

Standard VI

Action Research Project

Topic for 2021–2022

Trees Outside Forests: To Expand the Tree Cover

Preface

The topic looks very simple – to expand the tree cover by growing trees. However, it is not easy when it comes to implementing the desired change outside forests. There is still a lot of scope to expand the tree cover but more important is to change the mindset of people to protect the trees and to start a continuous and widespread mission to plant, grow, and conserve trees.

We read about the intentional fires in Uttarakhand in 2020-21. Forest fires that began in Uttarakhand on October 15 last year kept burning for about six months destroying the forest and its wildlife. Can such forest fires be avoided? Can the forest be revived after a fire?

During Tauktae cyclone at Mumbai, some trees fell and caused damage to human properties. To avoid trees from falling and the resulting damage, it was later decided by some authorities to cut other roadside trees and some residential societies followed it too. What should have been the solution? Cutting trees altogether or taking measures to support and strengthen the roots instead?

We hear about slaughtering of large number of trees for timber, fuel, widening of roads, other infrastructure development, etc. Do we hear the cries of the birds and other animals? If trees are wiped out on

a large scale, where will all the animals, birds, bees, and butterflies go? How will the runoff of water slow down to increase the seepage and thus provide water to the wells? How will the soil erosion stop carrying all the soil to the sea? Where will our eyes get to see the greenery and its colours? How can we protect our houses from pollutants and dust particles? How can the solar energy and ground water be trapped? How will we get oxygen and clean air to breathe? And mainly, how can we consumers survive without the multi-level produce we acquire from trees?

Is it necessary that somebody else should grow trees in their compound and we just enjoy the benefits and shirk our responsibility?

Let's see what the story about four people named Everybody, Somebody, Anybody, and Nobody teaches us.

- There was an important job to be done and Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. Somebody got angry about that because it was Everybody's job.
- Yes! There is an important job to be done by everybody. And that job is to expand the tree cover around us by growing trees. We all ought to do it together and we will do it.

If Jadav Payeng can devote 30 years of

his life planting trees to grow the entire Molai Reserve forest of 550 hectares in Assam all by himself, why can't we all do it together?

Addressing an e-dialogue with the Honorary Wildlife Wardens of the state, Uddhav Thackeray, the Chief Minister of Maharashtra, appealed for suggestions to reduce the human-wildlife conflict and to promote coexistence. This is possible only if we preserve the habitat of wildlife by reducing the burden on forests and increasing the number of trees outside forests.

Introduction

India's growing population exerts increasing pressure on its natural resources. There is a growing demand for food, fodder, farmland, and fuel. This has resulted in encroachment on forests, thus causing deforestation. Since the introduction of social forestry in 1980s, a great many trees have been planted outside the forest area. The Government has sponsored tree planting along roads, railways, canals, and around ponds, cities, villages, etc. Thus, over 70 percent of these trees are growing outside forest areas (FSI, 2000b). These trees contribute to the well-being of environment and human life.

Definitions

- **Forest:** Large area of land covered with trees and plants
- **Forestry:** The science of planting and taking care of large areas of trees and forests
- **Trees outside forest:** Trees existing outside the recorded forest area
- **Tree cover:** Tree patches outside the recorded forest areas with area less than one hectare.
- **Social forestry:** The management and protection of forests and afforestation

of barren and deforested lands with the purpose of helping environmental, social, and rural development.

- **FSI:** Forest Survey of India.

Concept

The expression 'Trees outside forests', is now being commonly used which has a strong connotation of social forestry. Trees outside forest areas are sub-divided into the following categories:

- Trees bordering rural areas and other human settlements
- Trees growing naturally or planted on community/common/private lands
- Trees on wastelands
- Trees planted in and around ponds
- Trees bordering roads
- Trees bordering railways
- Trees bordering canals and rivers
- Other categories of tree and shrub plantation, farm forestry, agroforestry, orchards, farms, gardens, parks, windbreaks, hedgerows, home gardens, terrace gardens, permanent tree cover crops like coffee, coconut, and fruit-tree plantations like mango guava, citrus fruits, etc.

Benefits of Tree Cover

- Increases biodiversity, provides habitats and microhabitat for animals, honeybees, etc, and livelihood for humans, provides oxygen, food, medicines, paper, wood, fuel, jute, clothes, stationary items, livestock fodder, shelter, etc.
- Trees lining rivers and streams help to maintain biodiversity, providing spawning beds for fish, provide shade which reduces eutrophication
- Checks runoff and erosion and controls flooding, increases water percolation, increases the capacity of soil to store water, forms soil, organic layer, reduces soil compaction, offer watershed protection,

- play a role in buffering the effects of desertification and drought, dilutes climate change, removes carbon
- Improves air quality by absorbing gaseous pollutants into their leaves and traps particulate matter
 - Acts as wind breaks, conserve energy, and reduces overall atmospheric temperatures because of the evaporation from leaves
 - Reduces noise, stress, anxiety, and provides medicines
 - Makes neighbourhood more attractive due to the greenery, various nature colours and shade, enriches ambiance, helps to screen unattractive views
 - Trees provide areas for relaxation and recreation such as parks and playgrounds
 - Create green belts in urban/industrial areas.
 - Create shelterbelts for shelter from wind and sun.
 - Establish farm forestry in the form of rows of trees on boundaries of fields, private agricultural land, and orchard.
 - Raise flowering trees and shrubs to serve as recreation.
 - Encourage people's participation in the conservation of trees, biodiversity, environment.
 - Generate environmental awareness and promote environmental events.
 - Provide jobs for unskilled workers.
 - Raise the standard of living and quality of life.

