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PLANTING HOPE

GUIDE TO SUCCESSFUL TREE PLANTING PROJECTS

A SIMPLE GUIDE TO A SUCCESSFUL TREE PLANTING PROJECT

Tree planting, along with other strategies to increase tree cover in appropriate locations and contexts, can make a valuable contribution to ensuring the ecological and social well-being of our planet in coming decades.

Tree planting requires planning, implementing, maintaining and monitoring the project. It is a long term project, since it is not just about planting a tree, but also caring for it, making sure it grows well.

In the world today, there is no doubt that tree planting will receive unprecedented financial, political and societal support in the next decade. A critical issue is how to make it work[1].

A growing number of initiatives at global, regional and national scales propose to plant millions, billions or even trillions of trees as a simple solution to resolve complex environmental problems. However, tree planting is much more complicated than it seems.

Key guidelines to successfully increase tree cover include:

1. Addressing the causes of deforestation.

2. Integrating decision-making across scales from local to global.

3. Tailoring tree planting strategies to reach the project goals, planning, managing and evaluating success over a long timeframe.

4. Involving stakeholders at all stages of the planning process.

Well-planned tree planting projects can be a valuable intervention to address some of the most critical challenges of our time, such as mitigating climate change, conserving biodiversity and providing food, wood and income to small landowners, but the number of trees planted should not be seen as an end goal.

Tree planting is often viewed as the simple act of digging a hole, putting a tree seedling there and filling the hole with soil. But, this short-term view, has resulted in large quantities of money being spent on tree planting efforts that have failed.

Tree planting implies a plan which goes beyond a single planting season, but rather encompasses several. The tree planting project will have clear aims and objectives and a shared vision, which can be communicated to all stakeholders involved in the management of the urban forest.

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1. Currently, there are at least three initiatives to promote one trillion trees on the planet (e.g. 1t.org - World Economic Forum; Trillion Trees - Bird Life International, Wildlife Conservation Society, and World Wide Fund for Nature; Trillion Trees Campaign-Plant for the Planet and United Nations Environmental Program).
Reforestation is also a central component of the national commitments to the Paris Climate Agreement and of the United Nations' Sustainable Development Goals and Decade on Ecosystem Restoration (2021–2030). There is no doubt that tree planting will receive unprecedented financial, political and societal support in the next decade.

WHY DO PEOPLE PLANT TREES?

CATEGORY	MOTIVATION	EXAMPLES
IMPROVING ENVIRONMENTAL CONDITIONS	Conserving biodiversity	Species and habitat types
	Enhancing ecosystem processes	Primary production, nutrient and water cycling
	Counteracting climate change	Carbon storage, coastal erosion
ECONOMIC	Regulating ecosystem services	Water purification, water supply, air quality, moderation of climate extremes
	Provisioning income and goods	Agroforestry and silvopastoral systems, food, timber and non-timber forest products
	Providing employment	Nursery and tree planting workers, ecotourism
	Improving public environmental image	Companies aiming to market themselves as “green” businesses
CULTURAL/ SPIRITUAL	Reconnecting with nature and experiential education	Local adopt-an-ecosystem forest restoration projects, community green spaces in cities, enhanced recreational opportunities
	Conserving cultural values	Planting species important to cultural heritage
	Atoning for past damages	Personal renewal through participating in volunteer tree planting projects
	Celebrating and honoring	Commemorating births, deaths or other life events
LEGISLATIVE	Complying with legislation	Various laws require reforestation (e.g. Brazilian forest code, mine reclamation legislation in various countries, tree planting requirements following timber harvest)

TREE PLANTING BENEFITS

1. Many tree planting efforts are motivated by the general ‘tree planting is good’ mentality. Increasing cover of a diversity of tree species can benefit forest-adapted birds, mammals, insects, plants and other species.

2. Tree planting is commonly promoted to provide a range of social benefits, such as increasing shade and encouraging physical activity in urban areas. If done in rural areas, tree planting can also provide income to landowners from selective harvesting of timber and non-timber products.

NATURAL FOREST REGROWTH AS AN EFFECTIVE OPTION

1. Natural forest regrowth has been the main driver of forest cover throughout the Americas and Europe over the last decade and has the benefit of relying less on costly, labor-intensive human interventions and resulting in more favorable ecological outcomes.

2. Different actions can assist the regeneration of forests by protecting the site through fencing and firebreaks, weeding competitive grasses and ferns and controlling climbers.

3. Where natural forest regrowth is slower than desired, small patches or strips of trees may be planted throughout the site, rather than planting the entire area, to improve regeneration conditions while reducing planting and maintenance costs and increasing habitat heterogeneity.

SUCCESSFUL TREE PLANTING PROCESS

1. Answering the following questions: why, where and how to plant trees.

2. Identifying the goals of different stakeholders.

3. Identifying the most promising sites to plant the trees.

4. Ensuring that the site was historically forested and is likely to support forest in the future.

5. Resolving and identifying what caused deforestation.

6. Engaging the local communities in the project.

WHAT SHOULD WE CONSIDER WHEN PLANTING A TREE?

Each tree species has specific characteristics: growth rate, life span, conservation value, genetic diversity and provenance of seeds and economic and cultural use.

Planning for implementation and monitoring will mostly be carried out at local scale.

GENERAL PROJECT PLANNING

1. What is the most cost-effective way to achieve the agreed upon project goals? Is it necessary to plant trees to achieve the goals?

