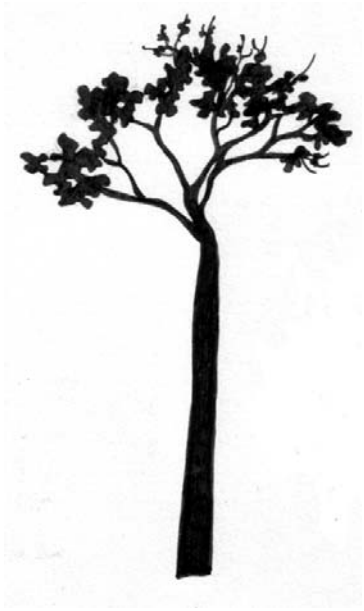
PLANTING TREES FOR FUELWOOD



What is this Action Sheet about?

Are you among those who depend on trees and shrubs to provide fuel-wood for cooking, lighting and heating? Do you have to walk further and further to find it, or have you started to buy fuel, when it used to be easy to collect for free? Fuel shortages can make it hard to cook enough food and boil enough water, affecting the health of the whole family.

If you farm or have some land, planting more trees could provide your household or institution with an extra source of fuelwood. You could even produce enough to sell to others. In any case, tree-planting has got a lot to be said for it! As well as being a source of fuel, trees can help to repair and protect the soil, whilst providing building materials and food for people and animals. This Action Sheet introduces issues to consider when planting trees for fuel. Action Sheet 35: Agroforestry, Action Sheet 49: Tree planting, Action Sheet 50: Multipurpose trees, and Action Sheet 47: Managing Forest Resources may also be helpful.

What causes fuelwood shortages?

Population growth:

- The more people there are, the more fuel they need. Population growth has led to increased pressure on forest resources
- Growing cities mean more charcoal production, for which many trees must be cut down. City dwellers, far from the forests, do not see the impacts

Deforestation:

- In semi-arid – dry – regions, trees are naturally few and far between. Even where the conditions are perfect for many trees to grow, large areas have been deforested for agriculture, charcoal or timber production. Soil erosion makes it harder for the trees to grow back.

Conflict:

- Wars make people shelter in the forests, cutting them down to fuel their survival

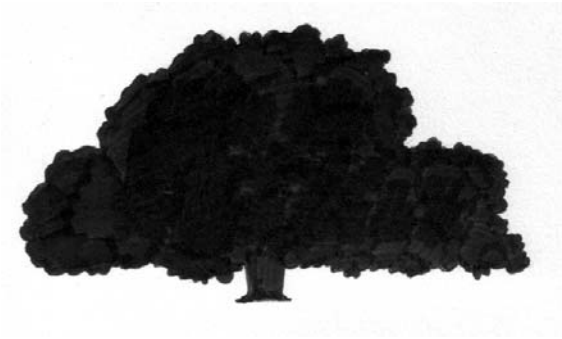
Land rights:

- Sometimes the problem is not that there are too few trees, but that people who need fuelwood are no longer allowed to harvest them. They suffer as they now have to buy fuelwood or charcoal from people with harvesting rights
- Often, people don't own the land where they harvest their fuelwood. They have no reason to manage the fuelwood for the long term because they don't know if they will be turned out tomorrow. They harvest as much as they can today

Climate change:

- Climate change may reduce tree growth in some areas, especially where deserts are expanding.

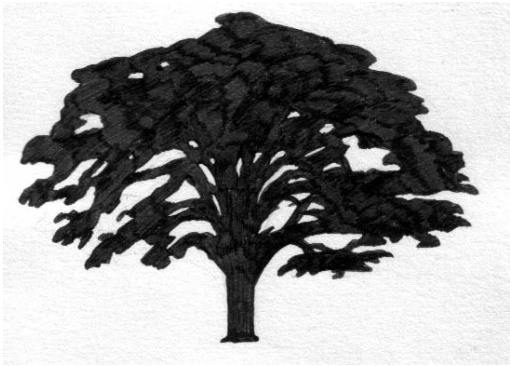
What can be done?



1. We can look after the trees we have:

Where fuelwood, timber, or any other product is collected from forests, it is vital that the forests are managed so that the forest can keep growing. All over Africa, many forests and woodlands are owned by the state. However, in many countries, governments are now giving communities the right to apply for communal forest ownership. With long-term rights to the products of the forest, the people have a reason to manage them for the future. The process is not simple, as new laws, management plans, and markets must be developed and put into practice (See Action Sheet 47: Managing Forest Resources). It's important to involve all the users of the forest, including people who collect fuelwood or depend on selling fuelwood, in decisions on new forest management rules. If the communal owners of the forest decide that fuelwood collection should be limited, then some people may need help to find new sources of energy and income.