What Are the Benefits of Trees Outside the Forest?

Growing populations, shrinking forests, and degraded ecosystems result in larger role of trees outside the forests as a whole and provides benefits such as:

- Resource sustainability and sustainable development
- Relieves the burden on forest resources, conserves farmland, boosts agricultural productivity, etc.
- Reduces the harmful impact of urban growth on the environment
- Increases food supplies, provides income, reduces poverty
- Improves biodiversity

Objectives of Growing Trees Outside Forest

- To carry out afforestation on all degraded, abandoned, barren, underutilized lands under institutional and private ownership.
- Establish linear strip plantation of fast-growing species on sides of public roads, rivers, streams, and irrigation canals.

Effective Ways to Conserve Trees

- Follow laws and rules to prevent deforestation
- Regulate tree-cutting and find alternatives to minimise tree cutting
- Practice sustainable lifestyle/reforestation/afforestation/ agroforestry
- Protect existing plants
- Replant fallen plants
- Prevent trees from falling by addressing the root causes like improper planting conditions, insect infestation, malnutrition, poor soil condition, flooding, damage from construction materials, old age, improper cutting of branches, etc.

How to Start Plantation?

- Consult experts from agriculture department, forest department, botanists, gardeners, farmers, etc.
- Decide the purpose of plantation
- Choose the site based on climate, soil type, soil pH, local vegetation, water availability, human activity etc.
- Select plant variety to be planted, mainly

indigenous varieties which support local biodiversity and are disease resistant

- Decide the placement of the plant, planting method, landscape design etc.
- Plan and execute the maintenance
- Keep regular follow-up

Steps of Plantation

- Dig the planting hole as per the root ball or the variety of plant.
- Loosen the roots and remove the nursery bag.
- Place the tree in the centre of the hole. Check the depth and position before filling in the soil.
- Build a soil berm.
- Stake/support the tree with the help of lodge poles or tree guards.
- Tie the tree to the supporting pole.
- Water the tree sufficiently.
- Add Mulch.
- Maintain the growth and follow-up.

What Students have to do to Complete the Project?

- Be safe while completing your project.
- Whatever subtopic you choose, stick to the main topic.
- Form a group of students, teachers, friends, parents, experts who can assist you to complete the project.
- Select a locality around your residence, school, marketplace, native place, etc.
- Document a survey of the area, available resources, the trees, and their condition in the selected locality.
- Identify the issue/shortcoming/problem/action to be taken, etc.
- Prepare a plan to resolve the issue or enrich the locality.
- Execute the plan.
- Analyse the proceedings to improve your plan.

- Write a report.
- Continue the project and repeat the process for a new location.

Some Examples/Subtopics

- Prepare an architectural plan for tree plantation as per the local needs. E.g.: Plantation plan for 5 acres of land for an environment education centre of GBSTA.
- Select an area and plan for plantation of indigenous varieties of plants, to develop a memory park, Devrai, nakshatra garden, theme park, terrace garden, multilayer farm and garden, Miyawaki forest etc. on hillock, on a barren land, riverside, roadside. etc.
- Prepare a data base of the indigenous varieties of a locality.
- Implement the maintenance strategies to water, grow, mulch, and protect the existing trees. Collect and store tree maintenance tools like shovel, axe, etc.
- Prepare a database on trees regarding varieties, threats, number, and maintenance status in a selected locality.
- Develop assessment resources in a particular area for land use planning and development programmes.
- Create job opportunities for locals during afforestation programmes.
- Prepare a strategy for sustainable use of plantation in a locality by providing alternatives to minimise plant damage due to human interference, agricultural expansion, cattle grazing, timber extraction, infrastructure development, manmade forest fires, etc.
- Prepare a plan and implement for arranging water source and watering the new saplings and their maintenance, water harvesting water canals, irrigation pumps etc.
- Prepare and execute a plan for empowering local people for plantation management by providing education, funds and materials, etc.

- Arrange awareness programmes to educate people and to change their mindset for conservation and sustainable use of trees, prevent forest fires, plantation of indigenous varieties, etc.
- Minimise tree fall due to natural and manmade causes by finding and executing remedial measures. E.g.: hurricanes, fires, parasites, and floods, choosing right /broad based varieties like Banyan tree etc.
- Protect trees from construction work by removing the concrete and trash from the base of the trees, protect from mechanical injury, leaving space for soil berm for the trees and preventing drying.
- Identification and protection of old, heritage, and rare trees.
- Form a Student Support Group for Trees consisting of experts, advisers, volunteers, landowners, officials, donors, sponsors, etc.

“Plantation programmes should go on like a mission.”

Every student joining a school should be made to plant a sapling and he/she should be given the responsibility for its healthy growth. As old batches leave institutions, new batches would arrive. This group will have storage of plantation kits, machines, axes, etc. The group should make collective efforts to expand the tree cover. They may take inspiration from some plant protection activities like Chipko Movement of Sunderlal Bahuguna, Save Mumbai’s Fallen Tree Drive run by Mr. Sanjiv Valsan, Prevent Human Interference in the Forest Drive by Inspector Dinesh Desale, etc. alongwith any other innovative project related to trees outside forest.

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