2. What are potential consequences of tree planting at the project location?

3. What regulations, if any, affect tree planting?

4. How much will it cost and who will pay for the cost to fence the land; plant, care for and monitor trees; undertake other forest restoration strategies; protect the site from human degradation?

5. Who will grow the seedlings and plant, care for and monitor the trees or implement other restoration strategies?

6. Is land tenure secure and how will landowners be compensated for lost income, if any?

7. How will local people be engaged in these activities?

8. Have gender considerations been assessed in the context of tree planting and caring?

9. Are there sources of information available to inform reforestation efforts, such as regional manuals, forestry departments or academic institutions?

10. Which and how many species will be planted?

11. During which period of the year are climatic conditions most favorable to plant or seed trees?

12. What specific site preparation (e.g. soil preparation, weed control, fencing), tree planting (e.g. mechanical planting vs. hand planting or seeding) and maintenance methods (e.g. irrigation, weed control, fertilization) will be used?

13. Will herbicides be used?

14. How will planters be trained on the correct planting methodology and appropriate safety measures to minimize labor accidents?

PLANNING FOR MONITORING

1. What quantifiable objectives will be used to evaluate the project success?

2. Which variables will be monitored to evaluate whether objectives have been achieved?

3. How often, for how long and at what time of the year will these variables be measured?

4. Who will do the monitoring and be responsible for quality control?

5. How will the monitoring data be used and by whom?

6. Are there follow-up management actions if objectives are not achieved?

7. How will monitoring data be aggregated and analyzed across multiple sites?

IMPROVING TREE PLANTING OUTCOMES

Thoughtful, well-planned tree planting, along with allowing for natural regrowth and protecting existing forest, are important components of ensuring the ecological and social well-being of our planet in the coming decades.

1. The highest priority should be to identify and address the most important drivers of forest loss and degradation and integrate protective measures as part of tree planting initiatives.

2. Preventing forest clearing, better managing existing forests and allowing for natural forest regrowth are more cost-effective natural climate solutions than planting trees.

3. Most tree planting goals require many years to centuries to achieve. Ensuring the survival and growth of trees will be even more challenging in the future with increased temperatures and climate-induced changes to disturbance regimes, such as drought, fire, hurricanes, biotic outbreaks and their interactions.

4. For tree planting to succeed in achieving the desired endpoints requires a longer planning and management timeframe and sufficient financial support that extends well beyond the short-term funding usually allocated for tree planting.

5. Long-term success of tree planting will be increased by carefully selecting species that are adapted to local conditions and sensing data to predict which species are most likely to survive under future conditions.

6. Tree planting efforts that aim to restore forest habitat need to explicitly recognize that forests are not comprised of trees alone.

7. Trees represent less than a third of the plant species across a range of forest types.

8. Forests host a different kinds of plants (e.g. lianas, epiphytes, herbs), animals, fungi

and microbes that form various mutualistic relationships that are critical to forest recovery. It is often assumed that all these other species will colonize spontaneously, but rarely does this occur.

9. People should be involved in the planning process in order to understand and address their needs and concerns, as well to monitor the direct benefits they obtain, such as local employment opportunities and provisioning of food and fiber.

ANNEX

Commonly used terms in the tree planting and forest restoration literature

AFFORESTATION	Planting or seeding trees on land that was not previously forested
AGROFORESTRY	Trees are planted and/or regenerated in association with agricultural crops and pastures on the same land and at the same time
ASSISTED REGENERATION	A restoration approach that focuses on actively harnessing any natural forest regrowth capacity of biota remaining on site or nearby
DEGRADATION	A level of deleterious human impact to ecosystems that results in the loss of biodiversity and simplification or disruption in their composition, structure and functioning, and generally leads to a reduction in the flow of ecosystem services
FOREST	An ecosystem dominated by trees, in which tree composition and structure drive most of the functioning of the ecosystem. A widely used operational definition of forest considers it as land spanning more than 0.5 ha with trees higher than 5 m and a canopy cover of more than 10%, or trees able to reach these thresholds in situ (but the minimum tree cover threshold for an ecosystem to comprise a 'forest' is highly debated)
FOREST AND LANDSCAPE RESTORATION	A planned process that aims to regain ecological functionality and enhance human well-being in deforested or degraded landscapes
MIXED-SPECIES PLANTATIONS	Planting two or more tree species across a targeted area. It can include many tree species (e.g. restoration plantations in high-diversity forest ecosystems) or only two species
MONOCULTURES	Planting a single tree species, and often a single clone, across a targeted area. Monocultures have usually been established to supply industrial demands of forest products
NATURAL FOREST REGROWTH (also referred to as passive restoration or natural regeneration)	An approach to restoration that relies on spontaneous increases in biota without direct reintroduction after the removal of degrading factors alone

REFORESTATION	Planting or seeding trees on land that was previously forested. The species used may or may not be native. This intervention may be undertaken as part of forest restoration or for specific uses such as timber production, carbon storage or agroforestry
RESTORATION	The process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. The target is usually a reference model informed by the historic ecosystem
TREE PLANTING	The action of establishing trees in a targeted area, which is usually achieved by introducing nursery-grown seedlings, yet other planting stocks such as seeds or cuttings can also be used
SUCCESS	Achieving pre-set goals and quantifiable objectives for tree planting projects. Tree planting success will be determined by the association of stakeholder's expectations with project performance evaluated by assessing whether pre-defined, quantifiable objectives have been achieved

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