed by Millennium Ecosystem assessment of UN. The major ones are climate change mitigation, watershed services and biodiversity conservation, and demand for these services in particular is predicted to continue to grow as time goes on. Farmers can be encouraged to avail the benefits under such schemes for carrying out agroforestry and farm forestry in their lands.

**Kamalpur Khari
2015 Plantation
Balurghat, Dakshin Dinajpur
Raiganj Division**



**2016-17 Strip Plantation
Jamalpur Beat Gazole Range
Malda Division**



Agroforestry has recently gained traction as a strategy for climate mitigation through sequestering carbon and reducing greenhouse gases emission. Agroforestry systems have been identified as having the highest potential for carbon sequestration by 2040 among all land use practices. The two types of carbon trading markets viz., regulatory/compliance market and voluntary markets can be tapped to provide benefits to farmers through trading of certified emission reduction units.

5. Formulation of zone-specific plantation models for greening through Social Forestry

Avenue plantations

Avenue plantation and strip plantation on both the sides of the Highways, Railway tracks and village roads aims to increase tree cover in the districts to reduce pressure on the forests in conformity with the National Forest Policy 1988. These plantation models are generally subjected to stress factors like pollution, encroachment and grazing in a higher degree. The species to be planted in the model should ideally provide shade, enhance aesthetics of the zone, be of fast-growing nature and be resistant to grazing.

Greening of mined spoils

There are extensive mines and quarries, especially in South Bengal, mainly for coal deposits and stone extraction. Most are open cast mine where the material is removed from the upper layers. After the mines are exhausted the tunnels, burrows and caverns are supposed to be filled in with sand and stabilised by plantation on top to restore the ecosystem. The plantation plan for mined out areas are an integral part of the mining plan and have to be submitted for grant of mining lease. It is desirable that the local forest officials take on a more proactive role in formulating the plantation plans rather than endorsing plans prepared by the companies. Emphasis need to be kept on local and indigenous species which can support

wildlife and local rural population rather than exotic trees. Planned order of plant succession and proper remediation measures should be incorporated in the plantation model to re-vegetate the mine spoils.

Accredited Compensatory Afforestation (ACA):

ACA is new concept introduced through the Forest Conservation Rules 2022 for which necessary guidelines are under finalization by the Government of India. Interested persons or entities are encouraged to raise plantations of mainly indigenous species on non-forest land which will be accredited after inspection by the Forest Department. ACA may be swapped by said persons or entities for financial consideration with prospective User Agencies applying for diversion of forest land under Forest Conservation Act 1980. This scheme will promote onset of flow of ecosystem goods and services in advance and also open a new channel for financial investment in the social forestry sector.

6. Exploring certification in Social Forestry

System of voluntary accreditation and independent third-party certification need exploration for well managed social forestry plantations that are environmentally appropriate, socially beneficial, and economically viable. The system would enable the certificate holders to market their products and services as “certified” which commands acceptance and premium economic returns, especially in the international markets. It is expected that in West Bengal most social forestry operations will be by small holders. There may be a few larger players such as tea gardens.

Priority therefore should be on development and adoption of certification standards for small holders, communities and cooperatives who have limited capacity with low impact operations. These plantations may include boundary trees, spinney, woodlots, orchards, or agroforestry plots in linear, strip or block

forms of upto 20ha per member family. Standards should cover both timber and non-timber products, including handicrafts.

7. Popularization of plantation of high economic value timber species

Agarwood:

Agarwood tree (*Aquilaria malaccensis* Syn. *A. agallocha*) is distributed in all the North-Eastern states. Agarwood oil is the resinous substance in its heartwood which develops against a certain fungal infestation. It is a highly valuable product for medicine and fragrance industry. Considering its economic significance, an initiative has been taken for Agarwood trials in suitable sites of North Bengal which in turn will boost economy of fringe population through conservation and benefit sharing mode in future.

