GUIDE ON Planting trees In schools

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World Vision



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DISCLAIMER

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ABOUT THE GUIDE

This guide seeks to

- 1. Increase knowledge on the importance of tree planting in schools¹,
- 2. Outline sources and types of trees to plant,
- 3. How to plan and where to plant trees within the school compound,
- 4. Challenges and mitigation associated with tree planting,
- 5. How to manage trees in school,
- 6. How to plan and conduct tree planting events.

The target audience for this guide are teachers, students, parents, local authorities, school staff, and partners supporting schools on tree planting activities.



INTRODUCTION

Trees play important roles in our lives as well as the environment we live in. They provide habitats (homes) for different kinds of insects, birds, and other animals, food for humans, and feeds/forage for livestock. Trees also prevent soil erosion, regulate water, and carbon cycles, and provide shade. Without trees, there would be no life on this planet. Taking cognisance of the value of trees, Regreening Africa, an ambitious five and a half-year programme seeks to reverse land degradation among 500,000 households, and across one million hectares of land in eight countries in sub-Saharan Africa².

To do this, the programme uses different scaling models that include partnerships with youth initiatives in landscape restoration. An example of such initiatives is the project's work with Trees 4 Goals (an initiative by a Kenyan teenager who plants trees for every goal he scores in football games). The initiatives work with schools through sensitisation of pupils and stakeholders on environmental issues together with planting and managing different types of trees.

¹ Tree planting in schools encompass planting and management to ensure the trees grow.

² https://regreeningafrica.org/about/

PART 1: WHY PLANT TREES?

- 1. They are a source of foods especially:
 - a. Fruits such as mango, avocado, guava, apple, oranges,
 - b. Vegetables such as moringa leaves,
 - c. Nuts and seeds such as cashew nuts and moringa seeds.
- 2. They provide fodder for livestock and forage for bees.
- 3. They conserve the environment by regulating temperatures, rainfall patterns, air quality and minimising soil erosion.
- 4. They are a source of income from the sale of tree products such as poles, timbers, firewood, fruits, nuts, and leaves.
- 5. They provide a home for other living species such as wildlife, insects, and birds.
- 6. Ornamental trees make the environment beautiful.
- 7. Trees use carbon dioxide during photosynthesis reducing global warming and climate change.
- 8. Trees improve human health through air purification, provide medicinal plants, reduce stress, and promote well-being.



WHY PLANT TREES IN SCHOOLS:

- 1. Trees in schools provide a cool environment for students and teachers.
- 2. Fruit trees serve as food and nutrition for students.
- 3. Schools in dryland areas use tree shade as dining and meeting areas.
- 4. Trees also serve as windbreakers especially in dry areas.
- 5.Schools are the learning points for students and neighbouring communities and the knowledge they receive on tree planting from schools reaches a large population in real-time.

WHAT TREE SPECIES CAN BE PLANTED IN SCHOOLS?

Several tree species are suitable for planting in schools. The species can be categorised into:

- Fencing trees e.g., Vachellia tortilis (umbrella thorn), Gliricidia sepium (quick stick/ gliricidia), Calliandra calothyrsus (red powder puff/ calliandra),
- Food trees e.g., mangoes, paw paws, tree tomato, moringa,
- Livestock fodder e.g., Acacia tortilis, Leucaena trichandra (leucena), Gliricidia sepium, Calliandra calothyrsus,
- Shade trees e.g., Tamarindus indica (tamarind) Psidium guajava (guava), white sapote,
- Ornamental trees e.g., Thevetia peruviana (yellow oleander/ lucky nut), Spathodea campanulate (African tulip tree), Delonix regia (flamboyant or royal poinciana),
- Construction trees e.g., Grevillea robusta (silk oak), Acacia alata (winged wattle), Casuarina equisetifolia (whistling pine),
- Medicinal trees e.g., Neem tree, Acacia lahai, Balanites aegyptiaca (desert date),
- Mulch trees e.g., Faidherbia albida (winter thorn), mangoes, Grevillea robusta.