2. Where the conditions are suitable, we could grow more trees:

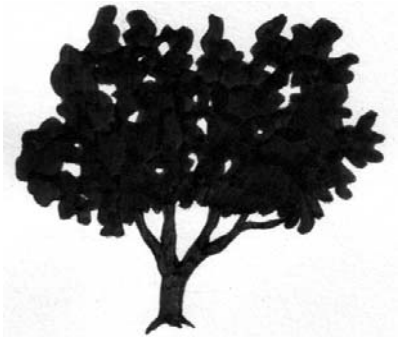


Farmers may already have secure land rights and good knowledge about the useful woody plants and trees that grow in their area. By planting more trees on their farms, they can do a lot to help themselves and the local environment. Schools and environmental education centres with land to spare could also plant trees on their land. Trees can be planted in a small wood-lot or along boundaries, or as part of a rotational fallows system (See Action Sheet 35: Agroforestry).

The *Ngitili* System

The Wasukuma people in Tanzania have a traditional system of forest and grazing land management that provides a good supply of fuelwood and fodder, as well as many environmental benefits for soil, water and wildlife. In the last three decades, this traditional system of *Ngitili* has been revived and extended by farmers in the Shinyanga region, and up to 500 000 ha of woodland have been restored. In the *Ngitili* system, an area of grass, trees and shrubs is closed off to livestock during the whole of the rainy season. During the dry season, livestock is allowed to graze inside the ngitili. It's a living fodder reserve and also provides a sustainable source of fuelwood. *Ngitili* are controlled by traditional village guards (*sungusungu*) and community assemblies (*dagashida*), and is now being investigated as a management system for grazing lands elsewhere.

What should you think about before planting more trees?



- Start small

Tree-planting is a lot of work especially at the beginning. If you start small, you won't be overworked and you can do things right. You can experiment without taking too many risks. You can get a good idea of the time and resources needed. Then when you have learnt what works and doesn't work, you can expand on your successes. Think of it as a long term investment and keep your risks to a minimum

- Sort out harvesting rights

Make sure before planting that you are entitled to use all the products at all times from the trees you plant. If you have got tenure (long term ownership of your land), you can plant trees safe in the knowledge that you can harvest your investment. Investigate ownership of land and access to trees in advance. This varies from one place to another. Find out who has the right to inherit or own trees, the right to plant trees, the right to dispose of trees. These rights may be held according to line of descent, age, gender, and religion. If possible, try to get an agreement that covers the use of trees on rented or community land. Make sure there is a way for this agreement to be guaranteed.

- Ask lots of questions

Ask advice from other farmers and local experts who have had experience in agroforestry practices. Find out about local trees and what special features they each have, how they grow, and how well they serve other animals and people. Look around and observe how nature works in your area, see how well different plants grow in different terrains, and in different soils. All this will help you to decide which tree species will suit your land and your needs. More information on tree-planting, and ideas for starting up a tree nursery, can be found in Action Sheet 49.

Which tree species are good for fuelwood?

If you are used to cooking with fuelwood, you will have your own ideas on this. To make lots of fuelwood quickly, you need fast-growing adaptable species. Tree species which grow back when cut are also very useful, as they keep producing new wood every time they are cut. This is called coppicing or pollarding.

Coppicing: Cutting a tree close to ground level to produce new shoots from the stump.

Pollarding: Cutting a tree at the crown to produce new shoots from the crown. The regrowth is out of reach of hungry goats.]

If you plan carefully, and plant trees wisely, you can plant trees that have many other benefits. Trees that provide more than one product or service are called multipurpose trees (See Action Sheet 50: Multipurpose trees). Multipurpose trees provide a variety of products that may be used by the farming family or sold for cash. Products include food, fruit, nuts, fuelwood, fodder, medicine, fibres, latex, and construction materials. By growing trees that provide materials like these, the family may get materials that it needs but usually has to pay for, has no ready access to, or cannot afford. It also increases the diversity of products that the farmer can produce, so if the price of one product drops, another can be harvested. For example, a tree that produces fodder, fuelwood and building materials can be harvested for each of these depending on which gives the best price at market.