Sandalwood:

Sandalwood (White Sandal) is the fragrant heartwood of *Santalum album* tree. *Santalum album* is mainly distributed in the Deccan Plateau. The economically important sandalwood are completely or partially root parasite in the initial stages with Tulsi, Arhar or Nayantara. Sandalwood was grown on trial in various forests compounds located in the districts of Bankura, Birbhum, Burdwan, Purulia, and Paschim Medinipur by bringing quality seeds from Tamil Nadu Forest Department and Institute of Wood Science and Technology (IWST), Bangalore. Germination of Sandalwood seeds is found profuse from the bird droppings in the forest floor as well as in the village yards and bunds of the agricultural fields. Sandalwood can grow in comparatively poor agricultural soil and in laterite tracts but it needs good soil depth with organic matter and without water logging. Distribution of sandalwood seedlings along with its host plant needs to be done in large scale for the population to reap long term benefits. Nursery and Plantation techniques are given in separate leaflet.

Red Sanders :

2017-18 Strip Plantation
Jamalpur Beat Gazole Range
Malda Division



Location : NH7, Kamichera F.O.
Year : 2013
Area : 18 Ha
Type : Strip
Scheme : SPAP
Range : Malbazar S.F. Range
Division : Siliguri Social Forestry Division.



Red Sanders (Rakta Chandan) tree (*Pterocarpus santalinus*) is a moderate sized deciduous tree with an erect bole and a dense rounded crown. Its natural range is peninsular India and has successfully acclimatized in South Bengal. The potential areas in West Bengal are Jhargram, Paschim Medinipur, Bankura, Purulia, Birbhum and Paschim Burdwan districts. The heartwood is extremely hard and dark red in colour. The inner bark of the tree, when injured or cut, oozes out red coloured 'santalin' dye which has many commercial uses. The heartwood is very expensive due to a lucrative overseas market. Nursery and Plantation techniques are given in separate leaflet.

8. Promoting urban greens:

Urban greens include woodlands, wetlands, parks, wood in institutional areas, gardens, avenue plantations, block plantations etc in such areas. These green patches bring many aesthetic, recreational, environmental, and economic benefits to cities and their dwellers. They need to be managed as urban forest ecosystems to enhance optimal urban forest cover and to nurture and sustain urban health, clean air, and related benefits. Smriti Van and Nagar Van are such schemes aimed at mainly municipal areas. Management plans may be prepared and implemented in consonance with the development plan of cities.

9. Popularising fruit bearing trees / fodder plantations and bamboo cultivation:

Due to population pressure the village commons are vanishing. Efforts need to be made to provide for fallow land patches to raise bamboo at least for local consumption. Large scale production aiming to meet industrial demand is ideal, and need to be explored. Planting fruit bearing trees along banks of river, canal and water-bodies and along roads and railway tracks provide food and nutrition for the villagers. Most of these trees, in addition, act as source of traditional medicines.

These also support wildlife specially monkeys, bats and birds. During sapling distribution programmes emphasis may be kept to supply such species of fruit trees. Tie ups may be explored with Horticulture Department.

10. Building up of cyclone resilience through Coastal Shelter Belt plantations:

The coastal districts of West Bengal are lashed every year by cyclones which cause widespread resource loss. Mangrove plantations are especially effective in building up resilience towards climatic onslaughts. Mudflats and plantable zones in creeks need to be intensively planted with viviparous Quality Planting Materials of Mangrove species both within the forest areas and outside demarcated forest boundaries for optimum impact. Technical inputs of plant growth promoters including of rhizosphere microbes identified in the Sundarbans may be considered while raising such mangrove plantations. *Casuarina* used to be a very popular social forestry species for fixing of sand dunes along West Bengal coastline. Re-emphasis on *Casuarina* is essential. Grasses and creepers which come up naturally on mudflats and sand dunes should not be removed since these help in soil conservation.

11. Wildlife corridors:

Plantation should be encouraged in the vacant tea-garden land in North Bengal which will double up as corridors for movement of wild animals. Raising social forestry plantations of high-quality timber species which will give more economic value as raw materials for industries need popularisation. Planting fruit bearing trees will also support wildlife specially monkeys, bats and birds In addition, these generate rural employment opportunities, ensure soil conservation and environmental sustainability.