WHAT TO CONSIDER WHEN DECIDING WHERE TO PLANT TREES

Trees should be planted in areas that will promote their growth and establishment while minimising interference with other land uses. When deciding where to plant the tree, consider:

a. Available space within the school compound.

b. Available water, plant trees that the school can water during dry seasons.

c. Types of communities around, where the neighbouring communities practice livestock keeping, ensure the area is well fenced.

d. Available labour to weed, prune, water and protect the seedlings especially when schools are closed.

e. School activity schedule. Plant trees before or after the exam period to give pupils ample time to care for the trees.

f. The type of school. Boarding schools are more likely to have more time to care for the seedlings than day schools. Also, schools that double as homes for children are likely to do better on tree growing.

g. Number of pupils that can care for the seedlings. It is important to allocate a manageable number of trees to pupils to avoid them being overburdened and to allow pupils sufficient time to attend schoolwork.

h. Size of the tree. Trees with lateral roots to be planted away from buildings.

 i. The flowering patterns of the tree. Some trees shed leaves, avoid planting trees that shed leaves within the compound to reduce the time required to clear the leaf litter.
 j. The type of tree. Fruit trees require constant management for good results and should therefore be planted in an area that can be accessed easily for ease of management.
 k. Select trees that are termite resistant, and avoid planting Grevillea robusta in areas that are infested by termites.



NB: The area designated for planting should be fenced. If the land is not fenced, individual trees should be protected using sticks or thorny shrubs. Construction trees should be planted along the fence, whereas fruit trees can be planted in the orchards or within the school compound alongside the shade and ornamental trees.

WHO CAN PLANT THE TREES?

In a school setting, all the people within the school could plant trees. Teachers, students, school staff, stakeholders partnering with the school on different aspects are eligible to plant trees. Both male and female across different ages should be involved in planting and managing the trees. What is important is that the person who plants a tree, should be committed to continue caring for the tree or there should be a guardian appointed for trees planted by people not within the school.

SOURCES OF TREES PLANTED IN SCHOOLS

Schools could obtain tree seedlings from several sources described in the table below.

Source of seed/seedlings	Advantages	Disadvantages
School tree nursery	 The school can raise seedlings of preferred species in required quantities. It's cost effective (once the nursery is established). It's a source of income to the school if surplus seedlings are sold. It creates employment for the neighbouring community, building relationships between the school and the community. The nursery provides a learning platform for the students. Students contribute labour for raising and managing the seedlings. The school can plan and stick to the tree planting calendar. Seedlings receive minimal interference e.g., transportation, hence higher chances of survival. Pest and diseases could be easily controlled in the nursery, increasing seed survival percentage. 	 The initial cost of construction is high. Space for nursery establishment is required. Technical expertise is required to operate the nursery.

Source of seed/seedlings	Advantages	Disadvantages
Donation from stakeholders such as County Governments, Kenya Forestry Service (KFS) and Kenya Forestry Research Institute (KEFRI)	 The school does not incur costs associated with purchase of the seedlings. The school builds partnership with stakeholders. 	 Tree planting activities depend on when the stakeholders give the donation. This limits tree planting schedules due to uncertainty on when the donations will be offered. The donated seedlings may not be the preferred species. Trees could experience shocks during transportation which interfere with survival of the trees. Pests and diseases could be transferred easily from the source of the seedlings to the school.
Purchase of seedlings from public and private nurseries	1. The school can choose and purchase the species they prefer.	 Requires a budget that sometimes the school may not have. Trees could experience shocks during transportation which interfere with survival of the trees. Pests and diseases could be transferred easily from the source of the seedlings to the school.
Collection of saplings/wildings emerging within the existing trees in the forest/ plantations	1.The school could train and engage the students to collect the emerging seedlings.	 Students need to be trained on how to collect the emerging seedlings. If not correctly handled, tree survival is low.