SOME TREE SPECIES THAT CAN BE COPPICED/POLLARDED		
SCIENTIFIC	AFRICAN	ENGLISH
Indigenous species*:		
Acacia spp.	Ndebele: umpumbu,umtungabayeni Swahili: mgunga,mkababu	White thorn, Apple ring acacia (See Action Sheet 37*)*
Baikiaea plurijuga	Tswana: mokusi	Zambezi redwood, Zimbabwean teak
Bauhinia spp	Swahili: msaponi,musaponi	Mountain Ebony, Orchid tree
Brachystegia spiciformis	Swahili: mrihi,mriti,mtundu,myombo	Bean-pod tree, Zebrawood
Bridelia micrantha	Swahili: mkarakala,mkarati,mtutu,mwiza	Coast Goldleaf
Colophospermum mopane	Tswana: mophane	Butterfly tree, Turpentine tree
Erythrina spp.	Swahili: mbamba ngoma,mjafari, muhuti,mwamba ngoma	Lucky Bean tree, Red-hot-poker tree
Ficus spp.	Swahili: mrumbapori,mtschamwa	Common Wild Fig
Kigelia africana	Swahili: mvungavunga,mvungunya, mvungwa,mwegea,mwicha	Sausage tree
Parinari curatellifolia	Swahili: mbura	
Ndebele: umkhuna	Mobola plum	
Pterocarpus angolensis	Swahili: mninga Tswana: mokwa,morotomadi);	Teak, bloodwood
Rauvolfia caffra	Swahili: mkufi,msesawe,mwembemwitu	Quinine tree
Sesbania sesban	Luganda: mubimba,muzimbandeya	River bean
Uapaca kirkiana	Swahili: mkusu,nkusu Shona: muzhanje,umhobohobo	Wild loquat
Ziziphus spp.	Swahili: mkunazi Tswana: mokgalo Xhosa: umPhafa	Buffalo thorn, Cape thorn
Exotic species:**		
Eucalyptus spp.	Swahili: mkaratusi	Gum tree
Mangifera indica	Swahili: maembe,muembe,mwembe	Mango tree
Moringa oleifera	Swahili: mlonge,mronge,mrongo,mzunze	Drumstick tree, Horse-radish tree

*Indigenous species grow naturally in the area
**Exotic species have been introduced to the area, sometimes from another continent
(Source: Chivinge, 1995)

Is tree-planting always good for the environment?

No. In the past, large areas of trees have been planted in places where they do not currently naturally grow. This is known as **afforestation.** Afforestation with exotic species, like Australian Eucalyptus, can have negative effects on local ecology, and lead to loss of unique biodiversity and wildlife, who lose their natural habitats. Plantation forestry has destroyed some wetlands and grasslands in Southern Africa.

Another problem that sometimes occurs with tree-planting is when exotic species go wild and weedy, and start competing with indigenous plants.

In places where forests grow naturally, but where they have been degraded or lost, then **re-afforestation** could be appropriate. If it is possible to restore forests using locally occurring species, then local wildlife will be able to live in re-afforested areas. This could make them a valuable resource for people who work in ecotourism. People who collect traditional medicines and wild fruits will also benefit.

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What else can people do to avoid fuel shortages?

Cheap and easy changes to cooking methods can also help by reducing the amount of fuel used (See Action Sheet 59: Fireless Haybox Cookers; 60: Solar Cooking; 62: Improved Stoves). If less fuel is used, trees have more time to grow! Alternatively, you may be able to use other energy technologies such as biogas and solar water heating, (See Action Sheet 64; 66).

Burning wood produces smoke that damages lungs and eyes, causing ill health. It is important to take steps to reduce the amount of smoke inside your house (See Action Sheet 57).

ACKNOWLEDGEMENTS: This Action Sheet was compiled by Nancy Gladstone, based on the following sources:

CIFOR infobrief May 2003, Number 6, Fuelwood revisited: What has changed in the last decade

Chivinge, T, 1995 Fuelwood supply: Is a forestry solution still in the umbra?, Solar World Congress 1995 Module available on www.wire0.ises.org;

Nair, PKR (1993) An introduction to agroforestry, Kluwer Academic Publishers, Dordrecht, Netherlands.

Envirofacts leaflet on Afforestation v. re-afforestation in South Africa www.botany.uwc.ac.za/Envfacts/facts/afforestation.htm

Outreach/TVE Trees for Soils and People Education Pack

Agroforestree database, World Agroforestry Centre;

Kamwenda, G.J., 2002/4, Ngitili agrosilvipastoral systems in the United Republic of Tanzania, in Unasylva, No. 211, WOOD ENERGY, An international journal of forestry and forest industries, Vol. 53, FAO - Food and Agriculture Organization of the United Nations

FOR MORE INFORMATION

CONTACTS

World Agroforestry Centre – www.worldagroforestry.org

CIFOR (Centre for International Forestry Research) – www.cifor.org

World-wide Information System for Renewable Energy (WIRE) - http://wire0.ises.org/

RESOURCES

Websites

Practical Action (formerly known as ITDG) Technical Brief on Biomass –http://www.practicalaction.org/?id=technical_briefs

Books

Nair, PKR (1993) An Introduction to Agroforestry. Kluwer Academic Publishers, Dordrecht, Netherlands