NB: School nurseries offer several advantages over the other sources of seedlings. For more information on how to establish a tree nursery download and read this manual Tree nursery management guide for land restoration planners. Tree-Nursery-Management-Guide-For-Landscape-Restoration-Planners.pdf (regreeningafrica.org)

Also details on how to manage existing trees can be accessed here - https://regreeningafrica.org/wpcontent/uploads/2022/06/Web_FMNR_-Kenya_Manual_-28062022.pdf

CHALLENGES AND SOLUTIONS OF TREE PLANTING IN SCHOOLS

Challenges of tree planting and growing for schools in Kenya	How the challenges can be addressed
Pupils responsible/assigned to care for the trees are absent or the schools are closed.	Stewardship planning on how to take care of the trees by engaging teachers, students, parents and local authorities on tree planting plans and targets. Position the tree planting initiative within the larger goal of the school's sustainability. Involve the school's security guard. He/she will be key when it comes to protecting the trees when the schools are closed. When there is change in school management, ensure that there is proper handing over of the tree project to the new principal or headmaster.
Management skills and information often constrain production and maintenance of the trees.	Develop a monitoring plan and assign roles to individual pupils, teachers, and partners in order to monitor the progress of the trees on a quarterly basis and address any issues that may arise.
The lack of public participation in the school tree planting process has resulted in open grazing of community livestock in the school fields.	Involve the local community and authorities before, during and after the tree planting exercise.
Lack of knowledge on how to plant and cultivate the species being considered.	Train the teachers, students, parents and local community on tree planting and tree growing before planting the trees.
Water scarcity.	Plant trees that the school can water during dry season.

PART 2: PREPARING A SITE FOR PLANTING

The school head needs to engage all the stakeholders on the tree planting project, its objectives, and their roles. Jointly with the stakeholders agree on what type of trees to plant and select planting sites for each type of tree. Preparation of land is done in three main ways:

- Mark the sites where the trees will be planted.
 Clear the area to remove grass, stones and twigs.
 Always work in a team. Each team should include:
 - One person shovelling.
 - One person holding the seedling in the hole.
 - One person tamping the seedling into place.
 - A teacher or assistant should be at hand to help each team and assess the planting quality.

NB: planting areas can be marked by scraping lines with a hoe, marking the ground with ash or lime, or tying string between stakes/sticks.

MATERIALS NEEDED FOR TREE PLANTING

- Shovel spades and hoes
- Irrigation cans, buckets
- Manure/compost
- Tape measure or marked stick
- Utility knife
- Fencing posts and wire (if available or thorny branches)
- Tree seedlings
- A source of water preferably a tank

HOW TO PLANT SEEDLINGS

- Dig a hole deep enough to cover the roots. Preferably dig square holes with rough surfaces to enhance root development,
- Keep stones and twigs out of the hole because they create air pockets that cause the roots to dry out.
- Mix the topsoil with manure and refill the hole with half of the mixture. Water the hole before placing the seedling inside.
- Wet the polythene bag holding the seedlings.
- Press the polythene bag gently to loosen the seedling without breaking the soil.
- Turn the polythene bag upside down, hold it from the bottom and gently remove the seedlings without breaking the soil.
- Lay the roots straight down the hole in a natural arrangement.
- For fruit trees, plant seedlings slightly below the area with a grafting joint.
- Cover with soil. Do not bury live branches or foliage, or leave any roots exposed to the air.
- Stamp soil firmly with the toe (not the heel) to remove air pockets, creating a basin that will hold the water.
- Water the trees immediately after planting to enhance bonding of soil with the roots.



Suitable trees for planting in different parts in Kenya and their planting requirement can be accessed here as well as more detail on useful trees and shrubs for Kenya. ³

³ https://www.worldagroforestry.org/publication/useful-trees-and-shrubs-kenya

PART 3: HOW TO CREATE COMPOST MANURE FOR TREE GROWING

WHAT TO COMPOST?

The following materials can be used to start off a compost pile: ⁴

- Livestock manure
- Fallen leaves
- Shredded tree branches
- Grass trimmings

STEP 1: PREPARING THE COMPOST MATERIALS

- Shred the materials so that they take a shorter period to decompose.
- Mix both the fresh and dry materials in the ratio of one-part fresh materials to three parts dry materials

Note: If your compost pile looks too wet and smells, add more dry materials or turn more often to allow more air.

STEP 2: WATER YOUR PILE

- Sprinkle water over the pile regularly, don't add too much water to avoid rot instead of compost.
- Monitor the temperature of the pile by reaching to the middle of the pile with your hand. The compost pile should feel warm.

STEP 3: STIR UP YOUR PILE

- Turn the pile once a week with a garden fork. The best time to turn the compost is when the centre of the pile feels warm.
- Stirring the pile will help it cook faster and will keep the material from becoming tangled and developing an odour.
- In addition to aerating regularly, chop and shred raw ingredients into smaller sizes to speed up the composting process.



STEP 4: WHEN IS THE COMPOST READY

- The compost is fully cooked and ready for use when it no longer emits heat and becomes dry, brown, and crumbly.
- When planting trees, use the compost to promote tree growth, reduce soil temperature, and add nutrients or add as mulch.



PART 4: PLANNING A SCHOOL TREE PLANTING EVENT

BEFORE THE TREE PLANTING DAY

- Engage the teachers, pupils, parents, local community, and the authorities to discuss with them about the initiative.
- Select and prioritise the tree species using a participatory approach that engages the students, teachers, and local authorities.
- Agree on the area where the seedlings will be planted.

* https://www.bhg.com/gardening/yard/compost/how-to-compost/#:~:text=For%20best%20results%2C%20start%20 building.to\%20make%20it%20slightly%20moist.

- Where possible support the school to establish a school tree nursery to supply the required seedlings. In cases where the schools lack available land to establish a tree nursery, link the schools with certified tree nurseries that produce high quality tree planting materials.
- Develop an incentive mechanism to reward the students, teachers, staff, and communities participating in tree planting and tree growing.
- Produce or procure the prioritised species that are suitable for the area.
- Make the seedlings available one day before the tree planting event

NB:

- The local communities respect the area chief, which the school can capitalise on, particularly when it comes to livestock intrusion in areas where trees have been planted.
- Seedlings that are adaptable to the local environment, meet the project objective, and address the needs of the school should be prioritised.
- 3.Incentives can vary from in-kind support, provision of t-shirts, notebooks, and caps. Other ways to incentivise the school is through the promotion of competition among various teams within the schools and organising cross-learning with neighbouring schools.



DURING A TREE PLANTING DAY

A short meeting before the tree planting activity should be organised where the school's
environmental club or selected students for the planting activity are met and briefed on
what is expected of them. The selected students that will be involved in the tree planting
exercise should be dressed in comfortable outdoor clothing and shoes on the day of
planting.

- Proper handling and planting of seedlings should be discussed in the classroom or environmental club. Also, watching the weather forecasts for the tree planting day is good to ensure that students are prepared for the change of the weather.
- Labels should be prepared for all the trees that will be planted and a record of the trees should be taken when receiving the seedlings. When removing the trees from the polythene bags, students must ensure that they carefully remove them without damaging the roots and cutting the polythene bag. The bags can be reused to plant other seedlings.
- At the planting site, seedlings should be kept in the shade, protected from drying winds and with a source of clean water.

AFTER THE PLANTING EVENT

- A meeting must be held with everyone who was involved in the tree planting event to discuss the monitoring plan as well as assign roles for taking care of the seedlings.
- All the trees planted must be recorded on the Regreening Africa App for ease of monitoring.
- A team of students, staff, teachers, and community should be allocated several trees to care for.
- The team tasked with managing the trees should have a plan in place to ensure the seedlings receive adequate water, mulch, are pruned, and tree products are harvested on time.



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